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Economics

for Cambridge International AS & A Level

COURSEBOOK

Colin Bamford & Susan Grant

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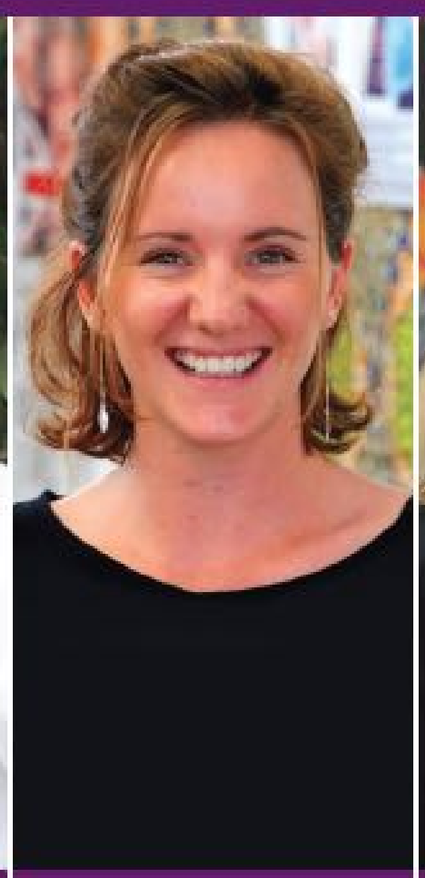

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Acknowledgements

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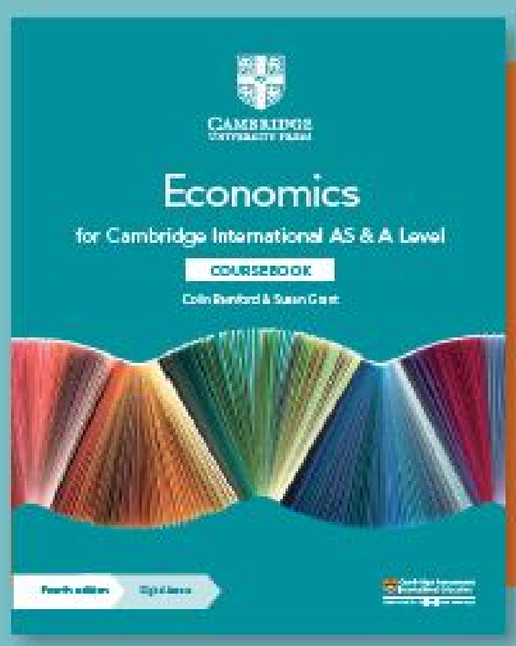
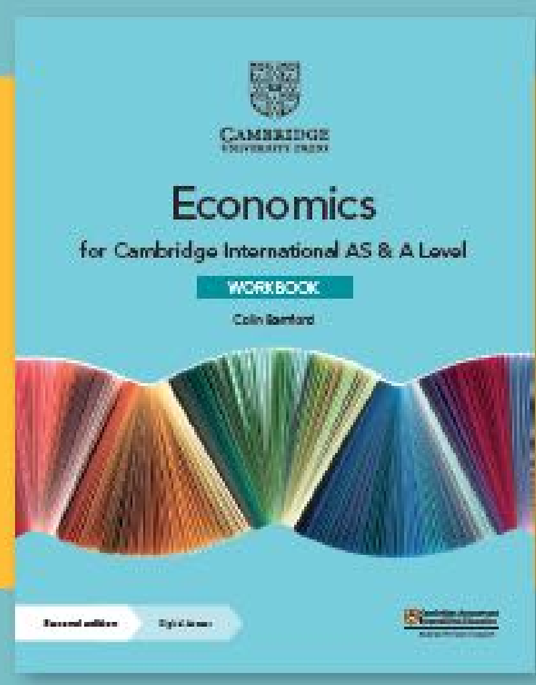
How to use this series

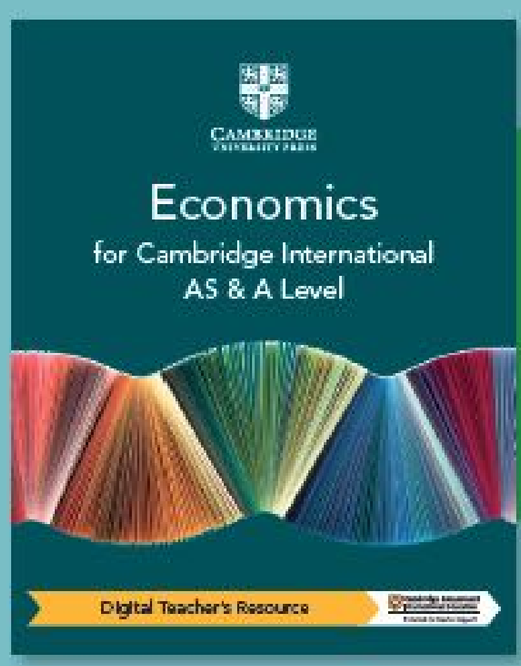
This suite of resources supports learners and teachers following the Cambridge International AS & A Level Economics (9708) syllabus. All of the components in the series are designed to work together and help learners develop the necessary knowledge and skills for this subject. With clear language and style, they are designed for international learners.



The coursebook is designed for learners to use in class with guidance from the teacher. It offers complete coverage of the Cambridge International AS & A Level Economics syllabus. Each chapter contains in-depth explanations of economic concepts with a variety of activities, case studies and images to engage learners, help them make real-world connections, and develop their analysis and evaluation skills.

The workbook provides further practice of all the skills presented in the coursebook and is ideal for use in class or as homework. It includes engaging exercises, worked examples and opportunities for learners to evaluate sample answers so they can put into practice what they have learnt.





The teacher's resource is the foundation of this series. Teachers will find everything they need to deliver this course inside, including step-by-step lesson plans, suggestions for differentiation, assessment and language support. Answers and extra materials, such as downloadable worksheets and PowerPoint presentations, are also included.

How to use this book

Throughout this coursebook, you will notice recurring features that are designed to help your learning. Here is a brief overview of what you will find.

LEARNING INTENTIONS

Learning intentions open each chapter. They help with navigation through the coursebook and indicate the important concepts in each topic.

ECONOMICS IN CONTEXT

Economics in context introduces you to the content in a chapter. These place some of the key ideas contained in the chapter into a real-world economics context. They raise important issues for discussion, with questions that allow you to look in more detail at the topic.

KEY TERMS

Key vocabulary and formulae are highlighted in the text when they are first introduced. An accompanying definition explains the meanings of these words and phrases. You will also find definitions of these words in the glossary at the back of this book. There is also a separate appendix for all key formulae.

TIPS

Tips are provided throughout this coursebook to help with your learning. The tips might cover how to avoid common errors or misconceptions, advice on essay-writing, evaluation and analysis, or guidance on how answers are arrived at.

KEY CONCEPT LINKS

These links explain how the coursebook's topics are integrated with the key concepts in the Cambridge International AS & A Level Economics syllabus.

ACTIVITY

There are various activities throughout this coursebook. These include short case studies with evaluative or analytic questions, as well as opportunities to produce your own work either individually, in pairs or in groups.

REFLECTION

Reflection questions direct you to look back on an activity and encourage you to think about your learning. You will reflect on and assess the process that you used to arrive at your answers.

THINK LIKE AN ECONOMIST

Think like an economist provides you with an opportunity to apply economic principles to current events in various international settings. You will look at your life through an economics lens, and also apply your analysis skills and use evidence to look at the world of work. Designed to encourage group discussion, the short case studies and accompanying questions will help you to make connections between employment and studying economics.

SELF-EVALUATION CHECKLIST

At the end of each chapter, you will find a series of statements outlining the content that you should now understand. You might find it helpful to rate how confident you are for each of these statements when you are revising. You should revisit any topics that you rated 'Needs more work' or 'Almost there'.

EXAM-STYLE QUESTIONS

Each chapter contains a set of multiple-choice questions. You can use these to assess the knowledge you have gained in this section of your course. In addition, each unit ends with a set of more demanding data response and essay questions. These can be used to assess what you have learnt across several chapters of the coursebook.

You can find the answers to the activities and exam-style questions in the digital coursebook.

Note: Throughout the text, dollars ($) refer to US dollars, unless otherwise stated.

Introduction

Who is this book for?

Congratulations on obtaining a copy of this new coursebook. This fourth edition has been written to provide in-depth support for the new Cambridge International AS & A Level Economics (9708) syllabus. Structured to follow the order of the syllabus, the coursebook will prove useful for both learners and teachers of economics. The book will also be of benefit to learners and teachers of other A Level or equivalent economics courses. In addition, it will help university students who are new to economics and who want an introduction to the subject.

What makes this book different?

This coursebook includes a range of features that make economics relevant to the real world and bring the subject up to date. These features are designed to develop your skills as an economist.

There is a chapter devoted to each of the 53 topics covered in the syllabus. Each chapter starts with a real-world case study that provides a focus for discussions with other learners on key issues in economics. Each chapter also contains a number of key terms, a variety of activities, key concepts, tips, a 'Think like an economist' feature, multiple-choice exam-style questions and a self-evaluation checklist. At the end of each unit, there are exam-style data response and essay questions. All of these features are designed to build up your understanding of economics, encourage you to think for yourself and to develop your skills on how to make meaningful judgements.

How to use this book

You can use this book to support and develop your learning as you progress through your course. The key terms will help you understand the main concepts. The activities will ensure that you can use the knowledge and skills you have gained in a variety of ways to enhance what you have learnt from the coursebook. The key concepts feature shows how aspects of the topic can be related to the key concepts identified in the syllabus. The tips will help you avoid common mistakes and provide some guidance on writing answers. The 'Think like an economist' feature will provide you with the opportunity to apply the skills you are gaining to issues that economists are currently exploring. The self-evaluation checklists can be used to check your level of understanding after completing each topic. The exam-style questions throughout the coursebook enable you to regularly assess the understanding that you have gained and monitor your progress.

You can also use the accompanying *Cambridge International AS & A Level Economics Workbook* to develop your skills. The workbook provides more questions, activities and sample answers, and includes advice on enhancing your answer-writing skills.

Economics is fascinating subject. We hope that this book will help you enjoy the subject and provide you with success on your course.

Colin Bamford and Susan Grant

Introduction to command words

The command words and definitions in this section are taken from the Cambridge International AS & A Level Economics (9708) syllabus for examination from 2023. You should always refer to the appropriate syllabus document for the year of your examination to confirm the details and for more information. The syllabus document is available on the Cambridge International website at www.cambridgeinternational.org.

The purpose of command words is to make it clear how you should approach answering a question. It is important that you understand what each command word is asking you to do.

These are the command words used in the Cambridge International AS & A Level Economics (9708) syllabus and in the exam-style questions in this coursebook. In time and with practice, you will find that you can understand what skills you have to demonstrate in your answers to particular questions.

Command word	What it means	Guidance
Analyse	examine in detail to show meaning, identify elements and the relationship between them	You should write an answer that shows how the points in your answer link together, avoiding unnecessary detail.
Assess	make an informed judgement	You should write about both sides of a particular issue and then come to a supported conclusion about which, if any, is best.
Calculate	work out from given facts, figures or information	You should give a clear answer that includes the units involved e.g. $US.
Comment	give an informed opinion	You should give a view on a particular issue based on evidence and not unsupported opinion.
Compare	identify/comment on similarities and/or differences	You should make sure that your answer really does compare two things in terms of their similarities and differences and not just state what these things are.
Consider	review and respond to given information	You should make a brief point that contains some evaluation.
Define	give precise meaning	You should make sure that any definition is correct.
Demonstrate	show how or give an example	You should clearly show that your answer is drawn on evidence.
Describe	state the points of a topic / give characteristics and main features	You should give appropriate knowledge of a particular topic or issue.
Discuss	write about issue(s) or topic(s) in depth in a structured way	You should give a balanced account of both sides, for and against, an issue or argument.
Evaluate	judge or calculate the quality, importance, amount, or value of something	You should aim to make a reasoned judgement and include a supported conclusion on the merits or otherwise of something.
Explain	set out purposes or reasons / make the relationships between things evident / provide why and/or how and support with relevant evidence	You should write an answer that contains clearly identifiable reasons; you may have to draw upon data or other information to make your explanation clear.
Give	produce an answer from a given source or recall/memory	You should provide an answer from memory or from a source that is familiar to you.
Identify	name/select/recognise	You should be precise about what you have identified.
Justify	support a case with evidence/argument	You should be confident that your justification is supported by relevant evidence.
Outline	set out main points	You should write a clear answer avoiding detail.
State	express in clear terms	You should give an uncomplicated yet valid factual statement.

〉Getting started with Cambridge International AS & A Level Economics

The guidance in this section has been written by the authors. References to assessment and/or assessment preparation are the publisher's interpretation of the syllabus requirements and may not fully reflect the approach of Cambridge Assessment International Education.

You have selected to study a subject that is highly regarded by universities and employers. Many learners who have started economics at AS Level gain interesting and meaningful jobs. Many learners decide to study economics at university and then go on to successful jobs in industry, finance and government.

Economics can change people's lives. The advice of economists is well-respected. For instance, it helps to reduce unemployment, to raise living standards and to improve the quality of life. Economists are also at the heart of organisations that are seeking to combat climate change and poverty. An economist has a keen interest in world events, a logical mind and good communication skills.

Many students of AS Level and A Level Economics are new to the subject. This book will introduce you to the subject and will develop the knowledge and skills you need. If you have studied Cambridge IGCSE™ or O Level Economics you will have knowledge of some of the topics that will be covered in this course. However, you will have to analyse these topics in more depth, cover some new topics and develop stronger analytical and evaluative skills.

How different is AS Level and A Level from Cambridge IGCSE and O Level?

Some topics are covered in more depth at AS Level and A Level than at Cambridge IGCSE and O Level. For example, not only will you need to know how unemployment is measured but you will also need to consider the possible difficulties in its measurement.

You will encounter a number of new topics at AS Level and A Level. For example, you will learn about consumer surplus and the terms of trade.

The skills required at AS Level and A Level are the same. These are knowledge and understanding, analysis and evaluation. The same emphasis is put on analysis but there is more emphasis placed on evaluation at A Level and less on knowledge and understanding. So, the key differences between this course and Cambridge IGCSE and O Level Economics are:

- more depth of subject content
- more breadth of subject content with new topics covered
- more emphasis on evaluation.

What is the difference between AS Level and A Level Economics?

In subject terms, you study both microeconomics and macroeconomics at AS Level and A Level. What you have learned at AS Level serves as a foundation for A Level; the topics at A Level involve more depth and in many areas, there is more emphasis on real world applications. This is particularly the case in macroeconomics. The ways in which you are assessed are very similar at AS Level and at A Level, with multiple-choice, data response and essay questions.

Studying AS Level and A Level Economics is a continuous process. You will need to be aware that although A Level questions are drawn from the A Level syllabus, knowledge of material from the AS Level syllabus is assumed.

What will you need?

Among the resources you will need are:

- a copy of the syllabus – as you progress through your course, you should check that you understand each topic on that part of the syllabus
- this coursebook and the *Cambridge International AS & A Level Economics Workbook* – these will help you understand the topics and develop your skills
- past examination papers – these will be useful for you to see the types of questions you might come across in an examination and will provide you with an opportunity to get practice in answering the questions; as the syllabus has been revised recently, these papers will not fully reflect the new question papers
- a way of keeping your notes, assignments and other written resources – you may decide to keep these on paper in a file or you may decide to use a laptop or tablet computer
- access to economics news reports, reliable websites and economic blogs
- a calculator to use on your assignments, activities and questions in the coursebook, workbook and past examination questions
- a ruler to use when drawing diagrams.

How mathematical is economics?

At AS Level and A Level, the key mathematical skills you will need are numeracy, data interpretation, and the ability to draw diagrams. The key specific skills are:

- calculating and interpreting percentages and percentage changes
- calculating and interpreting ratios
- calculating averages
- calculating and interpreting index numbers
- using and interpreting formulae
- interpreting tables of data, scatter diagrams, pie charts, line graphs and bar charts
- drawing a range of diagrams.

It is recommended that learners starting this course have studied Cambridge IGCSE (Extended) or Cambridge O Level in Mathematics or equivalent.

What other skills will you need?

These include the following:

- Research skills: You will need to keep up to date with changes in economic events and investigate economic issues such as the causes of poverty.
- Decision-making skills: You will need to develop the ability to assess both sides of an argument, come to a judgement and support it.
- Oral communication skills: The coursebook will provide you with the opportunity to debate economic issues with other learners. Some of these opportunities will be in pairs and some in larger groups. Expressing your ideas and informed views, and listening to the ideas and informed views of others, will strengthen your knowledge and understanding, your analytical and evaluative skills.
- Written communication skills: You will have to answer essay questions. At AS Level these will be in two parts and at A Level in one part. In both cases, it is important that you write clearly. See the section below on 'Introduction to economics essay writing skills'.

The information in the following two sections is taken from the Cambridge International AS & A Level Economics (9708) syllabus for examination from 2023. You should always refer to the appropriate syllabus document for the year of your examination to confirm the details and for more information. The syllabus document is available on the Cambridge International website at www.cambridgeinternational.org.

How will you be assessed?

As part of your course, it will be useful to consider the syllabus's assessment objectives:

Knowledge and understanding (AO1)

- Show knowledge of syllabus content, recalling facts, formulae and definitions.
- Demonstrate understanding of syllabus content, giving appropriate explanations and examples.
- Apply knowledge and understanding to economic information using written, numerical and diagrammatic forms.

Analysis (AO2)

- Examine economic issues and relationships using relevant economic concepts, theories and information.
- Select, interpret and organise economic information in written, numerical and diagrammatic form.
- Use economic information to recognise patterns, relationships, causes and effects.
- Explain the impacts and consequences of changes in economic variables.

Evaluation (AO3)

- Recognise assumptions and limitations of economic information and models.
- Assess economic information and the strengths and weaknesses of arguments.
- Recognise that some economic decisions involve consideration of factors such as priorities and value judgements.
- Communicate reasoned judgements, conclusions and decisions, based on the arguments.

What are the key concepts in economics?

The syllabus identifies six paired key concepts and one singular concept. These are:

- scarcity and choice
- the margin and decision-making
- equilibrium and disequilibrium
- time
- efficiency and inefficiency
- the role of government and the issues of equality and equity
- progress and development.

You are obviously aware of the concept of time. Economists often distinguish between the short-run and long-run effects of economic events and policy changes. Some of the other terms may not mean much to you now but you will become familiar with them as you progress through your course. The coursebook regularly highlights where some of these concepts apply.

Introduction to economics essay writing skills

To write a strong answer, the following are important:

- Plan your answer: This does not have to be a detailed plan. You may just want to jot down some ideas but a plan can help you structure your answer, avoid you forgetting points and ensure that you focus on the specific question set.
- Be clear and precise in your writing: Use words you understand and when using technical terms, be specific. This is because economics has many terms that are very similar.
- Write impersonally: In other words, do not use 'I' or 'we' in your essays. This applies particularly when you are asked to make an evaluation of an economic issue or argument.
- Take care with sentences and punctuation: In general, try to write in short sentences, to the point and containing words you understand and know how to use.
- Use one idea per paragraph and develop your ideas: This makes it easier for someone reading your work to know what your answer is about and see how your idea has been developed.
- Support the statements you make: Develop the points you make and the arguments you put forward. Do not jump stages. For example, do not just write that an increase in wages may reduce poverty – explain why it might.
- If you are asked to 'assess, evaluate or discuss', come to a conclusion, making a judgement: This judgement should be supported by analysis you have provided in your answer. (Also see the third tip below).

Tips on becoming an effective learner

Here are some tips that can help you as you progress through your course:

1. Be prepared.
2. Think like an economist.
3. Base evaluation on sound analysis.
4. Use real world examples.

1 Be prepared

After each lesson, you should review what you have learnt. Make sure you engage in active learning. This involves you taking part in the learning process by doing something with information on economic topics. This will reinforce your understanding and can help you see the

links between topics. This book will help you with this. As mentioned earlier, you can complete the activities and answer the multiple-choice questions at the end of each of the chapters. This should be done on a regular basis. There are also the full data response questions and structured essay questions at the end of each of the eleven units. The activities in each chapter, which are designed for you to work with other learners, will develop your confidence and understanding of the subject matter of economics. You can also do a variety of other activities including writing your own multiple-choice questions and producing mind maps.

2 Think like an economist

Good economists have a range of skills. They are able to analyse and evaluate economic issues, interpret and use diagrams and have an awareness of what is happening now and in the past in the domestic and global economy. They also have an understanding of what is likely to happen in the future and use and interpret data to make economic forecasts.

Good economists think logically. They base their comments on sound economic analysis, considering both sides of an argument, rather than uninformed opinions.

3 Base evaluation on sound analysis

An important aspect of studying AS and A Level Economics is that what you learn should allow you to evaluate economic issues. To do this effectively, your evaluation should be based on a foundation of sound economic analysis. Questions that contain command words such as 'Consider', 'Discuss', 'Assess' and 'Evaluate' are asking you to examine arguments for and against a topic; in the case of some essay questions, you will need to make a final judgement.

4 Use real-world examples

It is beneficial to use real-world examples to illustrate the points you are making in your answers. Some of these can be drawn from markets in your economy or from your economy's macroeconomic performance. For example, in answering a question on changes in equilibrium price, you might be able to mention how a period of bad weather has pushed up the price of an agricultural product in your country. In answering a question on the effectiveness of using fiscal policy to reduce unemployment, your answer could be strengthened by exploring how recent changes in taxation and government spending have affected unemployment in your country. To provide good examples, keep up to date with what is happening in your economy and major economies such as China, Germany and the USA.

The next step

Having considered some of the features of the syllabus and the nature of economics, you are now ready to start this course. You will find it challenging but also interesting and rewarding. Economics is a subject that most learners become more confident in as they progress through their course. This is because some of the same terms and concepts are used when covering different topics. You will learn to think like an economist and you will build up what is sometimes called the economist's toolkit. This is the term used to describe the skills and techniques economists have available to analyse economic problems and issues. We wish you the best of luck in your studies.

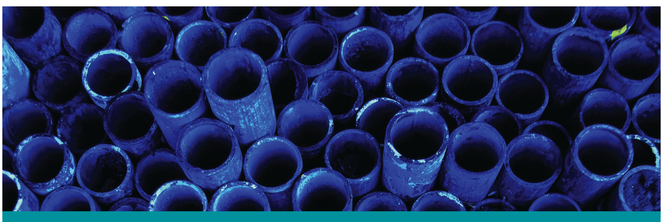
› Unit 1

Basic economic ideas and resource allocation (AS Level)

UNIT INTRODUCTION

This unit provides you with an introduction to studying economics. The chapters introduce you to terms and concepts that form part of ‘the economist’s tool kit’. You will find these terms and concepts invaluable as your study of economics progresses.

The subject of economics has grown out of the fundamental economic problem. When resources such as an individual’s income are limited, choices have to be made. A simple model, the production possibility curve, is used to show how the fundamental economic problem applies in an economy. The unit explains why governments find it necessary to provide some goods and services for us.



Chapter 1

Scarcity, choice and opportunity cost

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the fundamental economic problem of scarcity
- explain the need for individuals, firms and governments to make choices
- define the meaning of opportunity cost
- explain how opportunity cost results from the need to make choices
- explain the basic questions of resource allocation.

ECONOMICS IN CONTEXT

The economist's role in a changing world

This is certainly an interesting time to be studying economics given all the problems in the global economy. As the 2019 joint Nobel Prize economist, Esther Duflo, has said, 'Economists have something to contribute'. Let us look at the topic of climate change, where this is undoubtedly true.

Figure 1.1: In 2019, the French–American economist Esther Duflo was jointly awarded the Nobel Prize in Economic Sciences with economists Abhijit Banerjee and Michael Kremer for 'their experimental approach to alleviating world poverty'

Few would now disagree that the effects of climate change can no longer be ignored. Issues to be addressed include:

- Should we fly less?
- Should we source more of our needs locally?
- Should we eat less meat and fewer animal products?
- Should high-income countries do more to help other countries?

The list does not stop here. In all these issues, economists have something to contribute.

Discuss in a pair or a group:

- Is there anything you could do to reduce your carbon footprint?
- What do you think economists could suggest to help combat climate change?

1.1 The fundamental economic problem

The **fundamental economic problem** arises because **resources** (inputs used to produce goods and services) are scarce while people's **wants** are unlimited. Wants are unlimited because there is always likely to be something else that a person wants whatever their income. For an individual on a low income, a want may be a car; for a millionaire a want may be a personal jet aircraft. Both wants are unobtainable on each individual's current amount of income.

It is important not to confuse wants and **needs**. Needs are things like food, shelter and clothing that are needed for survival.

The fundamental economic problem means that individuals, firms and governments have to make choices due to the **scarcity** of resources. Making a **choice** involves taking decisions on how to allocate scarce resources between many competing uses.

Figure 1.2 shows the fundamental economic problem.

TIP

In economics, a need is not the same as a want. Learners often confuse need and want. An individual may not have the income required to satisfy all their wants. A need tends to be more important than a want because needs are required for survival.

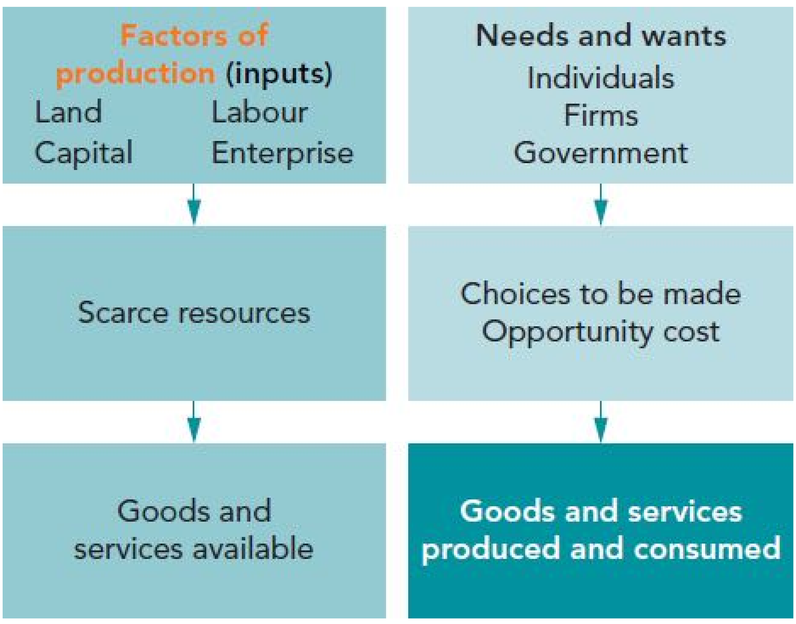


Figure 1.2: The fundamental economic problem

KEY CONCEPT LINK

Scarcity and choice: The fundamental problem in economics is that wants are unlimited, but resources are scarce. This means a choice always has to be made between competing uses for resources. There will be an opportunity cost each time a choice is made. Look out for the theme of scarcity and choice in economics.

ACTIVITY 1.1

1 a Write a list of ten wants starting with your most important want first. Do not discuss your list with other learners. Ask your teacher to make their own list too. Once everyone has completed their list, share the results in class.

b What did you find? You probably agreed on the first few choices, but it is likely you saw a big variation in your choices further down the list.

2 In a group, discuss how your list compares to lists compiled by others with very different life experiences, such as your economics teacher.

3 Discuss whether there is likely to be an end to your list if you are not limited to ten choices. Remember that wants are continually expanding, developing and changing.

1.2 Unlimited wants

There are certain basic needs that must be satisfied if we are to stay alive. These include the essentials items of food, shelter and clothing. Also, you might identify wants that seem less essential but that improve the quality of life, for example television, cars and trips to the cinema. These wants are sometimes called luxuries, but remember that what is a luxury for one individual may be considered an essential for others. This is because everyone has a scale of preference, on which you place your more urgent wants at the top and the less urgent ones at the bottom. Each individual's scale of preference is a product of a set of influences, including culture, upbringing and life experiences. Together these influence your likes and dislikes. Unsurprisingly, scales of preference may vary widely between individuals.

Some wants expand as we grow older and make different life choices. Imagine how an individual's needs may change as they move from a single-person household to a family household (for example, how their wants may change from a small car with two doors to a large, family car with five doors).

Some wants may develop and expand when individuals see others enjoying particular goods and services and so desire to have those goods as well. Sometimes wants change as a result of new experiences (for example, people may want to improve their fitness after seeing a TV programme about obesity).

All of this points to the fact that people will always have wants. While businesses are continually finding new, more efficient ways to produce more and more goods and services with the resources available, society is still faced with the fundamental economic problem of limited resources and unlimited wants.

1.3 Choice and opportunity cost

Given limited resources and unlimited wants, individuals, firms and governments have to choose which wants to satisfy. They have to make a choice between alternative wants. The true cost of any choice made between alternatives is expressed by economists in terms of **opportunity cost**. Opportunity cost is the cost of the choice in terms of the next best alternative. For example, suppose you have $15 to spend on yourself. You can either buy a video game that costs $15 or two paperback books for $7.50 each. You cannot buy both the video game and the books. You have to choose between the alternatives. You decide to buy the video game. The next best alternative is the books. Therefore, the opportunity cost of the video game is the two books.

Opportunity cost shows you the real cost of your choices. It can be applied in a variety of contexts and is helpful for decision-makers such as individuals, firms and governments.

TIP

Opportunity cost is a recurring topic throughout the syllabus. Remember to consider opportunity cost whenever you are studying situations where choices have to be made.

ACTIVITY 1.2

Air transport is one of the biggest contributors to the emission of greenhouse gases.

In a group, consider the opportunity costs involved if the future growth of air transport is restricted. Produce a poster for your classroom wall to show all the points that need to be considered.

REFLECTION

In your answer to Activity 1.1, you ranked your top ten ‘wants’ in order. Why do you think people might have to do this in real life? How does this increase your understanding of the concept of ‘wants’? Have you ever thought about how you might put your own ‘wants’ in rank order?

1.4 What to produce, how to produce and for whom to produce?

The fundamental economic problem leads to three important questions. The three questions are related to the allocation of resources. All economies have to answer these questions.

- What to produce?
- How to produce?
- For whom to produce?

What to produce?

Economies cannot produce everything, so they must decide what to produce and in what quantities. For example, firms and governments have to choose whether to produce lots of goods and services, such as food, clothing and vehicles, to improve the standard of living, or whether to produce lots of military equipment to improve national defence. The evidence for this is that some countries spend a lot more than others on their national defence.

How to produce?

Firms have to consider how resources are used so that they achieve the best outcome. Firms need to consider how they can get the maximum use out of the resources available. Sometimes firms need to consider issues other than purely economic concerns when deciding how to produce. It may be that an economy could produce more goods and services by using cheap labour, but there may be moral objections to the use of cheap labour.

Crop yields could be increased through more intensive methods of cultivation. Also, better use might be made of underground water supplies, as seen in Egypt where potatoes and other crops are grown in the Sahara desert.

For whom to produce?

Governments have to decide whether everyone is going to have a more or less equal share of what is produced or whether some will have more than others. Some economies aim to create a more equal society through policies that redistribute wealth and income from the rich to the poor. This could be achieved through the use of taxation. There are other economies, by contrast, that have extreme inequalities of income and wealth, often based upon inheritance. Inequality is a significant issue in most emerging economies where there is a widening gap between rich people and people living in poverty.

ACTIVITY 1.3

In 2019, 28% of Japan's population was aged 65 years and over; by 2050, this figure is estimated at 38%. Total population is also projected to fall from 125m in 2019 to 100m in 2050. Suggest the likely effect of these changes on

a what to produce

b how to produce

c for whom to produce.

KEY CONCEPT LINK

Scarcity and choice: The three fundamental economics questions are typical of a trade-off between economic freedom for firms and individuals and a government that desires greater social equality and fairness.

THINK LIKE AN ECONOMIST

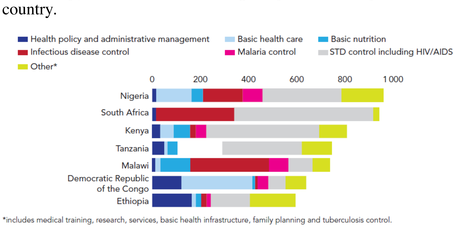
Healthcare funding issues in Africa

Figure 1.3: Healthcare in the Democratic Republic of the Congo

The World Health Organization (WHO) has warned that a lack of funding is hindering the fight to improve healthcare in Africa. Governments in Africa spend just 1% of the world's financial resources on healthcare but bear 24% of the global burden of diseases. Spending by individual governments varies greatly – spending is highest in Namibia and South Africa, both of which spend 10 times more per head than in Kenya and Tanzania and at least 20 times more per head than in Ethiopia and the Democratic Republic of the Congo, according to the WHO study.

The data can be misleading since the World Bank, the private sector and charities such as the Gates Foundation spend huge sums on funding healthcare, especially in Sub-Saharan Africa.

Total funding is not the only challenge. Because not all wants can be satisfied, funding has to be directed to those areas of healthcare where there is most need. Figure 1.4 shows how spending on different types of healthcare varies greatly from country to country.



*includes medical training, research, services, basic health infrastructure, family planning and tuberculosis control.

Figure 1.4: Healthcare spending by type for selected African countries ($ million) 2016

Funding for healthcare in Africa is inadequate in relation to what is needed. Imagine you are an economist employed by the WHO.

1. Consider how you might obtain more funding for healthcare in Africa.
2. How could the additional funds be allocated to give maximum benefit?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 The fundamental economic problem exists because:

A resources are scarce in relation to unlimited wants.

B a business does not know how much it can sell.

C resources are scarce in relation to needs.

D we cannot always have what we want.

2 Wants are unlimited because:

A there will always be something we would like to have.

B there will always be something we need.

C our income is limited.

D we are never aware of what we might want in the future.

3 A government has limited resources to fund the wants of its population. This means that:

A the government has to make choices.

B the government is unable to provide any goods free of charge.

C the government has to cut the pay of government workers.

D the government is unable to borrow more funds.

4 A teacher usually marks examination papers during the school break. She receives $900. Instead, this time, she has decided to do some maintenance work on her apartment. To get someone to do the work would cost $600.

What is the opportunity cost if the teacher decides to do the maintenance work herself rather than mark examination papers?

A $300

B $600

C $900

D $1500

5 You are a student preparing for an assessment. A friend calls round and asks you to play a game of football. You decide to stay at home to prepare your assessment.

What is the opportunity cost?

A Your friend's team loses the football match.

B You save money on bus fares by not playing.

C The healthy exercise you will get by playing football.

D A higher mark for your assessment.

6 Which of these questions is not one an economy has to address?

A how resources are used

B for what resources are used

C where resources are used

D for whom resources are used

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand why the fundamental economic problem of scarcity occurs			
Understand why individuals, firms and governments have to make choices because resources are scarce			
Understand that opportunity cost results from the need to make choices and is the next best alternative that is foregone			
Analyse why the fundamental economic problem requires all economies to answer three important questions: what to produce, how to produce, for whom to produce			

Chapter 2

Economic methodology

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain why economics is a social science
- differentiate between facts and opinions (positive and normative statements)
- explain why economists use the term *ceteris paribus*
- explain when to refer to a time period such as 'short run', 'long run' and 'very long run'.

ECONOMICS IN CONTEXT

Why economics is important

Economics covers a wide range of issues like the ones in the media headlines in Figure 2.1. You are likely to learn about economics issues in newspapers, on television and through the internet.

Vietnam growth to reach 5.5%

Price of bread to rise after wheat costs reach record high

Oil supply crisis to send prices soaring

Just what polluted India needs… more electric cars to come to the market

Brazil battles against rising inflation

UK pound exchange rate at all-time low against dollar

Figure 2.1: These media headlines from around the world show the sorts of issues and concerns that interest economists

Economists have developed their own language of terms and concepts that they use to explain and evaluate the issues that affect our world and everyday lives. In this book you will learn the terminology used by economists. Some of the words may seem familiar, for example 'demand', 'market', 'unemployment', 'inflation' and so on. Other terms will be new to you. By the end of your AS Level studies, you should be able to use these words and terms in a useful way to enable you to think like an economist.

The words in colour in the headlines are in general everyday use. The words have very specific meanings when used in economics, as you will see as you study this book.

Discuss in a pair or a group:

- Look at two or three recent newspapers. Identify any key economic terms you can find.
- Select one article. Summarise the main points. State why these points may be of interest to economists.

2.1 What is economics?

Think back to Section 1.1 and your understanding of the fundamental economic problem. You can use your understanding to write a simple definition of economics, for example 'the study of how to allocate scarce resources in the most efficient way'.

TIP

Try to read the business section of a good newspaper at least once a week. You might be surprised by how much economics it usually contains.

The study of economics is divided into two parts: **microeconomics** and **macroeconomics**, as shown in Figure 2.2.

Economics

Microeconomics is the study of individual markets. It looks at the behaviour and decisions of households (consumers) and firms (businesses), and how they interact. An example of a microeconomics topic is the factors that explain why consumers buy some goods and not others.

Macroeconomics is the study of the whole economy or group of economies. Macroeconomics also looks at how consumers and firms interact but on a broader level. Macroeconomics is likely to include some form of government involvement. For example, macroeconomics covers the reasons why one economy grows at a faster rate than another economy.

Figure 2.2: The study of economics is divided into microeconomics and macroeconomics.

Nowadays, the division of economics between microeconomics and macroeconomics is less clear cut. For example, some aspects of the operation of markets affect the macroeconomy, such as an increase in demand for cars could affect an economy's export and import trade.

TIP

The division of economics between microeconomics and macroeconomics is not always a clear one. You need to remember this when answering questions.

2.2 Economics as a social science

Economics is a social science. The 'social' aspect is because economics looks at human behaviour, particularly in relation to satisfying human needs and wants. Economics is also a 'science'. This is because of the way that economists put forward and investigate theories in the same way as scientists. Like scientists, economists put forward new ideas that seek to explain the ever and rapidly changing global economy in which we all work and live. Figure 2.3 shows a simplified view of how the scientific process comes about.

Figure 2.3: Economics as a science

The theories put forward by economists are often referred to as **models**. Models are a simplified representation of what has actually taken place and are usually explained mathematically. The value of models is that they can be used over and over again to test a theory in many different contexts.

2.3 Positive and normative statements

Economists may analyse facts without making any value judgements. For example, an economist might make these statements:

- A fall in supply of petrol leads to an increase in its price.
- A 10% increase in tourist numbers in Mauritius has created 10% more employment.
- An increase in taxation on cars results in fewer cars being sold.
- The inflation rate in 2021 is 8%.

All of the above statements refer to what will happen, based on actual evidence or observation. The economist does not give their opinion or make a value judgement. Statements like these are known as **positive statements**.

When an economist expresses an opinion or makes a value judgement within their analysis, the statement can no longer be proven. Statements that express a value judgement are referred to as **normative statements**. For example, each of the normative statements below contains a value judgement within the analysis:

- A fall in the supply of petrol should lead to an increase in its price.
- A 10% increase in tourist numbers in Mauritius is likely to create at least 15% more jobs in the tourist industry.
- An increase in taxation on cars might result in a fall in demand for new cars.
- The inflation rate of 8% in 2021 was the worst in 10 years.

Figure 2.4: A street market in Mauritius

ACTIVITY 2.1

1. Convert each of the normative statements below into positive statements:
   - **a** The price of onions should increase due to prolonged drought.
   - **b** An increase in government spending on the railways is the best way to increase employment in India.
   - **c** It is wrong to always assume a more equal distribution of income in a planned economy compared to a market economy.
2. Discuss in a pair: What difference does this make to an economist's explanation of each statement?

2.4 Meaning of the term *ceteris paribus*

Ceteris paribus is a Latin term widely used by economists to refer to a situation where 'other things remain equal' or are unchanged. *Ceteris paribus* allows economists to simplify a situation by assuming that apart from a single change of circumstances, everything else is unchanged. In this way, economists can model the effects of one change at a time.

For example, when analysing the reasons why consumers purchase a product, there may be many reasons. The most important reason is usually price. In analysing the effect of a change in price, it is understood that all other factors that determine consumer demand are *ceteris paribus*. In other words, they are not subject to change.

TIP

As you study economics, you will realise the importance of the term ceteris paribus when explaining change. Ceteris paribus simply means 'other things equal'. Remember to include the term in any written answers where relevant.

The margin

Like *ceteris paribus*, 'the margin' is another tool economists use to simplify a situation. Many aspects of microeconomics involve analysing decisions 'at the margin'. By this, economists mean that a small change in one variable, such as consumer income, will lead to further (small) changes in other variables, such as consumer spending and imports. Using the margin to analyse issues enables economists to predict what the likely impact of change might be.

KEY CONCEPT LINK

The margin and decision-making: Decision-making by consumers, firms and governments is based on choices at the margin. For example, firms will produce up to the point where the revenue generated by an extra unit of output is equal to the cost of producing it. This concept – like scarcity and choice – can be applied in many different situations that economists study.

REFLECTION

Do you think that you are beginning to understand some of the topics that are part of economics? If not, what can you do to improve your understanding?

2.5 The importance of time periods

We live in a world of change. Change is all around us – in daily life, at home, at work, and in the ways in which economies function. Economists take change into account in their analysis of situations. They use time periods to assess how, over time, change can influence the concepts that economists seek to model and explain. For example, the following time periods are often used when economists discuss the factors of production (resources or inputs that are used in the production of goods and services – land, labour, capital, enterprise):

- The **short run** is a time period in which it is possible to change only some inputs. Typically, it is when labour, a variable resource or factor of production, can be increased or decreased to change what is produced. So, with all other factors of production such as capital resources remaining the same (*ceteris paribus*), a firm taking on more workers may be able to increase the quantity of goods it produces.
- In the **long run**, it is possible for all factors of production or resources to change. So, in the long run, a firm may improve the quality and quantity of its capital by building a new factory to increase its output. This will usually allow the firm to be more efficient since it has had time to assess the best way to achieve its objectives.
- The **very long run** is where not only are all factors of production variable but all other key inputs are variable. Key inputs can include technology, government regulations and social concerns. The key concept 'Time' may be used to show where the distinction between the short run and the long run is an important consideration.

TIP

Time periods do not have an exact timescale such as three months or one year. Remember that the timescale depends on whether any or all of the factors of production can be changed.

ACTIVITY 2.2

In pairs, look again at the newspaper article you selected at the start of this chapter, or choose another news story.

Prepare a short presentation in which you explain the points that would interest economists in the article. You may use a presentation app if you wish. Make your presentation to the class.

THINK LIKE AN ECONOMIST

Are economists' models flawed?

Figure 2.5: Japanese consumers

Most economists agree that low interest rates provide a monetary stimulus whereby firms increase their investments in the business and consumers spend more.

In taking this position, economists have developed models of the relationship and tested the models in the real world; governments worldwide have applied this policy when faced with a situation in which their economy needs to expand.

Since the financial crisis of 2008, interest rates have been drastically cut to record low levels such as the UK's 0.25% from 2016 to 2018. Japan has even had a negative interest rate of –0.1% since 2016.

The reality does not match what the economist's models say should happen. Firms are holding back from investing in new capital and consumers are reluctant to spend even though the financial return on savings is negligible or, in the case of Japan, negative.

So, what is happening?

Divide into two groups. One group should consider the situation from the viewpoint of the UK, the other group should consider the situation from the viewpoint of Japan. Imagine you are:

1. yourself, as a consumer
2. the chief executive of a large firm
3. a government finance minister.

Discuss what you would do in each case. Why might you believe that the economists' models are flawed?

Each group should prepare a short presentation to give to the other group.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which of these is a positive statement?

A Wages in Indonesia are likely to be unevenly distributed.

B In 2019, the average wage in Indonesia was 3.8 million Indonesian Rupiah per month.

C The average hourly wage rate in Jakarta should be higher than elsewhere in Indonesia.

D The average wage in Indonesia depends on how it is measured.

2 Insert the correct words into this sentence.

A … (1) … statement in economics is one that is subjective and …(2)… be tested by using real world evidence.

	1	2
A	normative	cannot
B	normative	can
C	positive	cannot
D	positive	can

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	**Needs more work**	**Almost there**	**Ready to move on**
Understand why economics is a social science			
Understand the difference between positive statements and normative statements			
Use the term *ceteris paribus* to describe a situation where 'other things remain equal' or unchanged			
Understand the importance of time periods to assess how over time, change can influence the concepts that economists seek to model and explain			

Chapter 3

Factors of production

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of the factors of production: land, labour, capital and enterprise
- explain the importance of the factors of production
- describe the rewards to the factors of production
- explain the difference between human capital and physical capital
- explain the division of labour and specialisation
- explain the role of the entrepreneur in the organisation of the factors of production in 21st century economies and as a risk taker.

ECONOMICS IN CONTEXT

James Dyson, entrepreneur

Figure 3.1: James Dyson

James Dyson is a well-known global **entrepreneur**. An entrepreneur is someone who seeks out new business opportunities and is willing to take risks. Dyson's range of products such as vacuum cleaners, fans and hand dryers are used around the world in homes, hotels, factories, offices and airports.

James Dyson is best known for his bagless vacuum cleaner. As an engineer, the idea for the cleaner developed from a new industrial dust extractor that Dyson built for his small engineering company. By the early 1980s, Dyson had a working prototype of his vacuum cleaner, but it took a further 10 years for it to go on sale as a commercial product, and left him heavily in debt.

Launched in 1993, the Dyson bagless vacuum cleaner became a best seller. Dyson moved production of the vacuum cleaner from the UK to Malaysia in 2002. At the time, the move was controversial as it would result in job losses in the UK. Once the patent expired, other manufacturers copied Dyson's design.

More recently, Dyson's company has developed and manufactured a range of hand dryers, hair dryers, fans and lights using the latest Dyson technology. His revolutionary washing machine was not successful.

His latest project has been to build an electric car at a new factory in Singapore. Despite a huge investment, Dyson has been forced to abandon the project as it would not be commercially viable. It is likely there will be other new ventures to follow but this shows the risks involved even for an experienced and highly successful entrepreneur.

In 2019, the US business magazine Forbes estimated James Dyson's net worth to be over $5 billion.

Discuss in a pair or a group:

- What qualities do you think a successful entrepreneur like James Dyson is likely to have?
- Why might Dyson have failed?

3.1 The factors of production

The fundamental economic problem of scarcity was explained in Section 1.1: resources are scarce in relation to wants, which are unlimited. Scarce resources and unlimited wants result in the need to make choices.

Economists refer to the resources available in an economy as the factors of production. Factors of production are the means by which an economy produces a whole range of goods and services to meet the needs of its population. The owners of factors of production receive payments when the factors are used by others.

There are four main types of factors of production, as shown in Figure 3.2.

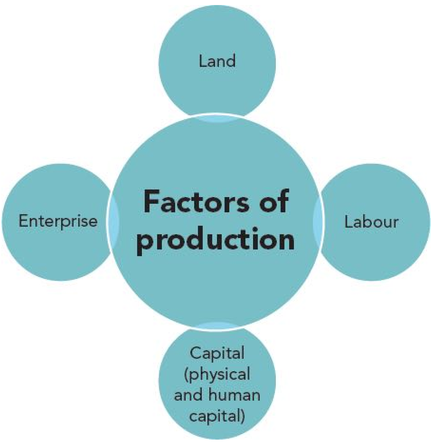


Figure 3.2: The factors of production

Land

Land is a natural resource. This factor of production includes a wide range of things such as mineral deposits like oil and coal, the earth's rivers and lakes, climate and the land itself, in terms of the soil for agriculture and trees and vegetation. This factor of production can be used to describe the natural resources such as sea, sand and sun that are important for the development of tourism and leisure activities.

The quality as well as the quantity of land as a factor of production is important. Too much sun, too little rain or poor soil can mean that this factor of production has little or no productive use. The quality of land as a factor of production is increasingly relevant in view of climate change.

The reward for owning land is the rent or income that its owners receive. In the case of minerals, such as coal or precious metals, this can be a payment that is made for the minerals after they have been extracted.

TIP

Some learners struggle to understand the scope of the 'land' factor of production. It is much broader than the physical space on which an office or factory is built. Remember that it includes oil reserves, climate, rain forests and other natural resources.

Labour

Labour is the human resources available in any economy.

The quantity and quality of labour is of major importance:

- Some economies, particularly **low-income countries**, often have large populations but suffer from a lack of a well-trained and well-educated labour force. Not all of the population is available for work. Some people are above or below the normal working age while others choose not to work for family or social reasons.
- In some economies there are cultural limitations on women working or the type of work that women are permitted to do.
- Some countries, for example China, Russia and Italy, have declining populations and rely on immigrant workers (workers from abroad) to do both skilled and unskilled jobs.
- The quality of labour is essential for economic progress. In India, emphasis has been given to increasing the IT skills of workers and has in part resulted in the growing importance of India in the global economy.
- The reward for labour is the wage or earnings paid for labour's services. The payment received depends on the value of labour to whoever is hiring the labour.

Capital

Capital is a type of physical resource including anything that can be regarded as made by humans to aid production. Capital covers a wide range of items such as factories, office blocks, machinery, information technology, transport vehicles and infrastructure in the form of roads, railways, pipelines, electricity supplies, water supplies and so on.

Capital is combined with land and labour to produce goods and services that are required. The quality as well as the quantity of capital is important, particularly in low-income economies where essential services may be unreliable.

The reward for using capital is the financial return that is earned or income if the capital resource is rented.

Enterprise

Enterprise is a form of human capital. As a factor of production, enterprise has two main functions:

- It organises the other factors of production so as to produce goods and services.
- It refers to the ability and inventiveness of the entrepreneurs who are prepared to take risks. Well-known entrepreneurs include: Richard Branson (Virgin Group), Jeff Bezos (Amazon), Cher Wang (HTC Corporation), Jack Ma (Alibaba), Folorunsho Alakija (Rose of Sharon Group), Mukesh Ambani (Reliance Industries), Indra Nooyi (PepsiCo) and Bill Gates (joint founder, Microsoft). More typical though are the millions of people who own small businesses and organise the factors of production in order to make a profit. This is the reward for enterprise.

ACTIVITY 3.1

Think about where you live. Make a list of examples of each of the factors of production in your area.

Once you have completed the activity, share your list with another learner. Have you got the same examples?

In a group, discuss how relevant the factors are to the local economy.

TIP

It is often overlooked that the quality of a factor of production is often more important than the quantity. Remember this point when writing about labour and capital as factors of production.

3.2 The difference between human capital and physical capital

As a factor of production, 'capital' can be more correctly described as **physical capital**.

It is the result of more resources being made by businesses and government in the wide range of items such as factories, machinery and infrastructure referred to earlier. The quality as well as the quantity of physical capital is often considered to be the most important source of **economic growth** in low-income and **lower middle-income countries**.

The importance of the quality of labour as a factor of production has been referred to earlier. Building on this idea, economists often refer to **human capital**. This is the value of labour in contributing to the productive potential or future growth in an economy. Human capital can apply to individuals as well as to the population as a whole. It covers the skills, knowledge and experience of labour that is being used to produce goods and services. These skills may affect the future earnings of individuals and of the economy. Therefore, human capital can be seen as an investment by individuals, employers and the government to increase the future rate of economic growth.

3.3 Specialisation and the division of labour

One of the ways in which more goods and services can be produced in the economy is through the process of **specialisation**.

Specialisation refers to a situation where individuals and firms, regions and entire economies concentrate on producing some goods and services rather than others. For example, at the individual level, within the household there may be some specialisation in the performance of household tasks, with one person doing the ironing and gardening while another does the shopping and cooking. In the workplace, of course, the fact that some people are labourers or lorry drivers while others have office jobs or are economics teachers is a reflection of specialisation. At this level, specialisation allows individuals to concentrate upon what they are best at doing, meaning more goods and services will be produced.

However, with specialisation, although more is produced, no one is self-sufficient (able to produce everything they need). It becomes necessary to exchange or trade goods and services. As an individual specialises, they will produce a surplus (more than their needs), which they can exchange for the surpluses of others.

ACTIVITY 3.2

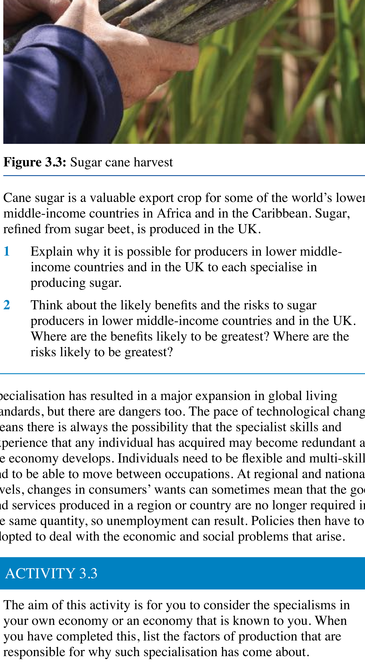


Figure 3.3: Sugar cane harvest

Cane sugar is a valuable export crop for some of the world's lower middle-income countries in Africa and in the Caribbean. Sugar, refined from sugar beet, is produced in the UK.

1. Explain why it is possible for producers in lower middle-income countries and in the UK to each specialise in producing sugar.
2. Think about the likely benefits and the risks to sugar producers in lower middle-income countries and in the UK. Where are the benefits likely to be greatest? Where are the risks likely to be greatest?

Specialisation has resulted in a major expansion in global living standards, but there are dangers too. The pace of technological change means there is always the possibility that the specialist skills and experience that any individual has acquired may become redundant as the economy develops. Individuals need to be flexible and multi-skilled and to be able to move between occupations. At regional and national levels, changes in consumers' wants can sometimes mean that the goods and services produced in a region or country are no longer required in the same quantity, so unemployment can result. Policies then have to be adopted to deal with the economic and social problems that arise.

ACTIVITY 3.3

The aim of this activity is for you to consider the specialisms in your own economy or an economy that is known to you. When you have completed this, list the factors of production that are responsible for why such specialisation has come about.

Try to rank the factors of production in terms of their importance.

In a pair, compare your list and your rankings.

REFLECTION

Activities 3.1 and 3.3 suggest that you compare your answers with those of others in your class. How did your factors of production and specialisms compare? How far were you able to agree any differences? Did you find this a helpful way of learning about factors of production?

The division of labour

With the technical advances of the last few hundred years, production of goods and services has taken place on a much bigger scale. Large numbers of workers within very large production units has allowed the process of production to be broken down into a series of tasks. This is called the **division of labour**. For example, the economist Adam Smith, writing at the end of the eighteenth century, showed how the production of pins would benefit from the application of the division of labour in a factory. He suggested that pin making could be divided into 18 distinct operations and that, if each employee carried out only one of the operations, production would rise to 5000 pins per employee per day. He had estimated that each employee would be able to produce only a few dozen (about 50) pins each day if they produced pins individually.

Modern manufacturing processes are usually split up into a number of tasks. A typical example is in a garment factory where each worker produces one part of an item of clothing such as a shirt sleeve, the front part or button holes. This division of labour is usually quicker and cheaper than having one person complete each garment on their own. It allows workers to become more specialised and can lead to an increase in output per worker and an improvement in the quality of the finished product.

In the United States, the division of labour was taken a stage further in the 1920s when Henry Ford introduced conveyor belt production into the automobile industry. Ford's method of automobile production provided the model for much of manufacturing production in the twentieth century.

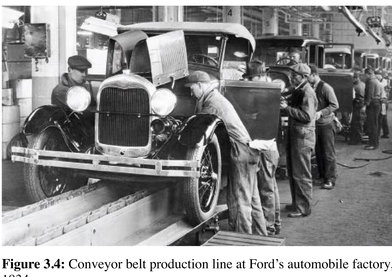


Figure 3.4: Conveyor belt production line at Ford's automobile factory, 1934

Although the division of labour raises output, it often creates dissatisfaction among the workforce as they become de-skilled and bored with the repetitive nature of their work. In **high-income countries**, the dehumanising impact of production techniques, such as using a conveyor belt and robots, has been acknowledged and procedures introduced to counteract boredom such as moving workers around the production plant.

KEY CONCEPT LINKS

Scarcity and choice: Through specialisation and the division of labour, resources that are available can be used to increase what is being produced, so meeting more wants.

3.4 The role of the entrepreneur

Entrepreneurs are individuals who:

- organise production by putting together the various factors of production to form a business opportunity
- are prepared to take risks by using their own money or by borrowing from banks or other people to try to achieve their ambitions. The risks are considerable and if their plans fail, they will lose their own money and that of others.

Successful entrepreneurs are creative and innovate to produce something that has recognised value in the market. They require the skills and passion to anticipate current and future needs. Figure 3.5 shows the qualities and skills needed to be a successful entrepreneur.

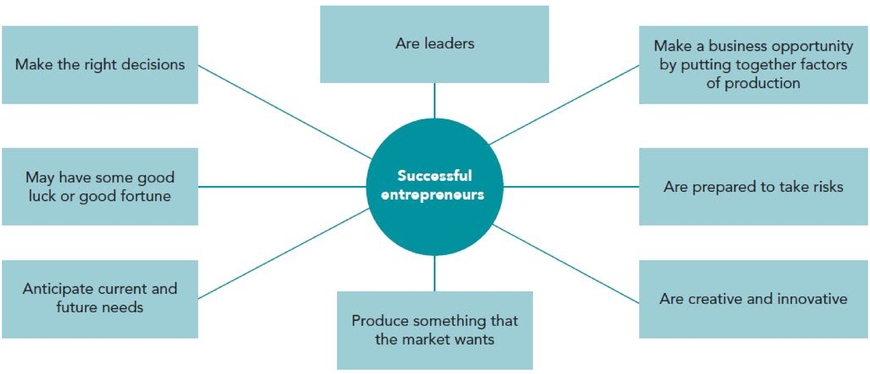


Figure 3.5: Entrepreneurs require a range of qualities and skills.

THINK LIKE AN ECONOMIST

India's top ten richest people in 2019

Ranking	Name	Net worth in $ billion	Source of wealth
1	Mukesh Ambani	51.4	Petrochemicals, oil, gas
2	Gautam Adani	15.7	Commodities, infrastructure
3	Hinduja brothers	15.6	Various
4	Pallonji Mistry	15.0	Construction
5	Uday Kotak	14.8	Banking
6	Shiv Nadar	14.4	Software services
7	Radhakishan Damani	14.3	Investments, retail
8	Godrej family	12.0	Godrej Group
9	Lakshmi Mittal	10.5	Steel
10	Kumar Birla	9.6	Commodities

Table 3.1: India's richest people in 2019

Look at Table 3.1. Then discuss the following statement in a group:

India has many rich people, yet many people are living in extreme poverty (defined as household income of less than $1.90 per day).

In researching this topic, you may find it useful to look at the profiles of a selection of India's richest people and to see how they match the qualities and skills of entrepreneurs, as shown in Figure 3.3.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What are the factors of production?

A natural resources that are available for production

B another term for resources in an economy

C what are required in the future to produce goods and services

D the human resources used in the production of goods and services

2 The factor of production capital means:

A what is combined with land and labour to produce goods and services.

B the value of assets owned by a firm.

C money needed to set up a firm.

D money provided by shareholders to expand production in a firm.

3 Which of these is the best explanation of how an economist describes an entrepreneur?

A someone who is lucky and makes a lot of money

B someone who succeeds in some but not all business activities

C someone who is in charge of a firm

D someone who seeks out business opportunities and is willing to take risks

4 Which of these is an example of land as a factor of production?

A an airline pilot

B an airfield

C an aeroplane

D aircraft fuel

5 Specialisation can only occur when:

A a price has been agreed to buy and sell a product.

B a firm has modern methods of production.

C a firm is more efficient than all others in making a product.

D an entrepreneur sees a business opportunity.

6 Three workers (A, B and C) are employed in a shoe factory. The table below shows the output of each worker if they divide their time equally between the three stages in the production process.

	Soles	Uppers	Finishing and polishing
Worker A	100	40	40
Worker B	40	100	40
Worker C	40	40	100

Each worker is now asked to work on the part of the production process where they are a specialist. What would be the increase in the total production of shoes?

A 140 shoes

B 180 shoes

C 360 shoes

D 540 shoes

7 Which reason is most likely to explain why an entrepreneur is prepared to take risks?

A to secure a large bank loan

B to realise a business ambition

C to justify giving up a safe job

D to increase their self-esteem

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand the nature of the four factors of production: land, labour, capital, enterprise			
Describe the rewards for each of the factors of production			
Explain the difference between human capital and physical capital			
Explain why more goods and services can be produced in an economy through the process of specialisation			
Explain that the division of labour enables the more efficient use of factors of production			
Explain the role of the entrepreneur as an organiser of factors of production and a risk taker			

Chapter 4

Resource allocation in different economic systems

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain decision-making in market, planned and mixed economic systems
- analyse the advantages and disadvantages of resource allocation in market, planned and mixed economic systems.

ECONOMICS IN CONTEXT

Vietnam: Asia's rising star

Over the past 30 years, Vietnam has changed from one of the world's poorest economies to a lower middle-income country. This remarkable achievement originates from the development of its economic system. Since 1986, under the Doi Moi reforms, Vietnam has changed from a centrally planned economy to an economy that has the characteristics of both a state planned and a market economy.

Figure 4.1: The business district of Ho Chi Minh City, Vietnam

Vietnam's recent economic growth has been spectacular. In 2019, growth was expected to reach 6.6%, slightly below the 7.1% which it achieved in 2018. This growth is largely attributed to the manufacturing of electronic goods, industrial parts and footwear for export as well as strong domestic demand.

Vietnam has embraced the global economy. The country has negotiated free trade deals including the Comprehensive and Progressive Agreement for a Trans-Pacific Partnership. Also, it has benefited, controversially, from the on-going trade dispute between China and the USA.

Vietnam's businesses remain state-owned. Some economists believe state ownership is a weakness. Private ownership and foreign investment are not allowed, in line with the government's socialist planning objectives.

Discuss in a pair or a group:

- What are the advantages and disadvantages of Vietnam's economic system?
- How might Vietnam's economic growth increase even further?

4.1 What are economic systems?

The fundamental problem of scarcity requires choices to be made. The problem is common to all economies: low-income, **middle-income** and high-income. The choices that are made and how they are made is determined by the **economic system** of a particular country. A country's economic system identifies the means by which households, firms and the government make decisions relating to the three resource allocation questions:

- What goods and services are to be produced?
- How are the goods and services to be produced?
- Who should receive the goods and services?

TIP

Re-read Sections 1.1 and 1.4 to remind yourself of the fundamental economic problem and the three questions related to the allocation of resources.

Traditionally, economists have recognised three main types of economic system: the **market economy**, the **planned economy** and the **mixed economy**. In market economies, resource allocation decisions are largely driven by the **market mechanism**, whereby individuals and firms take these decisions without government intervention.

Over the past 30 years or so, the planned economy has been replaced by the mixed economy in many countries in Central and Eastern Europe, the former Soviet Union and southern Asia. The market has an increasing role to play in mixed economies as the countries face a range of problems and prospects.

KEY CONCEPT LINK

Scarcity and choice: Scarcity and choice apply in all economic systems. How choices are made in an economic system depends on the relative importance of government and the market mechanism.

4.2 The market economy

In the market economy, resources are allocated by the forces of demand and supply through the price mechanism (see Figure 4.2 below). Decisions on how resources are to be allocated are regularly taken by millions of individuals and thousands of firms. The government has little or no direct involvement in the process of resource allocation. Households and firms interact as buyers and sellers. Price and the unrestricted operation of the price mechanism are central to the way in which resources are allocated.

How the price mechanism works

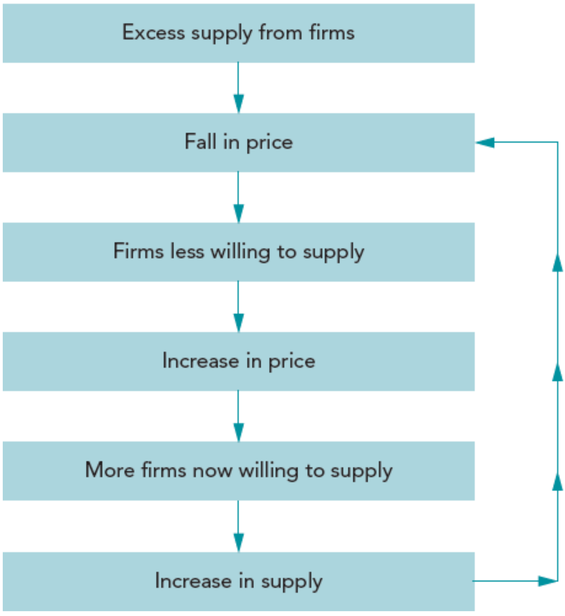


Figure 4.2: The price mechanism at work

Figure 4.2 shows how the market may operate with no government interference. The starting point is that there is excess supply in the market – too much is being produced compared to demand. Excess supply results in goods being stockpiled in shops and warehouses. To encourage individuals to buy and so clear the excess stocks, firms reduce the price. This may clear the excess supply, but it is likely to mean that some firms which previously produced the good will now no longer be willing to do so. With less supply in the market, the price rises. In time, assuming no change in demand, firms may choose to re-enter the market. The increase in supply will lead to a fall in price and the whole process will continue. Therefore, prices and the self-interest of individuals and businesses act as a guide to the decisions that have to be made.

ACTIVITY 4.1

Using Figure 4.2, draw a similar diagram to show how the market responds to a situation where a firm is faced with a sudden, big increase in demand for one of its products.

Role of the government in a market economy

In principle, the government should have no direct role in the workings of the market economy and should not interfere in the operation of the price mechanism. As long as the price mechanism is working efficiently, the government's role is to watch what is happening and only intervene when the price mechanism does not provide the best allocation of resources. Figure 4.3 shows how the market economy works.

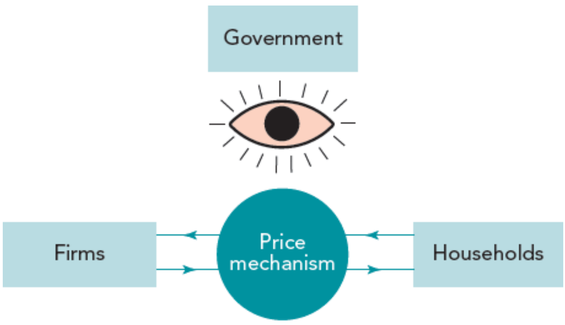


Figure 4.3: The market economy

When the price mechanism does not work efficiently, the market 'fails'. Examples of market failure are where the government provides goods such as healthcare which would be underprovided, fire services which would not be provided at all, and where it seeks to regulate situations to prevent firms using their power to control the market for excessive gain.

The true market economy is in certain respects an ideal. No actual economy operates as a pure market economy. In the US, federal and state governments have important roles to play in providing some limited public services.

Hong Kong SAR provides an interesting case of a near-perfect example of a market economy. All businesses are privately owned and Hong Kong's bus, rapid transit rail service (MTR) and road tunnels are operated by private companies. The economy is dominated by local, US- and European-owned multinational companies. Since 1997, a 'two systems, one country' structure has been in place, retaining many of the benefits of a market economy.

4.3 The planned economy

Like the market economy, the planned economy in its true form only exists in theory. (The planned economy may be referred to as the command economy or the centrally planned economy.)

In a planned economic system, the government has a central role in all decisions that are made. The choices in terms of what to produce, how to produce and for whom to produce are all centralised. Decision-making is taken by planning boards and organisations and, in principle, production is controlled by the state. Unlike the market economy, the preferences of consumers and manufacturing organisations in a planned economy are controlled centrally.

The key features of a planned economy are that central government and its organisations are responsible for the allocation of resources. Production targets are set for the main sectors of the economy, such as agriculture and manufacturing. Invariably, these are linked to planning for long-term growth through an increase in productive potential. Price control of most essential items and the determination of wages are also controlled. Finally, the ownership of most of the **productive resources** and property is in the hands of the state. In short, the market does not have a real role in the allocation of resources.

In a planned economy, government organisations find it necessary, for political as well as economic reasons, to control the workings of the market mechanism. A typical example is where basic foods such as bread and meat are hugely subsidised by the government to keep prices at a low, fixed level. The rise and fall of prices, so important in the market economy, does not take place. A consequence of artificially low prices is often excess demand relative to supply. There are not enough basic foods for everyone, and queuing becomes a way of life. Private ownership of productive resources is restricted to small shops, restaurants and personal services, such as hairdressing.

Figure 4.4: Empty supermarket shelves in Poland in the early 1980s

Governments of planned economies tend to set goals which are different from those of governments in market economies. The objective is to achieve a high rate of growth in order to catch up on the progress made by the advanced market economies. Nowadays, there are very few planned economies; examples include Cuba and North Korea.

TIP

When writing an answer about a planned economy, try to include a present-day example. Cuba and North Korea are as close to planned economies as the theory suggests. Albania and Vietnam could be mentioned as socialist economies rather than full planned economies.

4.4 The mixed economy

The mixed economy is the typical economic system. In a mixed economy, both the **private sector** and **public sector** have a part to play in the allocation of resources. Decisions involve an interaction between firms, labour and the government mainly through the market mechanism. There is private ownership of most productive resources although there is some public ownership.

Over the past 30 years or so, **privatisation** has been the trend. Privatisation involves the transfer of resources from public ownership to the private sector. This has been the case in many economies including the **emerging economies** of Central and Eastern Europe and Pakistan. The previously planned economies in Europe have had to move along this path towards a mixed economic system prior to becoming full members of the European Union (EU).

The increased emphasis on market forces has resulted in some problems. The UK, for example, has lost many jobs in manufacturing as factories have closed and production has moved to lower-cost locations mainly in China, the rest of Southeast Asia and in Central and Eastern Europe.

Elsewhere, there have been similar trends. One of the most dramatic has been in the former Soviet Union where the economy has been restructured (*perestroika*). This has been the case in its former satellites such as Poland, the Czech Republic, Slovakia, Hungary, Lithuania and Estonia. Opening up the economy in this way has resulted in huge inward flows of foreign investment, particularly in the manufacturing and retail sectors. There have been opportunities for private sector businesses to be developed – cafés, small shops and garages as well as the local ownership of productive resources are now the norm. In some cases, such as where former state-owned companies have been sold to the private sector, the new owners have made vast sums of money in a very short period of time through adapting the businesses to make the most of the opportunities of the market mechanism. Even in Albania, once seen as one of the few remaining planned economies, the government has recently decided to allow limited privatisation and a greater emphasis on the market mechanism.

The experience of the **Asian Tiger economies** varies. Singapore and Hong Kong, for example, have always focused strongly on the market to allocate resources. Their governments have created an economic situation where free enterprise is encouraged. The rewards can be high. Other economies have placed more emphasis on central planning, such as Malaysia, the Philippines and Indonesia. The extraordinary continual growth of China over the past 15 years or so is linked to the controlled management of the economy but with very clear opportunities for foreign investors as well as domestic companies to influence the allocation of resources.

Figure 4.5 provides a broad explanation of where selected economies fall in terms of the relative strengths of the market and planned systems of resource allocation. To clearly varying degrees, all countries would seem to fit within the definition of a mixed economy.

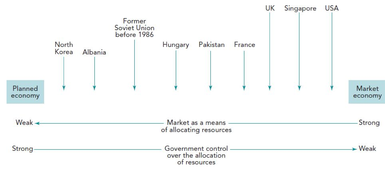


Figure 4.5: Mixed economic systems

ACTIVITY 4.2

In a pair or a group, select one of the former planned economies that joined the European Union (EU) in 2004: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia.

Each pair or group should focus on a different country so that you cover as many countries as possible between you.

For each country:

1. Try to find out what percentage of the economy is in the control of the government and what percentage of resource allocation is by the private sector.
2. Obtain information on the importance of the country's manufacturing sector such as types of good, firms and what is exported to the rest of the EU.
3. Obtain data on the country's annual economic growth rate since 2004.

Display your findings on a poster for the classroom wall. If there is time, each pair or group could present its findings to the class.

TIP

A common misconception is that the classification of economies is exact. Most economies are some form of mixed system which depends on the relative importance of the roles of the market mechanism and government.

KEY CONCEPT LINK

Scarcity and choice: The fundamental economic problem exists in all three types of economy.

REFLECTION

Activity 4.2 required you to collect some data on a former planned economy that is now a member of the EU. How did you decide on which country to select? How did you set about collecting the data? What were some of the data interpretation problems you experienced?

THINK LIKE AN ECONOMIST

New Zealand's near market economy

Figure 4.6: New Zealand is a leading exporter of kiwifruit

New Zealand is one of the top-ranked market economies in the world. In 2019, it was placed third in the Heritage Foundation's Index of Economic Freedom. Only Hong Kong and Singapore have a higher score.

New Zealand has followed a market-orientated economy for many years. It has fully accepted the principle that prices must be determined by supply and demand and that economic activity, including trade, should be as free from regulation as possible. Since 1980, New Zealand's governments have pursued policies of deregulation and privatisation to liberalise the economy.

The country has a range of free trade agreements, particularly with Australia and other Southeast Asian countries. It is a member of the Comprehensive and Progressive Agreement for a Trans-Pacific Partnership.

New Zealand is the sixth richest country in the world in terms of gross domestic product (GDP) per head (a measure of national income) and has experienced steady economic growth since 2000, except for 2010–2012 when its economy was slightly affected by the global downturn.

1. Explore the Index of Economic Freedom to see how New Zealand compares with your country or one that you are familiar with.
2. How relevant are the comparisons you might make?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which of these terms describes a country where government planning, regulations and directives are responsible for the allocation of resources?

A capitalist economy

B mixed economy

C market economy

D planned economy

2 A criticism of a planned economy is that it puts more emphasis on producing capital goods than producing consumer goods. This is because:

A the system of decision-making is too centralised.

B there are shortages of many consumer goods.

C the government's focus is on growth and not current consumption.

D consumers cannot afford to buy any more consumer goods.

3 A planned economy has recently become a mixed economy. This process has involved a change in the composition of what it produces. What is the most likely consequence of this change?

A an increase in food prices

B an increase in imports

C an increase in structural unemployment

D an increase in the growth rate of the economy

4 A mixed economy can best be described as one in which:

A production is determined by the central government and the market mechanism.

B agricultural and manufactured goods are produced.

C production is determined by entrepreneurs.

D consumer goods and capital goods are produced.

5 Which of these is the most likely outcome when a mixed economy privatises its rail services?

A Peak train fares will increase.

B Off-peak train fares will decrease.

C Fewer rail services will be provided.

D Train fares will now be determined by supply and demand.

6 After a planned economy changed to a more market economy, there was a reduction in the proportion of household income that was being saved. How might this be explained?

A Households were more concerned about the economy's future economic prospects.

B More 'big ticket' goods had become available.

C New charges were introduced for secondary education.

D Household incomes fell.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand the roles of government and the market in the three types of economic system: market, planned, mixed			
Analyse the advantages and disadvantages of resource allocation in each of the economic systems			

Chapter 5

Production possibility curves

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the meaning and purpose of a production possibility curve
- explain the shape of the production possibility curve, including the difference between constant opportunity costs and increasing opportunity costs
- analyse the causes and consequences of shifts in a production possibility curve
- discuss the significance of a position within a production possibility curve.

ECONOMICS IN CONTEXT

Restructuring the Nigerian economy

Figure 5.1: Nigeria started manufacturing smartphones in 2017

Nigeria is the largest country in Africa, with a population of around 160 million in 2018. The financial crisis of 2012 showed how vulnerable Nigeria's oil industry was to external shocks in the global economy. Since then, government policy has been to restructure the economy to reduce its dependence on the oil industry. In particular, Nigeria's service industries have grown while its oil industry, once the mainstay of the economy, has declined. Even so, oil still contributes two-thirds of government revenue. Manufacturing continues to grow and is the largest of any in Africa. Agriculture remains an important sector but has seen rapid decline since 2012.

The changing structure of Nigeria's economy is shown in Table 5.1.

Estimated percentage contribution to GDP		
Economic sector	**2012**	**2018**
Agriculture	40	21
Manufacturing	15	19
Services	30	52
Oil	14	8

Table 5.1: The changing structure of Nigeria's economy, 2012 and 2018

Discuss in a pair or a group:

The data in Table 5.1 shows a major restructuring of the Nigerian economy over a short period of time.

- How might this restructuring have come about?
- Is there any cause to doubt the accuracy of the data?

5.1 The production possibility curve

In any economy, what is produced is determined by the quantity and quality of resources that are available. In high-income economies, for example, many thousands of goods and services are produced as a result of the wide availability of factors of production. Low-income economies have fewer resources and the quality of resources is poorer. As a result, in low-income economies fewer goods and services are produced and there is less variety of production.

Therefore, the quality and quantity of factors of production determines an economy's production possibilities – the goods and services it can produce with the resources it has available. A simple economic model, known as a **production possibility curve (PPC)**, can be used to show the choices available and how resources are allocated.

How the production possibility curve works

To understand how the production possibility curve works, imagine that the economy produces just two goods, say cars and televisions. These two industries use all of the economy's current resources between them in their production of cars and televisions. The production technology available is being fully utilised.

The PPC shows the maximum level of output of each of the two goods that can be produced. The PPC is sometimes called the production possibility frontier since it draws a type of boundary between what can be produced and what cannot be produced. Figures 5.2 and Figure 5.3 show two production possibility curves. Any point exactly on the line or curve represents a production situation where output is maximised.

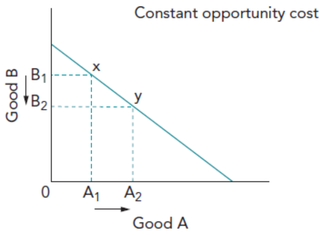


Figure 5.2: A straight line production possibility curve showing constant opportunity cost

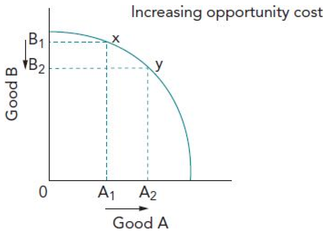


Figure 5.3: A curved production possibility curve showing increasing opportunity cost

TIP

Production possibility curves can be represented by a straight line as well as by a curve that is convex to the origin. When drawing a production possibility curve, remember to label both axes correctly. The axes are always labelled in terms of two goods.

Table 5.2 shows the various production possibilities, that is the combination of cars and televisions that can be produced.

Cars	Televisions
1000	0
800	950
600	1150
400	1800
200	1900
0	2000

Table 5.2: The combination of cars and televisions that can be produced (units)

Figure 5.4 shows the production possibility curve for the cars and televisions. The relationship between the two products is in the form of a curve.

If all resources were being used in the production of cars, then 1000 cars would be produced and no televisions. Alternatively, if all resources were allocated to making televisions, then 2000 televisions would be produced and no cars.

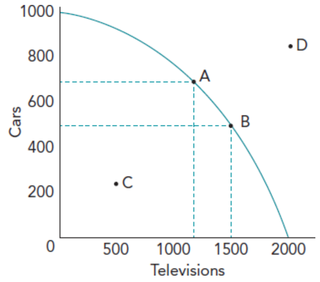


Figure 5.4: The production possibility curve for the cars and televisions

The end points of the production possibility curve represent the extreme possibilities of what can be produced. In between these extremes, there are many points on the production possibility curve where other combinations of the two products can be made while maximising total output.

The points, like any on the production possibility curve, are important since they indicate an efficient allocation of resources. In other words, the economy is getting all it can from the resources available given the present state of technology. It is clearly sensible and beneficial for the economy to be producing on its production possibility curve.

Now consider point C in Figure 5.4. Point C is within the production possibility curve and at this point, only 250 cars and 500 televisions are being produced. This is an inefficient allocation of resources since the economy is producing less than it could from the resources available. This applies to any other points that are located within the production possibility curve.

ACTIVITY 5.1

1 Using the data in Figure 5.4:
   - **a** Estimate how many television sets and how many cars are produced at point A.
   - **b** What happens if the economy then operates at point B?
   - **c** How indicative is the change from point A to point B of scarcity and choice?

In contrast, point D is outside the production possibility curve. Point D is not a possible outcome since the economy does not have the resources that are required to achieve this level of output of both types of good. Therefore, point D represents a position of scarcity.

5.2 The production possibility curve and opportunity cost

The production possibility curves in Figures 5.2, 5.3 and 5.4 can be used to show the opportunity cost of one good measured in terms of another good. In Figure 5.2, the opportunity cost of switching production from one good to the other is constant. So, a fall in production of Good B leads to the same proportionate increase in Good A. In Figure 5.3, the reduction in output of Good B is matched by a greater increase in Good A. So the opportunity cost of a fall in output of Good B is greater output of Good A. This can now be shown numerically. In Figure 5.4, when the economy reallocates its factors of production from point A to point B, resources are being moved from the car industry to the production of televisions. When this occurs, 200 cars are being given up in order to get 300 more television sets. In other words, if the economy is operating at point A, the opportunity cost of producing 300 more televisions is 200 cars. The benefit given up from the production of these cars is the opportunity cost.

5.3 The shape of the production possibility curve

The shape of the production possibility curve is significant. If you look again at Figure 5.4, you will see that it is bowed or curves outwards. When the economy is allocating most of its resources to producing televisions, the production possibility curve is quite steep. This means that in order to produce more televisions, an increasing amount of productive capacity for making cars has to be sacrificed (given up). In contrast, when the economy is using most of its resources to produce cars, the production possibility curve is much flatter. This means that each television that is sacrificed gives a much smaller increase in the number of cars produced.

When the PPC is a straight line as shown in Figure 5.2, opportunity costs do not change as the economy moves from one point to another on the PPC. Constant opportunity costs are due to the factors of production being equally well suited to the production of both goods. For this to occur, goods require the same factors of production, for example, where two similar types of sports trainers are being produced.

In contrast, when the PPC is curved outwards as in Figure 5.4, opportunity cost changes as the economy moves from one point to another on the production possibility frontier. For each additional unit of televisions produced, the opportunity cost of producing televisions gets larger and larger as the production of cars decreases. This is a situation of increasing opportunity costs. The two goods require different factors of production.

A trade-off between products

Look once again at Figure 5.4. The production possibility curve can be used to show the **trade-off** involved in the production of the two products. A trade-off is the process of deciding whether to give up some of one good in order to obtain more of another. So, if it is decided that more televisions are to be produced, the trade-off is that, as current resources are being fully used, fewer cars can be produced. The numerical extent of any trade-off can be obtained from comparing the increase or decrease in production for each of the two goods. So, the trade-off for producing 300 more televisions is the loss of 200 cars.

A change in available resources

Let us now relax the assumption that the resources available are fixed. Over time, there is technological advance in most forms of production. This is particularly the case in the electronics industry which includes television production. Nowadays, televisions are slim with high-density widescreens – these can be assembled more quickly than the previous generation of big and bulky televisions. For the economy, productivity (output per worker) increases, resulting in more television sets being produced for a given number of cars. This new situation results in a change in the shape of the production possibility curve.

Figure 5.5 shows the new production possibility curve (PPC 2). PPC 2 pivots outwards from its position on the vertical axis. It changes shape in this way because there has been no change in the conditions affecting car production. It is now possible to produce 3000 televisions with current resources, an increase in efficiency of television production of 50 per cent. So, for any quantity of cars produced, it is possible to produce more televisions. As more television sets are produced, the relative efficiency gain increases. So, where previously the economy could produce, say, 400 cars and 1700 televisions, it can now produce 2300 televisions and the same amount of cars.

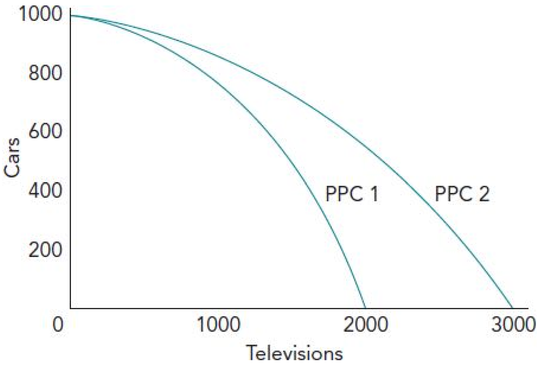


Figure 5.5: An increase in capacity to produce televisions

ACTIVITY 5.2

Figure 5.6: Robots in a car manufacturing factory

The car production industry in an economy is facing increasing competition from producers elsewhere. In order to offset this, car manufacturers have developed more advanced robots to carry out production. This increases car production by 200.

1. Re-draw Figure 5.4.
2. Approximately how many more cars can be produced when the number of televisions made is 1000?
3. How does the number of cars that can be produced change as television production falls below 1000?

5.4 Shifts in the production possibility curve

There are situations where the production possibility curve shifts (moves) in its entirety, either to the right or to the left of its current position. A shift in the PPC means that the **productive capacity** of the economy, the total ability to produce, has changed:

- A shift to the *right* indicates an increase in productive capacity.
- A shift to the *left* indicates productive capacity has decreased.

These new situations are shown in Figure 5.7.

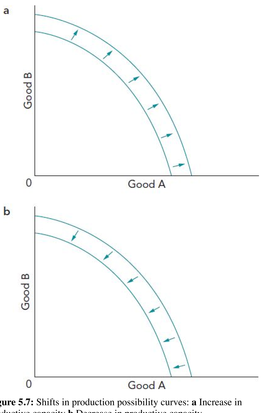


Figure 5.7: Shifts in production possibility curves: **a** Increase in productive capacity **b** Decrease in productive capacity

There are two main reasons why shifts occur:

- More resources become available. The productive capacity of an economy increases when more resources become available or when there is an improvement in the quality of resources used. Such a change can come about through an increase in the factors of production, for example more labour through immigration, an increase in capital goods or improved opportunities for enterprise. Normally, economies acquire more resources, although overpopulation can result in fewer resources being available (a decrease in productive capacity). Both situations are shown in Figure 5.7.
- There is a technological change. Advances in technology continue over time and affect the position of the production possibility curve of an economy. Where the overall change is positive, then more of both products can be produced. This is the normal situation in most economies. There are certain circumstances though where technological progress may fall, resulting in a decrease in the production of both products. Figure 5.7 also applies in these cases.

KEY CONCEPT LINKS

Scarcity and choice: On a production possibility curve, choice is represented by any point on the curve. This indicates the many possible choices of combinations of goods when maximising the use of available resources. Scarcity is represented on the axes by the maximum possible outputs that are possible with these resources.

Time: The simple model of a production possibility curve shows the effects of a change to the allocation of resources in the short-run and long-run periods.

ACTIVITY 5.3

Qatar and other Arab states employ thousands of migrant workers from low-income countries in Asia. Many of these workers are skilled and employed on construction projects.

1 With the help of a diagram:
   - a Explain how the production possibility curve of Qatar has changed as a result of migrant workers.
   - b Explain how migration might have changed the production possibility curve of the home economies of migrant workers.

2 Once you have completed Q1, in a group, discuss the benefits and costs of this migration to:
   - a the workers
   - b their families
   - c the destination countries and the home countries of migrant workers.

You could make a podcast of your discussion, using a recording device such as a smartphone.

Using the production possibility curve to show choices

Production possibility curves can be used to show the difficult choices that have to be made by many low-income economies. Scarce resources need to be allocated to meeting present needs at the expense of investing in a range of capital goods that will increase economic potential in the longer term.

Figure 5.8 reveals the problem many low-income economies have to face. The production possibility curve shows the production of consumer goods is approaching its maximum, leaving only a small amount of resources for capital goods. With only a small allocation, new investment in capital goods is often at best only to replace existing resources. What is needed to raise economic potential is that a greater proportion of resources should be given to capital goods in order to shift the production possibility curve outwards. A small reduction in the amount of consumer goods produced from A to B can produce a greater relative increase in the amount of capital goods from C to D. The effect of this is to increase the economy's potential for economic growth as shown by an outward shift of the production possibility curve.

Figure 5.8: Difficult choices for a low-income economy

TIP

The analysis of the production possibility curves in this chapter is highly simplified in order to demonstrate as well as to clarify the fundamental economic ideas of scarcity, choice and opportunity cost. These ideas are central to the study of economics and will re-appear in various forms throughout your course. At this early stage of studying economics, the use of production possibility curves should help you to understand the importance of scarcity, choice and opportunity cost.

THINK LIKE AN ECONOMIST

Efficiency differences in the Nigerian economy

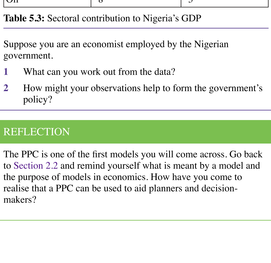


Figure 5.9: A farmer picks shea nuts from which shea butter is produced. Nigeria is the world's largest producer of shea butter, which is used in cosmetics and other products

The data in Table 5.3 shows the contribution to GDP of the four sectors of Nigeria's economy and the percentage of the workforce in each sector in 2018.

Economic sector	Percentage contribution to GDP in 2018	Percentage workforce in 2018
Agriculture	21	34
Manufacturing	19	11
Services	52	52
Oil	8	3

Table 5.3: Sectoral contribution to Nigeria's GDP

Suppose you are an economist employed by the Nigerian government.

1 What can you work out from the data?

2 How might your observations help to form the government's policy?

REFLECTION

The PPC is one of the first models you will come across. Go back to Section 2.2 and remind yourself what is meant by a model and the purpose of models in economics. How have you come to realise that a PPC can be used to aid planners and decision-makers?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A production possibility curve is drawn on the assumption that:

A there are always opportunities to produce more of one good.

B all existing resources are being used and there is a given state of technology.

C all existing resources are being used.

D production never takes place within or outside the production possibility curve.

2 A country produces at a new point within its production possibility curve when:

A new technology is being applied to increase production.

B there is an increase in capital investment by firms.

C more is needed of one good and not the other good.

D there is a fall in unemployment.

3 An economy produces two goods: cars and smartphones.

Why is the production possibility frontier curved outwards from the origin?

A All resources are being fully used.

B The opportunity cost of producing cars or smartphones is constant.

C An increase in production of cars can only occur if there is a decrease in the production of smartphones.

D Some of the economy's resources are better suited to the production of cars, other resources better suited to the production of smartphones.

4 An economy produces two goods: cars and smartphones. Its production possibility curve shifts outwards. What would have caused this shift?

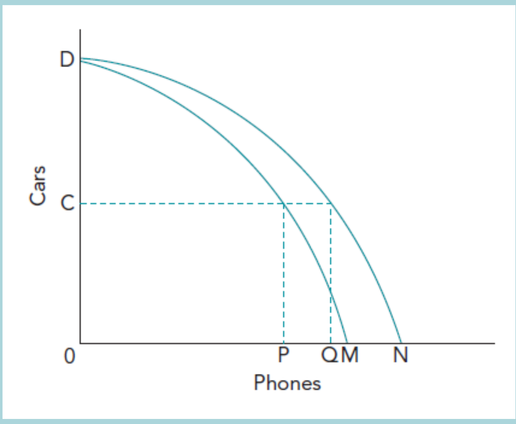
A the discovery of a new valuable oil reserve

B closure of an inefficient car assembly plant

C an increase in sales tax on cars and smartphones

D a fall in the rate of unemployment

5 An economy produces two goods: cars and smartphones. The diagram shows that, as a result of a technological advance, more smartphones can be produced for the same resources.



What is the change in the opportunity cost of producing OC cars?

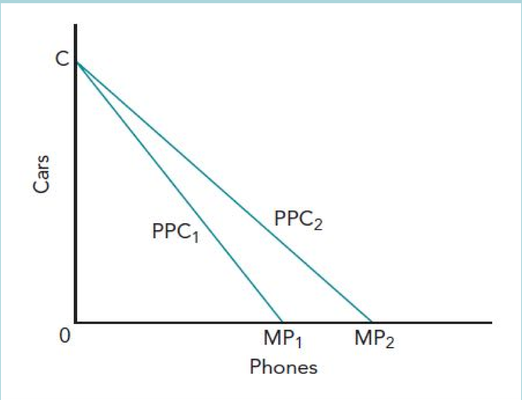
A PN to PM

B PM to QN

C PQ to PM

D QM to PM

6 The diagram shows that the production possibility curve of cars and smartphones has changed from PPC1 to PPC2.



What has happened to the opportunity cost of car production and the returns to factors producing smartphones?

	Opportunity cost of car production	Returns to factors producing smartphones
A	fallen	fallen
B	fallen	risen
C	risen	risen
D	risen	fallen

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that a production possibility curve (PPC) shows the maximum level of output that an economy can achieve given current resources and state of technology			
Explain why production is efficient at any point on the PPC			
Explain why production at a point inside the PPC is inefficient and why production at a point outside the PPC cannot be achieved			
Understand that PPCs that are convex to the origin indicate increasing opportunity costs			
Analyse how shifts in the PPC, either inwards or outwards, show a change in productive capacity			

Chapter 6

Classification of goods and services

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the meaning and importance of free goods and private goods (economic goods)
- explain the meaning and importance of public goods
- explain the meaning and importance of merit goods and demerit goods
- analyse how underconsumption of merit goods results from imperfect information in the market
- analyse how overconsumption of demerit goods results from imperfect information in the market.

ECONOMICS IN CONTEXT

Who pays for your local fire and rescue services?

Figure 6.1: Most fire and rescue services are funded by taxation

The local fire service is something many of us take for granted. We hope it will arrive when needed to put out house and factory fires, rescue people from floods or be there to save lives in a serious accident. What we never consider (unless you are an economist) is how these public services are funded.

Most fire services are funded from taxation and are provided free of charge when needed. This is true of many countries – Australia, India, Indonesia, Mauritius, Malaysia and New Zealand are just a few examples. Control over the service and the budget varies; it can be national, regional or local.

Exceptionally in Canada and the USA, charges may be made. CTV News reported in August 2017 that a woman in a remote part of Alberta province, Canada, received a bill for $28 000 after private fire fighters tried to save her one-storey home; they failed but she was still liable for the bill. In the USA, like Canada, there is funding from central government but 'emergency response fees' are often charged when fire service staff have to attend a road traffic accident. Those who can afford to do so take out insurance to cover this possibility.

Discuss in a pair or a group:

- How is the fire and rescue service paid for in your country?
- How feasible is it to charge individuals for the use of fire and rescue services?

Goods and services have so far been referred to in general terms. Economists classify goods and services into three groups:

1. A small number of goods and services that are free for everyone to use.
2. Goods and services that individuals have to pay for through the market mechanism.
3. Goods and services that are provided for everyone by the government.

You will find out more about the three types of goods and services below.

Individuals' consumption of the latter two types of goods and services is limited by people's income and whether the government is able to fund people's wants and needs.

6.1 Excludability and rivalry

Excludability and **rivalry** are the two characteristics used by economists to determine the type of goods:

- A good is excludable (or exclusive) if other consumers can be prevented from using or consuming it. An example is the latest smartphone that you might have bought. A good is non-excludable if it is freely available and nothing can be done to prevent its consumption.
- A good is rival if only one person can consume it and in doing so the good is not available for other consumers. An example is a lunchtime meal or a pair of trainers. Most goods are rivalrous. A good is **non-rival** when the amount available to others does not diminish.

Figure 6.2 shows a useful way to determine the type of good.

	Excludable	Non-excludable
Rival	Private good	Quasi-public good
Non-rival	Quasi-public good	Public good

Figure 6.2: Classification of goods

6.2 Private goods

The fundamental economic problem of scarce resources in relation to unlimited wants only arises in situations where economists are dealing with **private goods**. Private goods are also known as economic goods since they have a cost in terms of the resources used and are scarce. Therefore, a price must be charged when private goods are used or consumed. This applies to most of the goods and services we are likely to buy regularly, such as food items, drinks, clothing, household goods and petrol.

Figure 6.3: A smartphone is a private good

Private goods are bought and consumed by individual consumers or firms for their own benefit. They have two important characteristics:

- **Excludability:** It is possible to exclude some people from using a private good. This is normally done through charging a price. If the price is not acceptable, then the good will not be consumed. Once a private good has been purchased by one person, it cannot then be consumed (purchased) by others.
- **Rivalry:** The consumption by one person reduces the availability for others. In some ways it seems obvious that when you purchase food, clothes or a textbook, fewer of these goods are then available for purchase by others.

Free goods

Free goods have zero opportunity cost since consumption is not limited by scarcity. Free goods have no prices and, in principle, no factors of production are required to produce them. It is not easy to think of examples. In some economies, wild fruit and berries may be gathered or some non-domesticated animals hunted for their meat. The air we breathe could also be seen as a free good. Other examples include rainfall and water in a local river.

6.3 Public goods

A **public good** has two characteristics.

- A public good must be **non-excludable**. Once the good has been provided for one consumer, it is impossible to stop anyone else from benefiting from the good.
- A public good must be non-rival. As more and more people consume the good, the benefit to those already consuming the product must not be reduced.

Some goods are public goods in most economies. Fire protection, the police force, national security, street lighting, traffic lights and flood control systems are all public goods. A government-funded flood control system, by its very nature, is in place for the benefit of anyone who might be badly affected by flooding. It is non-rivalrous in the sense that each person living in the vicinity of the flood control system has the same accessibility to its support. It is unrealistic to charge individuals for the protection; what happens if you pay a charge and your near neighbour refuses to pay?

In coastal areas, a lighthouse is an excellent example of a public good. (A lighthouse is a tall structure with a powerful light that is designed to warn shipping of dangerous rocks or shallow water). A lighthouse is non-excludable since the service is available to all vessels in the area. It is non-rivalrous since all ships receive the same warning from the lighthouse's powerful light beam. It is impractical to charge individual ships as they pass by the lighthouse.

Quasi-public goods

Flood control systems and lighthouses are often referred to as **pure public goods**. This is because they are clearly non-excludable and non-rival. Some goods that may appear to be public goods do not meet both of these characteristics in full. For this reason, such goods are known as **quasi-public goods**. A toll road is a typical example. It is non-rivalrous like a public good but excludable like a private good since anyone not paying the toll is excluded from using it.

TIP

Learners often confuse 'excludable' and 'rival' when writing about public goods. These terms are more suitable for describing private goods. Using 'non-excludable' and 'non-rival' for public goods should avoid any confusion. If you are still uncertain, think of an example, such as the fire service or your local police force, and then apply the terms.

Another example of a quasi-public good might be a sandy seaside beach. The beach is available to all those who wish to use it. It appears non-excludable. However, it is possible to think of ways of excluding consumers from the beach. Privately owned beaches do this. Equally, the beach is non-rival up to a point. If you are the first person on a pleasant beach on a warm, sunny day, you may continue to enjoy the beach as a few more people arrive to enjoy the benefits themselves. However, as the beach becomes crowded, space limited and other people's conversations and music become louder, you may no longer enjoy being on the beach. The beach has something of the characteristic of non-rivalry, but not the full characteristic. It is a quasi-public good.

The problem caused by public goods

The problem that may be caused in a free market by the existence of public goods is a serious one: the market may not produce them. There may be a consumer demand for such products (consumers are willing and able, in principle, to pay for the product's services), but the free market may not have a mechanism for guaranteeing their production.

In the case of a flood control system and a lighthouse, we have hinted at what is known as the **free rider** problem associated with the provision of public goods. The free rider problem arises where people enjoy the benefits of a public good without having paid for it. In other words, they take a 'free ride'. The problem is due to the non-excludability of public goods.

Take the case of a non-toll road which is funded by the regional government out of taxation. Anyone who is qualified to drive and who has a vehicle can use it. There is no direct user charge at the point of use. So, tourists and non-local people are free to use the road in the same way as local residents who have contributed to its funding. If the road was to be provided by a private business, this would still be the case. Given that a private firm would be seeking to make a profit, there is no way that it would consider building a non-toll road. The same argument applies to providing fire prevention and police services.

The existence of public goods may mean that scarce resources are not used in a way that would be desirable. People may wish for the provision of such goods, but the demand may never be registered in the market. However, private goods can be rejected if the price is too high or the quality is not what is expected. These seemingly obvious qualities of private goods are useful since they help us understand what is meant by public goods.

ACTIVITY 6.1

1 Copy the chart below.

	Excludable	Non-excludable
Rival	Private good	Quasi-public good
Non-rival	Quasi-public good	Public good

For the following, consider the characteristics of each good and insert the name of the good in the correct box: chocolate bar, public park, firework display, toll road, public cricket pitch, satellite television dish.

2 Add two examples of your own to each box in the table.

3 When you have completed the table, in a pair or a group, discuss any difficulties you may have had compiling the table. Do you agree with other learners' chosen examples? Explain your answer.

6.4 Merit goods, demerit goods and information failure

A **merit good** is a good that is thought to be desirable but which is underprovided by the market. For example, an inoculation against a contagious disease is a merit good. Other people benefit from the inoculation, as they will not now catch the disease from the inoculated person.

A **demerit good**, on the other hand, is seen as any product that is thought to be undesirable and which is overprovided by the market. Eating too much 'junk food' is a demerit good because overconsumption of fatty foods with few nutrients may cause ill health.

Governments tend to provide merit goods, since there is likely to be underproduction and underconsumption. The opposite is the case with demerit goods where there is likely to be overproduction and overconsumption, largely because these are goods that are habit-forming, fairly cheap and readily available.

Information failure and underconsumption of merit goods

To further understand merit goods and demerit goods, you need to know that there is **information failure** applying to the consumer. Information failure arises because consumers do not recognise how good or bad a particular product is for them: either they do not have the right information or they simply lack some relevant information. This is why merit goods are provided by the government for those who are thought to need them.

There is a huge quantity of information on a wide range of products available to consumers on the internet to help them make informed decisions about what to buy. In some countries, better labelling on consumer products, such as food, drink and non-prescription medicines, can help consumers when deciding what to buy. For other products, such as tobacco products and medicines, the labelling may contain reasons to stop or limit the consumption of a product.

In principle, the ever-increasing information available to consumers should enable them to take rational decisions that maximise consumer welfare. Where this happens, the market works efficiently; if not, there will be an inefficient allocation of resources.

Specific examples of information failure are:

- where consumers are not aware of the benefits or the harmful effects of consuming a particular product
- where persuasive advertising results in consumption levels that are not in the best interests of consumers
- where product packaging makes claims that are misleading or inaccurate
- where producers know more about a product than consumers.

ACTIVITY 6.2

1. For your country or a country of your choice, consider two situations where there is information failure. For each example of information failure:
   - a Where have you come across the information failure?
   - b Why might the information not be correct?
   - c What are the likely consequences of the information failure?
2. Discuss each situation with another learner.

Low income and underconsumption of merit goods

As well as information failure, a further reason for the underconsumption of merit goods is low income. Consumers may recognise the benefits of merit goods but lack the disposable income to be able to afford to buy the goods in the quantity they would like or not at all. This is typically the case with education and healthcare:

- All forms of education and training, if successfully completed, should produce benefits to the individual in terms of improved and new skills, better pay and positive employment prospects. There are wider benefits to the economy – a better qualified workforce is an important source of economic growth and can improve the competitiveness of an economy.
- A healthy population benefits both individuals and the economy. If people have to pay for access to doctors, hospitals and medicines, then there will be underconsumption among low-income families. It is morally wrong that only better-off families can use healthcare services in full; for this reason most governments try to provide a minimum level of health care for their people.

TIP

When answering a question on merit goods, make sure that you refer to information failure and underconsumption; otherwise, your answer will be too general.

Equally, consumers may be ignorant of the harmful effects of demerit goods on themselves and on others. Consumers might be indifferent, choosing not to care. This is particularly true of 'junk food' which is of low nutritional value, readily available, cheap and quick to consume. In high-income economies especially, adult and child obesity is already a serious problem and expected to get worse. Obesity can be partly attributed to the overconsumption of fast-foods and high-sugar drinks, especially in low-income households.

Smoking, especially passive smoking, is another example of a demerit good. Smoking is often no longer allowed in public places, such as offices and restaurants. Governments seek to reduce cigarette consumption by imposing heavy indirect taxes, advertising restrictions and health warnings and images on cigarette packets. It is not possible to say with certainty whether these measures are effective, not least because cigarette smoking is still popular among young people in many countries. The ban on smoking in public places has been more successful.

Some economists argue that there is no such thing as merit goods and demerit goods. They put forward the view that in health care and smoking, it should be the individual and not the government who knows what is best for them. This contradicts the underlying assumption that the government knows better than the individual what is good or bad for them because it has considerable information at its disposal.

An important question with regard to merit and demerit goods is 'Who is to say what is 'good' or 'bad' for a person'? If an individual consumer makes a decision to consume a product, what right has society to say that the individual is making a 'wrong' decision? If society is able to tell consumers that they do not fully realise what is good or bad for them, then it follows that 'society knows best' and has a right to make value judgements.

ACTIVITY 6.3

1. In a pair, discuss whether each of the following is a merit or a demerit good in your country:
   - compulsory secondary education
   - wearing a seat belt
   - emergency health services
   - chewing gum
   - visiting a museum
   - playing loud music and shouting at a cricket or football match.
2. What difficulties did you face when making your choices?

KEY CONCEPT LINK

Scarcity and choice: Governments face the fundamental economic problem when deciding how to allocate their limited funds on what seem to be unlimited demands for public goods and merit goods. Choices have to be made as not all wants can be met. Choice should seek to maximise the benefits for all and not just a few people.

REFLECTION

Think about your own contribution to the class debate in Activity 6.4. Did you feel that you contributed enough? Did you feel that your point of view was being heard? If not, think about how you might improve your contributions in the future.

ACTIVITY 6.4

For a class debate:

1. Consider examples of public goods and merit goods in your country or in a country of your choice.
2. Could any of the public goods be provided as private goods? If so, which goods? How could they be provided as private goods?
3. What factors could determine whether fewer merit goods might be provided by the government?

THINK LIKE AN ECONOMIST

Toll-free roads not possible in Malaysia

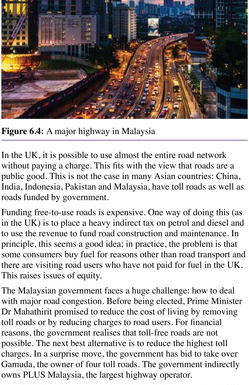


Figure 6.4: A major highway in Malaysia

In the UK, it is possible to use almost the entire road network without paying a charge. This fits with the view that roads are a public good. This is not the case in many Asian countries: China, India, Indonesia, Pakistan and Malaysia, have toll roads as well as roads funded by government.

Funding free-to-use roads is expensive. One way of doing this (as in the UK) is to place a heavy indirect tax on petrol and diesel and to use the revenue to fund road construction and maintenance. In principle, this seems a good idea; in practice, the problem is that some consumers buy fuel for reasons other than road transport and there are visiting road users who have not paid for fuel in the UK. This raises issues of equity.

The Malaysian government faces a huge challenge: how to deal with major road congestion. Before being elected, Prime Minister Dr Mahathirt promised to reduce the cost of living by removing toll roads or by reducing charges to road users. For financial reasons, the government realises that toll-free roads are not possible. The next best alternative is to reduce the highest toll charges. In a surprise move, the government has bid to take over Gamuda, the owner of four toll roads. The government indirectly owns PLUS Malaysia, the largest highway operator.

1. Consider why roads are funded in a different way in the UK and in Malaysia.
2. Explain how roads may be differently funded in another country. (Hint: Singapore)

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which of these is a distinctive characteristic of a pure public good?

A Consumption by one person means that there is less available for another person.

B Nobody can be excluded from consuming it.

C It is produced by the government.

D It is free of charge at the point of use or consumption.

2 Which of these is a distinctive characteristic of a merit good?

A It is overprovided in the market.

B It is underprovided in the market.

C It is funded by the government.

D It is only given to those who deserve it.

3 Which of these is a distinctive characteristic of a demerit good?

A It is overprovided by the market.

B It is underprovided by the market.

C It is paid for by individuals.

D Anyone can buy it.

4 Suppose a public museum charges an entry fee. Which of the following applies to visits to the museum when there are very few visitors?

	Excludable	Rival
A	no	no
B	no	yes
C	yes	no
D	yes	yes

5 Which of these is most likely to be a merit good?

A a local public library

B cigarettes

C sea defences

D satellite television

6 The vaccination of a child against polio is a merit good because:

A the child's family cannot afford the vaccination.

B it protects the child from polio.

C it is underprovided by the market because of information failure.

D it provides employment in the pharmaceutical industry.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand the differences between free goods, private goods, public goods and quasi-public goods			
Explain the difference between merit goods and demerit goods			
Explain why a pure public good has the characteristics of non-excludability and non-rivalry			
Analyse why merit goods and demerit goods are the result of information failure			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Difficult choices for the UK's National Health Service (NHS)

The core principle of the UK's National Health Service (NHS) is that, with a few exceptions, treatments are available to all UK residents free of charge at the point of use.

Funding for the NHS, like other areas of government spending, comes directly from taxation. Figure 1 shows the extent of this funding from 2007/08 to 2018/19 and projected spending for 2019/21.

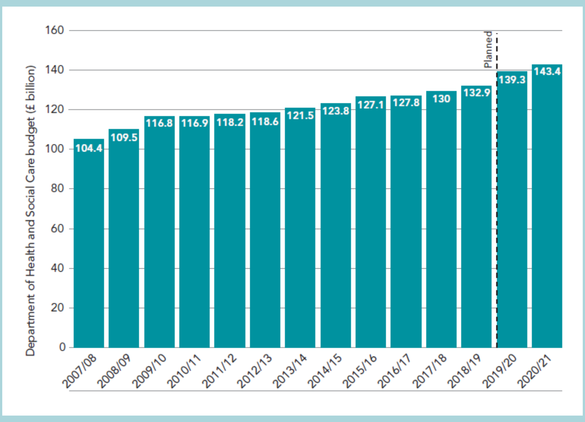


Figure 1: UK expenditure on health and social care 2007/08 to 2020/21 (real terms at June 2019 prices)

The NHS budget is under increasing pressures. People are living longer, new medicines and treatments are expensive and the number of people eligible for NHS treatment has increased.

It is not surprising, therefore, that there is growing support for charges to be made for more healthcare services, especially for people who can afford to pay. Such a move would make these healthcare services more of a private good than a merit good.

a Using the data in Figure 1, describe how expenditure on the NHS has changed since 2007–08. **[2]**

b **i** Explain why the data are in 'real terms at June 2019 prices'? **[2]**

ii Consider another way by which the data in Figure 1 might be made more informative. **[3]**

c Using the concept of opportunity cost, explain why the NHS is increasingly faced with having to make difficult choices. **[3]**

d Explain *two* factors of production that are required for the provision of healthcare services. **[4]**

e Discuss whether healthcare services should be provided by the government or by the private sector. **[6]**

Essays

2 a A middle-income country increases its expenditure on capital goods, with no increase in expenditure on consumer goods.

With the help of a diagram, explain how this affects the country's production possibility curve **and** consider whether producers or consumers will benefit most from the change. **[8]**

b Discuss how the allocation of consumer goods and capital goods differs between a planned economy and a market economy. **[12]**

3 a A public good has the characteristics of non-excludable and non-rival.

Explain how these characteristics can be applied to the provision of flood defences **and** consider which of the characteristics is most important. **[8]**

b Discuss the extent to which libraries and museums should be provided by the government or by the private sector. **[12]**

› **Unit 2**

The price system and the microeconomy (AS Level)

UNIT INTRODUCTION

This unit focuses on how markets work. It examines why, as consumers, we demand certain things and not others. It considers why producers supply the things we need. Central to both of these topics is how prices are determined in markets, and how the market can adjust naturally when there is disequilibrium. Simple models of markets are used to show you what happens when there is change in a market and how change affects price and the quantity traded by consumers and producers. The concept of elasticity is applied to show how the extent of change in markets can be m easured.

Chapter 7

Demand and supply curves

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of effective demand
- explain the importance of individual and market demand and supply
- explain the factors that affect demand
- explain the factors that affect supply
- analyse the causes of a shift in the demand curve (D)
- analyse the causes of a shift in the supply curve (S)
- distinguish between the shift in the demand or supply curve and the movement along these curves.

ECONOMICS IN CONTEXT

Markets in action

China car market shows signs of improvement in March
China Daily, 15 April 2019

EU carbon market going into a frenzy
Daily Telegraph, 17 April 2019

Australia cuts interest rates to bolster economy
The Times, 5 June 2019

Ringgit slightly higher at opening
New Straits Times, 26 August 2019

The war on sugar's biggest casualty: global prices
Wall Street Journal, 12 August 2018

Figure 7.1: Newspaper headlines from around the world

Discuss in a pair or a group:

For each of the headlines in Figure 7.1, identify the market which each represents. Identify some of the demand and supply conditions that are likely to underpin each market.

7.1 The price mechanism and markets

In market economies, the **price mechanism** is essential to the allocation of resources. The price mechanism sends out a signal from **consumers** to producers. If there is oversupply in a **market**, consumers are sending a signal to producers that fewer resources should be allocated to a product. In the case of a shortage, the signal from consumers is that more resources need to be allocated to the product. The price mechanism is self-regulating, which means that it does not require any involvement from the government while the mechanism is working efficiently.

To many people, a market is something that happens in a village, town or city centre once or twice a week. The market is made up of a number of trading stalls selling a range of products: food such as fruit, vegetables, meat and fish; clothing; and a wide selection of other items. Economists take a broader view of the word 'market'. At the core of any market is trade – somebody has something to sell and somebody else has to want to buy the product that is offered. So, whenever people come together for the purposes of exchange or trade, there is a market.

For example, economists talk about the housing market, where people rent, buy and sell property. Look in the newspapers or in the windows of property agents' offices and you will see evidence of this market (Figure 7.2). Economists also refer to the labour market, where individuals' services are 'bought and sold' – anyone who has a part-time or full-time job is part of the labour market as a seller of labour.

Figure 7.2: Evidence of the housing market can be seen in a property agents' window display

There are global markets for a wide range of agricultural products such as coffee, tea and cotton. The market for oil, for example, is closely monitored by governments, transport companies and individuals. The ups and downs of the oil market can have an important influence on our lives and our economies.

Television newsreaders often refer to the stock market, where shares are bought and sold, and the foreign exchange market, where currencies are bought and sold. Another example of a market is the internet where a huge range of products are traded by thousands of companies as well as millions of individuals. The internet is a unique market; individual buyers are in a strong position because they can compare goods and search for the best price.

From these examples, you will understand that a market does not need a physical presence in the way that a typical town or street market might have. Economists simply use the term 'market' to describe the process through which products that are similar are bought and sold.

An understanding of the term 'market' leads to **demand** and **supply**. In simple terms, buyers affect or determine demand, sellers affect or determine supply. Buyers and sellers interact in any form of market.

7.2 Demand

Demand refers to the quantity of a product that buyers are willing and able to buy at different prices per period of time, *ceteris paribus*or other things equal.

It is useful to look at each part of the definition to understand what 'demand' means.

- 'Quantity' is the numerical amount of the product that is being demanded.
- 'Product' is a general term that is widely used throughout this coursebook. Product refers to the item that is being traded. Product can be used for goods or services. It can also include tradable items like foreign currency or financial assets such as shares.
- 'Buyers' (also known as purchasers) of the product are often referred to as 'consumers', although they may simply be a part of the **supply chain**. For example, the food and drinks company Nestlé may purchase large amounts of cocoa to be used in the production of chocolate for sale to the final consumer. Economists may consider an individual's demand for a product or, more usefully, aggregate or sum the demand curves of all individuals to look at demand for the market as a whole.
- 'Willing to buy' – buyers must want a product if they are going to enter into the market with the intention of buying it. This is called **notional demand**.
- 'Able to buy' – the notional demand for a product, which arises from wanting it, must be backed by purchasing power if demand is to become **effective demand**. Sellers are only willing to sell a product if the buyer has the money to pay for it. So, when economists talk about demand, they are referring to effective demand.
- 'Different prices' – prices are crucial to the functioning of a market. Although many things influence demand for a product, it is at the time of purchase, when money is handed over for the product that the buyer really judges whether the product is providing value for money – in other words, whether the consumer is willing and able to buy it. As the price goes up, and provided no other changes have occurred, more and more people will judge the product to be less worthwhile.
- 'Per period of time' – demand must be time related. It is of no use to say that the local McDonald's sold 20 Big Macs to consumers unless the time period over which the sales occurred is made clear. If that was per minute then demand is high, but if that was per week, then this would show there is little demand for Big Macs in this particular market.
- '*Ceteris paribus*orother things equal' – there are many potential influences on the demand for a product. Understanding the connections between the influences is very difficult if many of these elements are changing at the same time. This is why it is necessary to apply the *ceteris paribus*assumption referred to in Section 2.4.

ACTIVITY 7.1

Discuss in a pair:

1 How you take part in these markets:

- **a** local food stalls market
- **b** branded fast-food market like McDonalds and KFC
- **c** smartphone market
- **d** transport market.

2 What affects (determines) your notional demand? How does this differ from your effective demand? How important is price in determining whether you will consume?

7.3 The dem

a line plotted on a graph that represents the relationship between the quantity demanded and the price of a product

The definition of de y a **demand curve (D)**. The example o 7.3 is based on the overall **market** t us assume that we can identify a ty d specifications. We must also assu l data about consumers' preferen eople are willing and able to buy at various prices per period of time, *ceteris paribus* or other things equal. The information can be represented by the data in Table 7.1. The data set in the table is known as a **demand schedule**.

Price of a 'standard' PC ($)	Quantity demanded per week – demand curve D
2000	1000
1800	2000
1600	3000
1400	4000
1200	5000
1000	6000
800	7000

Table 7.1: Market demand schedule for PCs

The market demand curve can now be plotted on a graph to show how the quantity of PCs demanded varies with their price. Therefore, the market demand curve represents the aggregation or sum of hundreds, or possibly thousands, of individual demand curves. Figure 7.3 shows the market demand curve (D) for the data in Table 7.1.

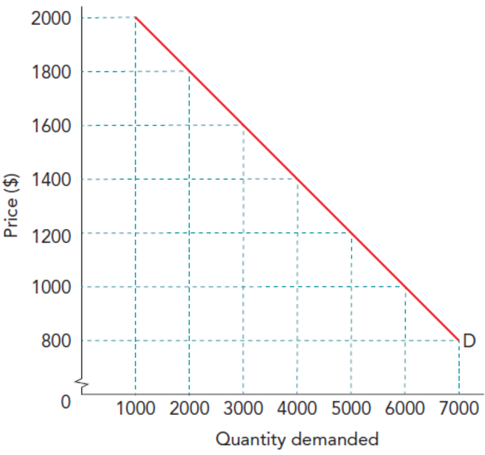


Figure 7.3: The market demand curve for PCs

TIP

It is important not to underestimate the possible problems when trying to collect real-world data for a demand schedule, especially where there is a wide range of prices to consider.

The market demand curve in Figure 7.3 shows that:

- there is an inverse or negative relationship between price and quantity demanded. This means that:
  - when price goes up, there is a decrease in quantity demanded
  - when price goes down, there is an increase in quantity demanded.
- changes in price cause a change in the quantity demanded. This is shown by **movements up and down the demand curve**. It is assumed that all other factors affecting demand remain unchanged.

TIP

Do not confuse 'quantity demanded' and 'demand'. *Demand* refers to the whole demand schedule and does not change when the price of the product changes. A price change causes a change in the *quantity demanded*.

The main features of the demand curve are:

- A linear relationship – the demand curve in Figure 7.3 is drawn as a straight line. However, it is equally acceptable for price and quantity demanded to be related in a non-linear manner in the form of a curve.
- A continuous relationship – you could look at the diagram and find out at what price consumers would be willing and able to buy 1259 PCs.
- A time-based relationship – the time period here is weekly.
- Other things equal, *ceteris paribus*.

Figure 7.3 allows you to estimate how much consumers may spend when buying PCs or, conversely, how much revenue companies may receive from selling PCs. For example, if the price of each PC is $1800 and the information provided is accurate, then consumers will buy 2000 units and their total spending will be equal to $3 600 000 – the revenue that is received by firms from selling this quantity of the product.

TIP

Notice that the word 'estimate' is used to calculate what consumers spend on PCs. This is deliberate due to the earlier comment about the possible difficulties in obtaining data for the demand schedule.

ACTIVITY 7.2

1. Using Figure 7.3 and Table 7.1, answer the following questions:
   - **a** How many PCs per week are people willing and able to buy if the price is $1100?
   - **b** What price will persuade people to buy 1350 PCs per week?
   - **c** What assumptions are you making when you answer these questions?
2. Using Figure 7.3, explain how the area under the demand curve can be used to show the total consumer expenditure/total revenue of the firms selling PCs.

7.3 The factors that affect demand

The price of a good or service is not the only factor or determinant that influences demand. There are other factors (determinants) to consider including:

- income
- the price and availability of related products
- fashion, taste and attitudes.

Income

The ability to pay is vital when considering the importance of effective demand. For any individual, the demand for goods and services depends upon income. (Usually this is taken to mean what a person has left after tax has been deducted.) In terms of market demand, income refers to the income of all consumers and is closely related to the state of the macroeconomy.

In general, there is a positive relationship between income and demand. An increase in the ability to pay usually leads to an increase in demand. Conversely, if the ability to pay falls, then less is demanded. Goods and services that are characterised by this relationship are called **normal goods**. Most products are normal goods and include things like cars, housing, restaurant meals and quality clothing.

For some products, there is a negative relationship, with less being purchased as income rises. These are called **inferior goods**. Typical examples of inferior goods are poor quality foodstuffs (any substance that is food or used to make food) such as packet noodles, low-grade rice and vegetables and used clothing. As consumers become better-off, they are more likely to buy less of these and, instead, purchase more fish, meat and superior quality foods with their increased income. When income falls, such as when there is a recession, consumers will purchase more inferior goods to replace normal goods.

The price and availability of related products

The price and availability of related products may influence demand. There are two types:

- **Substitutes** are alternative goods that satisfy the same want or need. Typical examples are Coca-Cola and Pepsi, both well-known brands of cola, or a Kit Kat and Hersheys chocolate bar. A change in the price of one is likely to have an effect on the demand for the other and on any other similar cola or chocolate products. The extent of the change in demand depends on the degree of substitutability (how close a substitute is to the product). Coca-Cola and Pepsi are very close substitutes; Sprite, Fanta and Lipton Iced Tea are also substitute soft drinks but not as close. Chocolate bars are still substitutes but less so than cola drinks.
- **Complements** are goods that have a **joint demand** as they add to the satisfaction that consumers get from another product. Typical examples are cars and petrol, cricket bats and balls and PCs and monitors. A change in the price or availability of either one of these products will have an effect on the demand for a complementary good. For example, a rise in the price of petrol usually results in a fall in the use of cars for non-essential reasons. Alternatively, a fall in the price of petrol is likely to result in the increased use of cars.

Fashion, taste and attitudes

Fashion, taste and attitudes are more difficult factors to explain since they are largely a matter of individual choice and behaviour. As a consumer, you are unique and have your own particular likes and dislikes. For some products, an individual's attitude might have been built up over time or it could have been influenced by what they have read or what advertisers would like consumers to believe about their product.

TIP

Think about who the good is intended for. For example, a good for someone on a high income can be an inferior good while for someone on a low income, it can be a normal good.

KEY CONCEPT LINKS

Scarcity and choice: Needs are scarce and command a price in the market. An individual's income is limited in relation to their needs; choices have to be made. In other words, the need to make choices is a typical example of the fundamental economic problem.

7.4 Supply

Supply refers to the quantity of a product that suppliers are willing and able to sell at different prices over a period of time, *ceteris paribus*or other things equal.

It is useful to look at each part of the definition to understand what 'supply' means.

- 'Quantity' is the numerical amount of the product that is being supplied.
- 'Product' refers to any item that is being traded. Product can apply to goods or services. It can also include tradable items like foreign currency or financial assets such as shares.
- 'Suppliers' are the sellers of the product. Suppliers are often referred to as 'producers', although they may not always be manufacturers of the product; they might simply be a part of the supply chain or selling services such as IT and finance. There may be just one supplier or many suppliers which when aggregated make up the market supply.
- 'Willing and able to sell at different prices' – in a market economy, companies must gain from selling their products. In many cases, they are in the fortunate position to withhold supply if the price is too low. When price rises in the markets, it is assumed companies will be more willing and able to supply more to the market. This gives a positive relationship.
- 'Per period of time' – supply must be time related. It is of no use to say that Acer supplied 200 computers unless you specify the relevant time period. Clearly, this needs to be consistent with the time period being used for demand.
- '*Ceteris paribus*orother things equal' – there are many potential influences on the supply of a product. Analysing the connections between the various elements is very difficult if lots of these elements are changing at the same time. So, we assume these other factors affecting supply remain unchanged, *ceteris paribus*.

7.5 The supply curve

The definition of supply above can be represented by a **supply curve (S)**. This can be done, say, for an individual firm selling PCs or, by aggregating each company's supply curves, to get the industry or market supply curve for PCs. Assuming we have collected statistical data about companies' selling intentions – represented by Table 7.2 (a market **supply schedule**) – we can plot this supply schedule to see how the quantity of PCs depends upon variations in price. Figure 7.4 shows the supply curve (S) for the data in this table.

Price of a 'standard' PC ($)	Quantity supplied per week – supply curve S
800	1000
1000	2000
1200	3000
1400	4000
1600	5000
1800	6000
2000	7000

Table 7.2: Market supply schedule for PCs

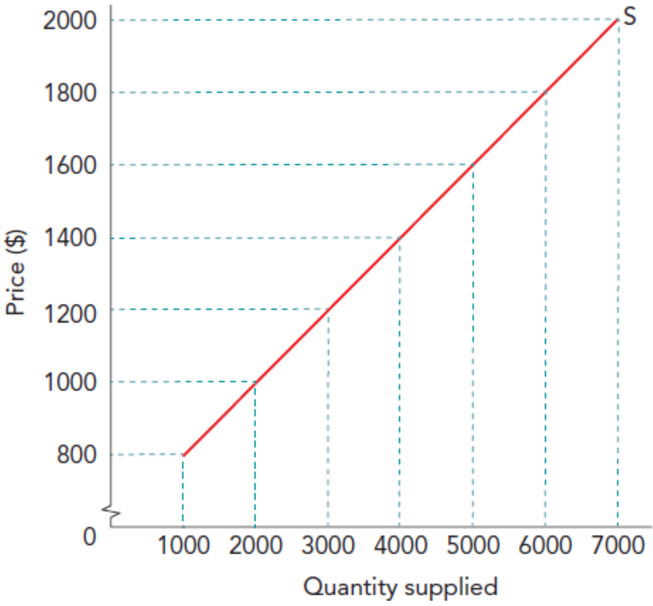


Figure 7.4: The market supply curve for PCs

The supply curve in Figure 7.4 shows:

- A positive or direct relationship between price and quantity supplied. This means that:
  - when price goes up, there is an increase in quantity supplied
  - when price goes down, there is a decrease in quantity supplied.
- Changes in price cause a change in the quantity supplied. This is shown by movements up and down the supply curve. It is assumed that all other factors affecting supply remain unchanged.

The main features of the supply curve are:

- A causal relationship – price changes cause the change in quantity supplied.
- A linear relationship – the supply curve is drawn for simplicity as a straight line. It would be acceptable for the supply curve to be represented in a non-linear way, for example in the form of an upward-sloping curve.
- A continuous relationship – you could look at the curve to find out how many PCs firms would plan to supply at a price of $1150.
- A time-based relationship – the time period here is weekly.

TIP

When answering questions, remember that a change in the price of a product is shown by a movement along the supply curve. The assumption is that all other factors affecting supply are unchanged.

ACTIVITY 7.3

1. Using Figure 7.4, how many PCs per week are companies planning to supply if the price is $1100? What price would persuade companies to supply 1350 PCs?
2. What assumptions are you making when you answer these questions?
3. What might be the advantages and disadvantages of using a diagram like Figure 7.4 to represent supply?

7.6 The factors affecting supply

The price of a good or service is not the only factor (determinant) influencing its supply in the market. There are other determinants to consider, including:

- Costs: Supply decisions taken by firms are always driven by the costs of producing and distributing their products to customers. For many types of firm, labour costs are an important item. In other firms, the cost of energy or transport may be more important, or the productivity of workers can have a huge impact on costs. Replacing labour by capital can also reduce costs in some types of firm.
- The size and nature of the industry: If an industry is growing in size, then more products will be supplied to the market. This growth may well attract new entrants; the competition will increase and prices may fall resulting in some firms leaving the industry altogether. In some industries supply could be deliberately restricted to keep up prices.
- The change in price of other products: Most firms need to be continuously aware of competitors. So, if a competitor lowers its price, it could mean that less products will be supplied by other firms who keep their price unchanged. Alternatively, if a competitor increases its price, other firms may gain and will be able to supply more products provided they can keep their costs under control.
- Government policy: Governments influence companies and their supply of products in many ways. A new tax on a product may result in a reduction in supply; **subsidies** will usually result in an increase in supply.
- Other factors: In agricultural markets, supply is always affected by uncertain weather conditions. Storms or frost may affect the supply of coffee or grapes; drought affects cereal crop yields whereas good weather can lead to bumper harvests of corn and wheat.

REFLECTION

Look again at the newspaper headlines in Figure 7.1. Do you now feel more confident that you can explain how demand and supply conditions underpin each headline? If you are still unsure, what can you do to improve your understanding?

7.7 Causes of a shift in the demand curve

As explained in Section 7.3, the demand curve for a product is drawn on the assumption that apart from the price of the product, all other factors that might affect demand remain unchanged.

When this assumption is relaxed and the non-price factors that affect demand change, the outcome is a shift (move) to the right or left of the demand curve. A shift to the right indicates that demand increases; a shift to the left means demand decreases. These two possibilities are shown in Figure 7.5.

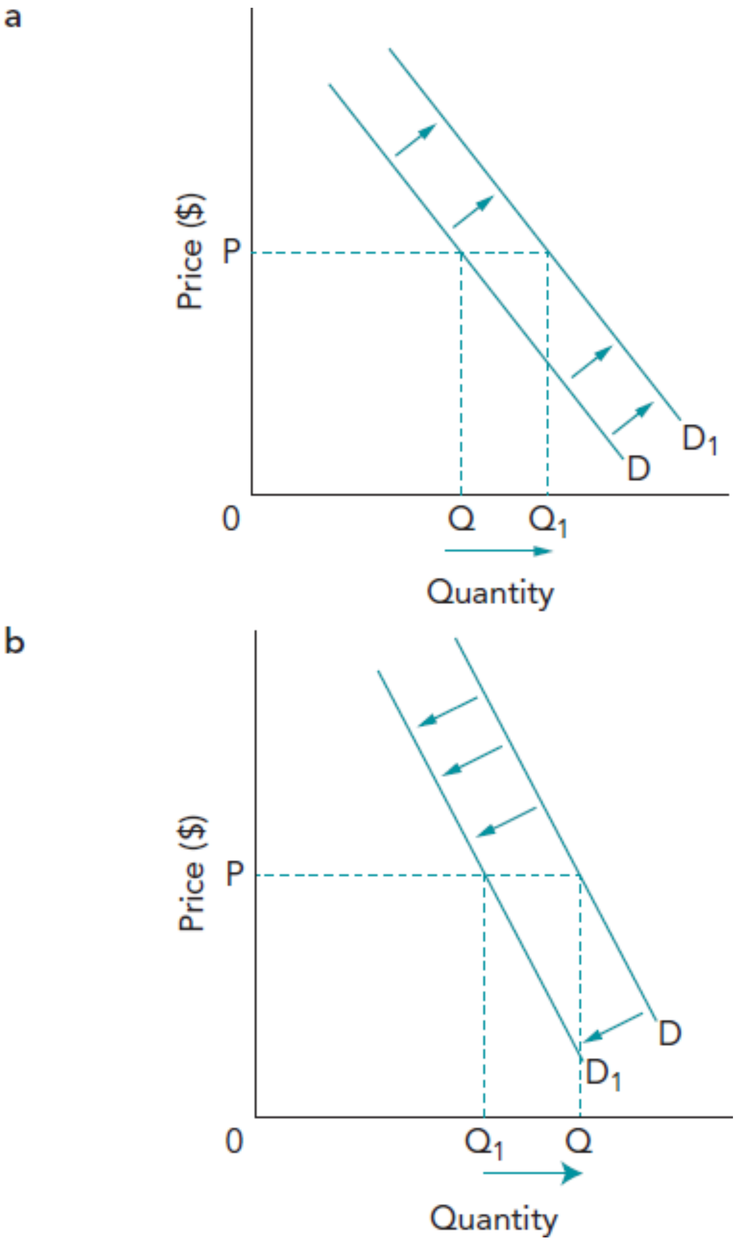


Figure 7.5: Shifts in the demand curve: **a** A shift to the right – demand increases **b** A shift to the left – demand decreases

Table 7.3 summarises the possible causes for shifts in the demand curve.

A shift to the right in the demand curve may mean:	**A shift to the left in the demand curve may mean:**
• an increase in income	• a decrease in income
• an increase in the price of substitutes	• a decrease in the price of substitutes
• a decrease in the price of complements	• an increase in the price of complements
• a favourable change in fashion, taste and attitudes.	• an unfavourable change in fashion, taste and attitudes.

Table 7.3: Causes of shifts in the demand curve

7.8 Causes of a shift in the supply curve

Like the demand curve, the supply curve is drawn on the assumption that other than price, all other factors that might affect supply are unchanged. When these non-price factors do change, there will be a shift to the right or to the left of the supply curve. These shifts are shown in Figure 7.6.

Shifts in the supply curve

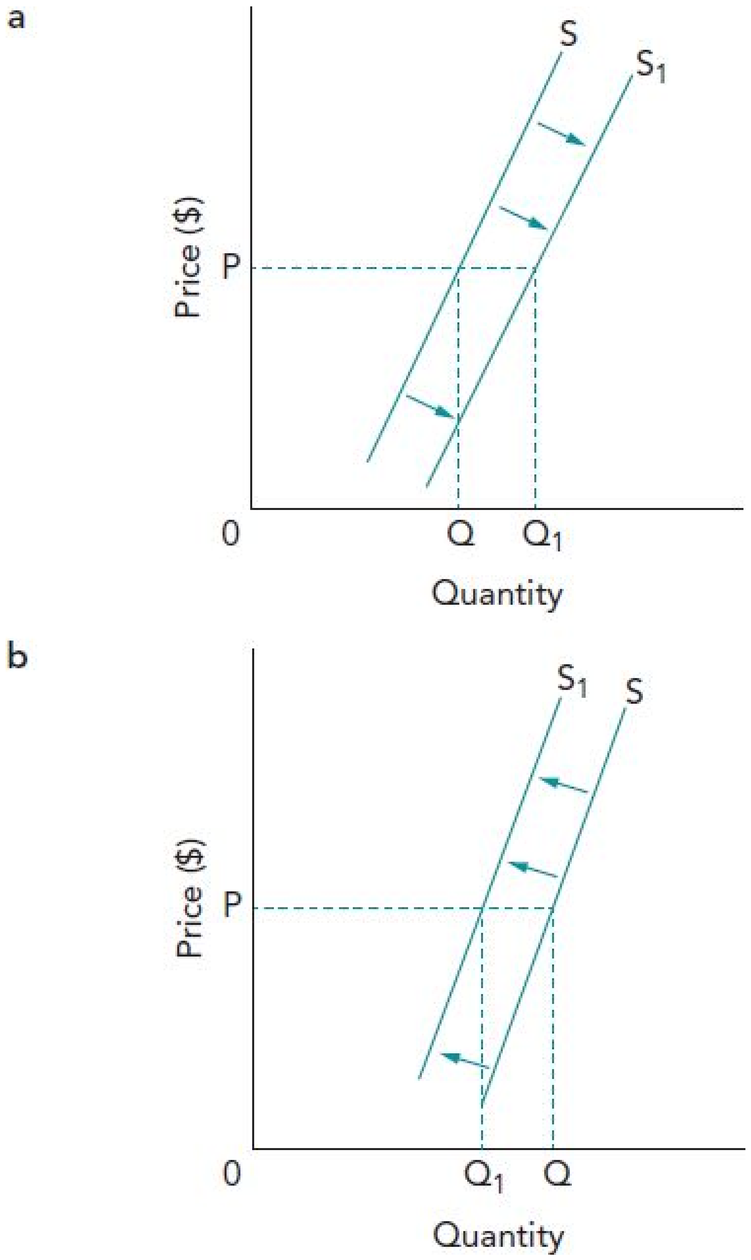


Figure 7.6: Shifts in the supply curve: **a** A shift to the right – supply increases **b** A shift to the left – supply decreases

Table 7.4 summarises the possible causes for shifts in the supply curve.

A shift to the right in the supply curve may mean:	**A shift to the left in the supply curve may mean:**
• a decrease in costs of production • growth in the size of the industry • a decrease in the price of competitor's goods • decrease in an **indirect tax** or increase in subsidy.	• an increase in costs of production • decline in the size of the industry • an increase in the price of competitor's goods • increase in an indirect tax or fall in subsidy.

Table 7.4: Causes of shifts in the supply curve

7.9 How to distinguish between a shift in the demand or supply curve and a movement along the curves

The distinction between a shift in the demand or supply curve and a movement along the curve is important. To summarise:

- A movement along a demand or supply curve shows how the quantity demanded or the quantity supplied responds to a change in the price of the product. An increase in the quantity demanded or quantity supplied is referred to as an **extension of demand or supply**; a decrease in the quantity demanded or quantity supplied is called a **contraction of demand or supply**.
- A shift of a demand or supply curve is in response to a change in any of the non-price determinants of demand or supply. Such shifts are to the right or the left depending on the cause. A shift to the right is an increase in demand or an increase in supply; a shift to the left is a decrease in demand or a decrease in supply.

KEY CONCEPT LINKS

Time: A movement along a demand or supply curve or a shift in a demand or supply curve takes place over two time periods. For example, if there is an unexpected increase in the quantity demanded leading to a rise in price, it will take time for suppliers to produce more to meet this increase.

THINK LIKE AN ECONOMIST

Technology improves efficiency of coffee producers

The global price of coffee is at its lowest level in 13 years. The fall in price is having a major impact on growers in Brazil, the world's largest producer, where an increasing number of growers are unable to make any money yet alone a living from a crop they have grown for generations.

Figure 7.7: A machine is used to harvest coffee beans

The way forward, as any economist knows, is to become more efficient. This requires an increase in productivity coupled with a decrease in costs. It can now be achieved through the use of machines that harvest coffee. Such machines have recently become available, but typically cost $150 000. They can cut harvest costs by 40 to 60% as far fewer workers need to be hired (even if they were available). To help farmers mechanise, some suppliers of the machines are willing to take part payment in coffee beans spread over a number of years.

For them, it looks like a case of 'technology to the rescue'.

Source: Daily Telegraph, 26 August 2019 (adapted)

Consider the case for using machinery to improve the efficiency of harvesting coffee beans.

1. Why might this not be an ethical solution?
2. Given that the global demand for coffee is increasing, why is the price of coffee at its lowest level in 13 years? (Surely, the price of coffee should be increasing.)

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 An individual demand curve tells us how much:

A a firm sells at various prices.

B an individual will buy at various prices.

C firms will sell at various prices.

D individuals will buy at various prices.

2 A market demand curve tells us how much:

A a firm will sell at various prices.

B an individual will buy at various prices.

C firms will sell at various prices.

D individuals will buy at various prices.

3 An individual supply curve tells us how much:

A a firm will sell at various prices.

B an individual will buy at various prices.

C firms sell at various prices.

D individuals will buy at various prices.

4 A market supply curve tells us how much:

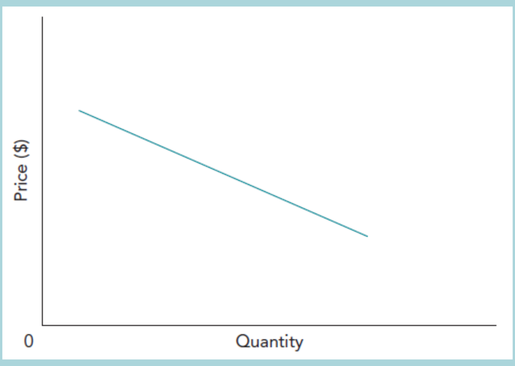
A a firm will sell at various prices.

B an individual will buy at various prices.

C firms will sell at various prices.

D individuals will buy at various prices.

5 The diagram below shows a demand curve for a normal good.



Which of these statements correctly describes what the demand curve shows?

A The quantity changes in proportion to a change in price.

B A fall in price leads to a fall in quantity demanded.

C As price changes, a greater or smaller quantity is demanded.

D As demand increases, so does price.

6 Suppose there is a large increase in the price of a bottle of iced tea. How is this likely to affect the demand curve for bottles of cola?

A There will be an extension of demand along the demand curve for cola.

B The demand curve for cola will remain unchanged.

C The demand curve for cola will shift to the left.

D The demand curve for cola will shift to the right.

7 Which of the following is likely to shift an individual's demand curve for a Range Rover Evoque luxury SUV to the left?

A An increase in price of a substitute SUV.

B A decrease in price of the Range Rover Evoque SUV.

C A decrease in an individual's income.

D A five-star review of the Range Rover Evoque in a motoring magazine.

8 Which of these would cause a shift to the left of the market supply curve for Range Rover Evoque vehicles?

A An increase in the price of the Range Rover Evoque.

B A reduction in the taxation on Range Rover Evoques.

C An increase in the wages of production workers.

D An improvement in output per worker.

9 The government provides funds for a subsidy on the price of cooking oil. How will this affect the market supply curve of cooking oil?

A There will be a contraction of supply along the market supply curve.

B There will be an extension of supply along the market supply curve.

C The market supply curve for cooking oil shifts to the right.

D The market supply curve for cooking oil shifts to the left.

10 The government introduces a new indirect tax on imported orange juice from the USA.

How will this affect the domestic market supply curve for orange juice?

A There will be a contraction of supply along the domestic market supply curve.

B There will be an expansion of supply along the domestic market supply curve.

C The domestic market supply curve shifts to the left.

D The domestic market supply curve shifts to the right.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe the market mechanism			
Understand that the buying side of the market is demand			
Construct a demand curve for an individual firm or for an entire market			
Explain the factors that affect demand			
Understand that the selling side of the market is supply			
Construct a supply curve for an individual firm or for an entire market			
Explain the factors that affect supply			
Explain that a movement along a demand or supply curve takes place when a change in price causes a change in the quantity demanded or supplied			
Analyse how a shift of the demand or supply curve occurs when there is a change in any of the non-price factors that determine demand or supply			

Chapter 8

Price elasticity, income elasticity and cross elasticity of demand

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of price elasticity, income elasticity and cross elasticity of demand (PED, YED, XED)
- use formulae to calculate price elasticity, income elasticity and cross elasticity of demand
- explain the importance of relative percentage changes, the size and sign of the coefficient in relation to price elasticity, income elasticity and cross elasticity of demand
- describe elasticity values: perfectly elastic, (highly) elastic, unitary elasticity, (highly) inelastic, perfectly inelastic
- explain the variation in price elasticity of demand along the length of a straight-line demand curve
- analyse the factors that affect price, income and cross elasticity of demand
- analyse the relationship between price elasticity of demand and total expenditure on a product
- discuss how price, income and cross elasticity of demand can affect decision-making.

ECONOMICS IN CONTEXT

India's Jet Airways grounded

In 2019, the aviation industry in Asia continued to experience soaring growth, nowhere more so than in India. Competition is fierce with low fares on internal routes where two firms are offering services. Fares are also low to attract passengers from Indian Railways. The result, predictably, is heavy losses. In 2019, Jet Airways was the latest casualty in a series of airline failures. It abruptly stopped flying on its domestic and international routes, affecting the livelihoods of its 23 000 workers as well as those employed in providing support services.

Figure 8.1: Jet Airways was the second largest airline in India until it ran into difficulties and stopped flying in 2019

Discuss in a pair or a group:

- How much attention do you think airlines give to their competitors' prices?
- What factors are likely to determine the future growth of demand for air travel in Asia?
- What advice might economists be able to give to help airlines meet future challenges?

8.1 What do economists mean by elasticity?

So far in the analysis of demand and supply, the focus has been on understanding the general direction of any change in price and its effect on the quantity demanded or supplied. To add greater meaning to this explanation, you need to look at the extent of any change in price and its effect on the quantity demanded and supplied.

A few simple examples show why it is necessary to consider the size of a price change. For some products such as rice, a small change in price is likely to have only a minor impact on the quantity demanded. For other food products, particularly where there are close substitutes, such as different brands of tea, a small change in price may have a much larger effect on the quantity demanded. Similarly, if there is a change in income, there may be little effect on the demand for some products and a much greater effect on the demand for others. For example, an increase in income may lead to an increase in demand for restaurant meals yet result in little or no change in demand for eating at food outlets or street stalls.

The concept that explains these variations is called **elasticity**. Elasticity measures the responsiveness of one variable (such as quantity demanded for a product) after a change in another variable (such as the price of that product), *ceteris paribus* . The elasticity measure is a coefficient or number.

The extent of any change is important. Where a small change in price or income produces a bigger change in the quantity demanded, then the relationship between price/income and quantity demanded is said to be **elastic**. Alternatively, if a large change in the price or income produces only a small change in the quantity demanded, then the relationship between price/income and quantity demanded is **inelastic**. The distinction is important as it can be used to explain how firms respond to a range of changing circumstances in their markets. These circumstances include understanding how much the quantity demanded for a good or product responds not only to a change in its price but also to a change in the income of consumers or the prices of substitutes and complements.

KEY CONCEPT LINKS

The margin and decision-making, Time: The concept of elasticity is one which deals with change, in particular how individuals, firms and governments make choices after there has been change. The source of change is usually over time and is due to changes in the factors that determine (affect) the demand for products such as their prices, incomes or the prices of competitors' products.

8.2 Price elasticity of demand

Price elasticity of demand (PED) measures the responsiveness of the quantity demanded for a product following a change in the price of the product. More simply, PED describes how the quantity demanded is affected by a change in a product's price. This is the only change that occurs, in other words, *ceteris paribus* or other things equal. If demand is **price elastic**, then a small change in price will result in a relatively larger change in quantity demanded. On the other hand, if there is a large change in price and a far smaller change in quantity demanded, then demand is **price inelastic**.

An example helps to explain this. PED is calculated as the percentage change in quantity demanded divided by the percentage change in price of the product:

$$\text{PED} = \frac{\%\ \text{change in quantity demanded}}{\%\ \text{change in price}}$$

Using examples of price changes for two products called product A and product B (see Figure 8.2), assume that both of these unrelated products are currently priced at $100 and demand for them is 1 000 units per month. Consider what might happen to the demand for A and B if the price rises to $105. The quantity demanded of product A only falls from 1 000 to 990, whereas the quantity demanded of product B falls from 1 000 to 900. By putting these values into the PED equation, we can calculate the price elasticity of demand.

$$\text{Product A} = \frac{\%\ \text{change in quantity demanded of A}}{\%\ \text{change in price of A}} = \frac{-1\%}{+5\%} = (-)0.2$$

$$\text{Product B} = \frac{\%\ \text{change in quantity demanded of B}}{\%\ \text{change in price of B}} = \frac{-10\%}{+5\%} = (-)2.0$$

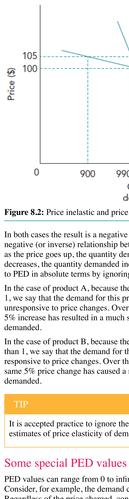


Figure 8.2: Price inelastic and price elastic demand curves

In both cases the result is a negative figure. This is because of the negative (or inverse) relationship between price and quantity demanded; as the price goes up, the quantity demanded goes down and as the price decreases, the quantity demanded increases. (Economists usually refer to PED in absolute terms by ignoring the negative sign).

In the case of product A, because the numerical value (0.2) is less than 1, we say that the demand for this product is price inelastic or unresponsive to price changes. Over this particular range of prices, the 5% increase has resulted in a much smaller change in quantity demanded.

In the case of product B, because the numerical value (2.0) is greater than 1, we say that the demand for this product is price elastic or responsive to price changes. Over this particular range of prices, the same 5% price change has caused a much bigger change in quantity demanded.

TIP

It is accepted practice to ignore the minus sign when considering estimates of price elasticity of demand.

Some special PED values

PED values can range from 0 to infinity. These values need explanation. Consider, for example, the demand curve shown in Figure 8.3. Regardless of the price charged, consumers are willing and able to buy the same amount – in this case, demand is **perfectly inelastic**. Look at the PED calculation for an increase in price from $10 to $11.

$$\text{PED} = \frac{\%\ \text{change in quantity demanded}}{\%\ \text{change in price}} = \frac{0\%}{+10\%} = 0$$

When the PED = 0, demand is perfectly inelastic; it is completely unresponsive to price changes.

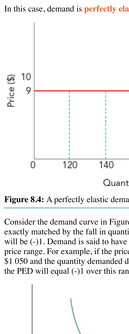


Figure 8.3: A perfectly inelastic demand curve

Consider the demand curve in Figure 8.4. At a price of $10 per unit consumers are not prepared to buy any of this product; however, if price falls to $9, they will buy all that is available. The relative change in quantity demanded here is infinite, since the original demand was zero. So:

$$\text{PED} = \frac{\%\ \text{change in quantity demanded}}{\%\ \text{change in price}} = \frac{\infty}{-10\%} = (-)\infty$$

In this case, demand is **perfectly elastic**.

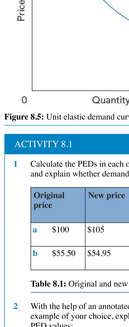


Figure 8.4: A perfectly elastic demand curve

Consider the demand curve in Figure 8.5. If the increase in price is exactly matched by the fall in quantity demanded, then the PED value will be (-)1. Demand is said to have **unit elasticity** over the particular price range. For example, if the price of a product goes from $1 000 to $1 050 and the quantity demanded decreases from 10 000 to 9 500, then the PED will equal (-)1 over this range of prices.

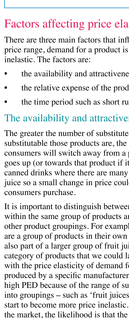


Figure 8.5: Unit elastic demand curve

ACTIVITY 8.1

1 Calculate the PEDs in each of the cases shown in Table 8.1 and explain whether demand is price elastic or price inelastic.

	Original price	New price	Original quantity demanded	New quantity demanded
a	$100	$105	2000 units per week	1950 units per week
b	$55.50	$54.95	5000 units per week	6000 units per week

Table 8.1: Original and new prices and quantities demanded

2 With the help of an annotated diagram and a numerical example of your choice, explain the meaning of the following PED values:

a PED = 1.5

b PED = 0.6.

Factors affecting price elasticity of demand

There are three main factors that influence whether, over a particular price range, demand for a product is likely to be price elastic or inelastic. The factors are:

- the availability and attractiveness of substitutes
- the relative expense of the product
- the time period such as short run or long run.

The availability and attractiveness of substitutes

The greater the number of substitute products and the more closely substitutable those products are, the more it can be expected that consumers will switch away from a particular product when its price goes up (or towards that product if its price falls). A good example is canned drinks where there are many types of cola, iced tea and fruit juice so a small change in price could see quite large changes in what consumers purchase.

It is important to distinguish between the substitutability of products within the same group of products and substitutability with goods from other product groupings. For example, different types of orange juice are a group of products in their own right. The types of orange juice are also part of a larger group of fruit juices and part of the even bigger category of products that we could label as 'drinks'. If we are concerned with the price elasticity of demand for a particular type of orange juice produced by a specific manufacturer, then it will probably have a fairly high PED because of the range of substitutes. As we classify products into groupings – such as 'fruit juices' or 'all soft drinks' – demand will start to become more price inelastic. So, the narrower the definition of the market, the likelihood is that the PED will be greater.

Other substitutability issues to consider include:

- The quality and extent to which information is available about products that consumers need so as to be able to satisfy their particular wants and needs. Internet search engines provide consumers with almost endless lists of products and their prices compared to local and city centre shops.
- The extent to which people consider the product to be a necessity or a luxury. Necessity goods are essential for everyday living and are price inelastic. Luxury goods such as designer clothing are price elastic as consumers can do without them.
- The addictive properties of the product (whether the product is habit-forming). For some people, chocolate or high-caffeine drinks are addictive. Their demand is likely to be price inelastic.
- The brand image of the product. Some products are sold to consumers solely because of the brand and how it is superior to similar products from competitors. Such products are likely to be price inelastic.

The relative expense of the product

A rise in price reduces the purchasing power of a person's income and their ability to pay for products. The larger the proportion of income that price represents, the larger the impact is on the consumer's income as a result of a change in the product's price. For example, a 10% increase in the price of a flight to Pakistan will have a bigger impact than a 10% rise in the price of a bus trip into town. So, the greater the relative proportion of income accounted for by the product, the higher the PED.

The time period

In the short run, perhaps weeks or months, people may find it hard to change their spending patterns. In the longer run, if the price of a product goes up and stays up, then over time people will find ways of adapting and adjusting, so the PED of a product is likely to increase over time. In other words, it changes from being price inelastic to price elastic as consumers look at what else is available in the market.

ACTIVITY 8.2

1 Classify the following products into whether, in your opinion, the PED is likely to be price elastic or price inelastic. Swap your answers with another learner. Do you agree on the answers?

   a Coca-Cola
   b Nike trainers
   c the market leader brand of petrol in your country
   d fresh vegetables
   e a McDonald's burger
   f all types of soft drinks
   g cooking oil

2 A manufacturer has received a market research estimate of PED values for its shirts currently sold in three markets: local market stalls, fashion stores and online. Explain the PED values shown in Table 8.2.

Market	Current price	Current sales per year	PED value
Local market stalls	$8	40 000	1.0
Fashion stores	$15	10 000	0.2
Online shop	$10	3 000	3.0

Table 8.2: PED values

PED and a downward-sloping linear demand curve

So far, it might be assumed that PED is the same throughout the entire length of the demand curve. This is not correct, as Figure 8.6 shows. Remember that PED is calculated using percentages. When prices are high and the quantity demanded is low, a large change in price will not be a large percentage change; the percentage change in quantity demanded will be higher and significant in percentage terms. This results in demand being price elastic on the upper part of the demand curve. The reverse applies and explains why PED is inelastic in the lower portion of the demand curve.

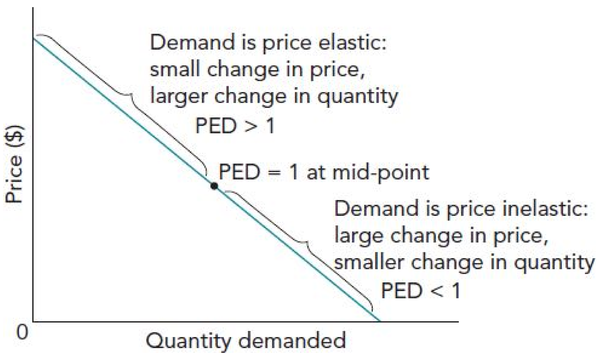


Figure 8.6: PED changes along a demand curve

ACTIVITY 8.3

Table 8.3 shows the demand schedule for product R.

Price of product R ($/unit)	Quantity demanded of product R (units per week)
10	500
9	1 000
8	2 000
7	3 000
6	4 000
5	5 000
4	6 000
3	7 000
2	8 000
1	9 000
0	10 000

Table 8.3: Demand schedule for product R

1 Using Table 8.3, calculate PED values as prices fall from $10 to $9, from $9 to $8, from $8 to $7 and so on.

2 Draw the demand curve. Comment on how it compares with the one in Figure 8.6.

8.3 Income elasticity of demand

Income elasticity of demand (YED) measures the responsiveness of the quantity demanded for a product following a change in income. More simply, it measures how the quantity demanded is affected by a change in a consumer's income. This is the only change that occurs, in other words, *ceteris paribus* or other things equal:

$$\text{YED} = \frac{\text{\% change in quantity demanded}}{\text{\% change in income}}$$

If demand is responsive to an income change, the percentage change in quantity demanded will be greater than the percentage change in income. This produces an income elastic outcome and a YED which is greater than 1. Where demand is not responsive to an income change, then the quantity demanded is income inelastic and has a value of less than 1.

The classification of goods in relation to income

YED is used to classify goods in relation to changes in the incomes of consumers. This classification is based on the size (in numerical terms) and the sign (positive or negative) of the YED.

Four types of good can be identified using YED:

- A normal good is one where the quantity demanded increases as income increases. Most products are like this. In China and in India the demand for chicken meat has increased as incomes have increased for many households. In emerging economies especially, the demand for cars increases as incomes increase as a result of economic growth. Elsewhere, even in very poor countries, a smartphone is now regarded as a normal good. For normal goods, the YED is positive and expected to be between 0 and 1.
- An inferior good is one where the quantity demanded decreases as income increases or increases as income falls. In the case of a rise in income, consumers use their increased incomes to buy better quality goods to replace inferior substitutes. Typical examples of inferior goods are poor quality rice and packet noodles. The YED is negative; its size indicates the strength of the relationship between a change in income and the quantity demanded.
- A **necessity good** is a type of normal good for which the quantity demanded is unlikely to change when income changes. Staple foodstuffs such as rice, flour and pulses that are regularly consumed are typical. The YED is positive but is likely to be close to zero. A low value for the YED indicates that there is a limit to the quantity of these goods that households purchase even when the change in income might seem to be substantial.
- A **superior or luxury good** has a positive YED that is greater than 1 and is a normal good where the quantity demanded is responsive to changes in income. The higher the size of the YED, the greater the change in quantity demanded. Examples of superior goods are designer clothes and jewellery or the latest electronic devices. In low-income economies, a motor cycle can be a superior good compared to using the bus or a bicycle for example.

The above classification of goods in relation to income depends on the level of income of consumers or households. A necessity good for one family could be a normal good for a better-off family. For example, rice or flour are likely to be necessity goods for low-income families yet are more likely to be inferior goods for those with higher incomes.

Figure 8.7 shows the different relationships between a change in income and the quantity demanded for these goods.

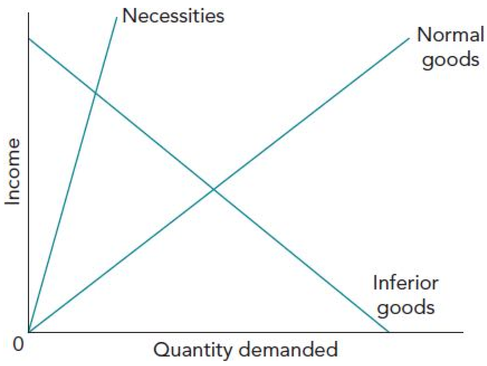


Figure 8.7: The classification of goods in relation to income

TIP

When answering a question on income elasticity of demand, it is important to know about the size of the estimate as well as its sign. Some learners tend to write just about the sign, saying only what is meant by a positive or negative sign.

ACTIVITY 8.4

Table 8.4 shows the demand schedule for rooms at a guest house in Pakistan. The price of a room is given in Pakistani rupees.

Price per room (Pakistani rupees)	Quantity demanded Income = 20000	Quantity demanded Income = 24000
200	24	34
400	20	30
600	16	26
800	12	22
1000	8	18
1200	4	14

Table 8.4: Demand schedule for rooms at a guesthouse

Using Table 8.4:

1. Calculate the YED when rooms rent for 400 rupees.
2. Calculate the YED when rooms rent for 1000 rupees.
3. Explain whether guest house rooms are normal or inferior goods.
4. Explain whether guest house rooms are necessity or superior goods.

8.4 Cross elasticity of demand

Cross elasticity of demand (XED) measures the responsiveness of the quantity demanded for one product following a change in the price of another product. More simply, it measures how the quantity demanded is affected by a change in price of a related product. This is the only change that occurs, *ceteris paribus* or other things equal.

XED can be both elastic and inelastic. Demand is cross elastic when the quantity demanded for one product responds more than proportionately (to a greater degree) to a change in the price of another product. This leads to an XED that is greater than 1. When the quantity demanded for one product responds less than proportionately to a change in the price of another product, demand is said to be cross inelastic. The XED value is less than 1:

$$\text{XED} = \frac{\%\text{ change in quantity demanded of product A}}{\%\text{ change in the price of product B}}$$

The sign of the XED (positive or negative) is important as it indicates the relationship between the two goods.

- Where the XED is positive, the two goods are *substitutes* . This is because an increase in the price of one good causes an increase in the quantity demanded of the other good. For example, an increase in the price of Coca Cola will most likely lead to an increase in demand for Pepsi Cola, a close branded alternative. Take the case of a hawker's food market such as those open-air complexes found in Malaysia and the Riau Islands in Indonesia. An increase in the price of a meal from an Indian food stall should see an increase in demand for food from a nearby Chinese food stall. Both products are meals and substitutes. It is assumed that consumers act rationally switching their demand to the cheaper drink and meal. This may not always be the case if the consumer only likes Indian food.
- XED is negative when the two products are *complements* or jointly demanded. An increase in the price of one product causes a decrease in the demand for another product (whose price has remained unchanged). A rise in the price of a smartphone contract may result in less demand for apps and internet surfing. Another example could be if an increase in the price of cinema tickets leads to a fall in the quantity of popcorn that is demanded by cinema goers.

TIP

Before making a calculation, try to decide whether the two goods seem to be substitutes or whether they complement each other. In this way you should know if your arithmetic is correct.

Figure 8.8 provides an example of a substitute. Assume the current average market price of a standard type of personal computer is $1 000 and current sales are 100 units per day. Consider what might happen if, following a 2% decrease in the price of laptop computers (a substitute product), demand for PCs falls from 100 units to 96 units per day at the original price (D to D_1). The calculation becomes:

$$\text{XED} = \frac{4\ \%\text{ fall in demand for PCs}}{2\ \%\text{ decrease in price of laptops}} = +2$$

The positive sign shows that the products are substitutes; the size indicates that they are reasonably close substitutes.

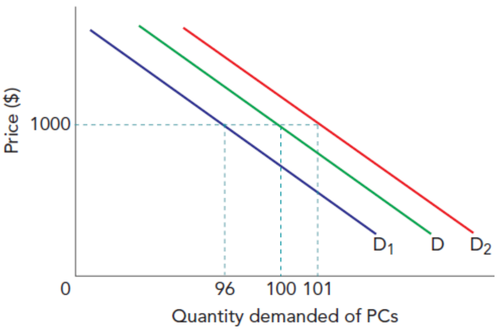


Figure 8.8: A change in the demand for PCs

Suppose that the average price of software (a complement) falls by 5%. This encourages extra sales of PCs so that demand for PCs rises to 101 per day at the original price and the demand curve shifts from D to D_2.

The cross elasticity calculation is:

$$\text{XED} = \frac{1\ \%\text{ increase in sales of PCs}}{5\ \%\text{ fall in price of software}} = -0.2$$

The sign indicates a negative one between complements and the numerical value indicates a weak relationship.

An XED of zero indicates that there is no particular relationship between two products.

An extreme example could be where a change in the price of a McDonald's burger leads to no change in the demand for international air travel. There is no relationship.

TIP

Remember that all elasticity values are estimates due to problems associated with the collection of data.

ACTIVITY 8.5

1. Using Figure 8.8:
   - **a** Suppose the XED is now +4. How would this have affected the demand for PCs following the same change in price?
   - **b** How would the XED have changed if the demand for PCs had decreased to 90 units per day?
2. The owner of a local badminton centre loans out equipment to non-members who want to play occasional games. It is estimated that if the price of hire is reduced by 10%, the number of non-members playing will increase by 25%. Calculate and comment on the value of the XED.

TIP

When you calculate any of the three elasticity estimates (PED, YED and XED), remember that the numerator in the formula is always the percentage change in quantity demanded. A common mistake is to put % change in quantity of product B in the denominator of the XED formula.

8.5 How price, income and cross elasticities of demand can affect decision-making

Estimates of PED, YED and XED have implications for decisions that have to be made by businesses.

Price elasticity of demand (PED)

PED can be used to explain:

- price variations in a market
- the impact of changing prices on consumer expenditure and sales revenue
- the effects of changes in indirect taxes on government income.

Relationship between PED and price variations in a market

A good example of price variations in a market is the price of tickets to watch major sporting events. In 2019, the cricket World Cup was held in England. The cheapest ticket for some group stage matches was $105; for the final, the cheapest ticket price was $455. The reason can largely be explained by PED. The final was a 'must see' for many spectators and demand was highly price inelastic.

Variations in PED can also be used to explain:

- the difference between peak and off-peak rail travel in some countries
- why it is usually cheaper to purchase airline tickets a few months rather than a few days ahead of travel
- why restaurant meals are more expensive during religious festivals.

In all of these examples, businesses use price variations to increase their revenue. They are aware of variations in PED in their markets and try to use the opportunities presented to them to increase sales and revenue.

Relationship between PED and total expenditure on a product

PED can help us understand how total spending by consumers will change as price rises or falls.

Total expenditure = P × Q, where P is price and Q is quantity = Total revenue for a firm

In Figure 8.9, assume there are two products each with the same price ($10) and quantity traded (100 units per day). Total expenditure by consumers per day = $10 × 100 = $1000 - this is equal to the revenue received by a firm. Now, if the price rises to $11, the differences in PED indicate that consumers respond in different ways, and the total expenditure will change:

- D_e is relatively price elastic over the particular price range, and quantity falls considerably to 80 units (PED = 2). Total expenditure is now down to $880 per day - the reason is that the relative fall in sales is greater than the relative increase in price.
- D_i is relatively price inelastic over the particular price range and the quantity traded only falls slightly to 95 units (PED = 0.5). Total expenditure actually rises even though less is traded. The reason is that the increase in price is the more powerful influence in this case.

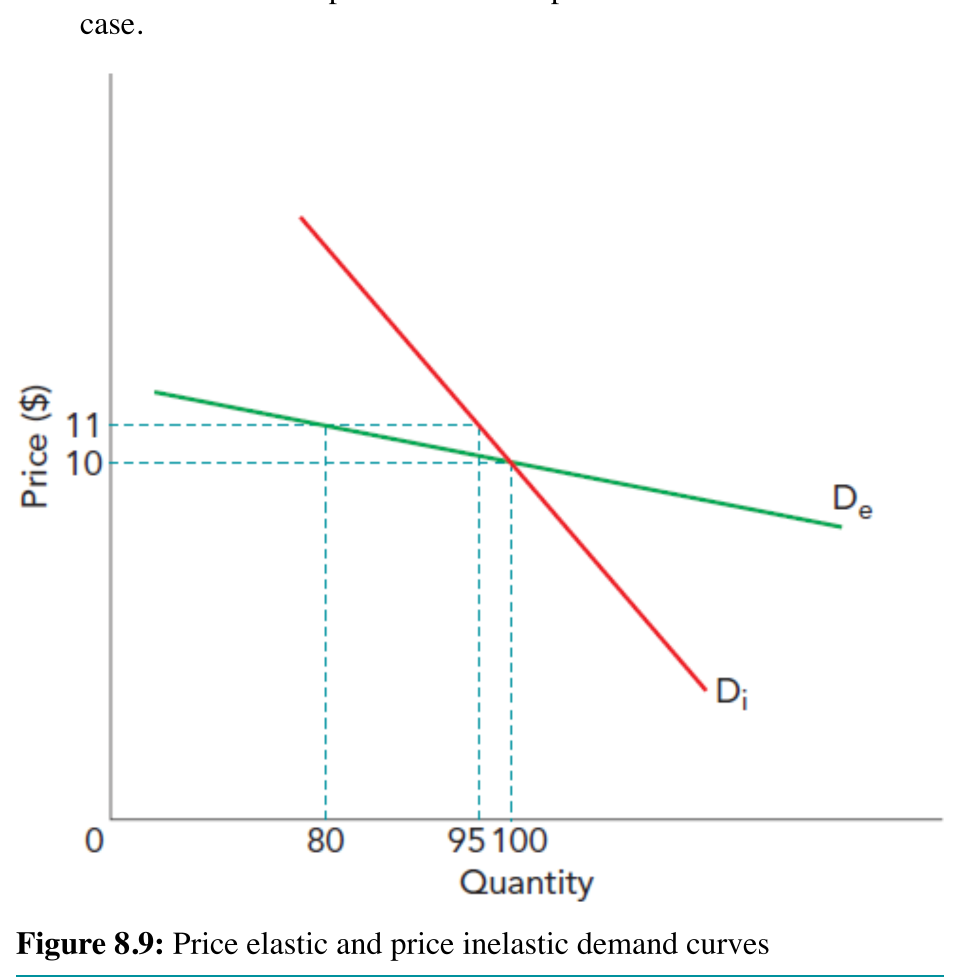


Figure 8.9: Price elastic and price inelastic demand curves

Therefore, it is important that when a business is planning to make a price change the decision-makers are aware of the likely PED for the product. More specifically:

- When demand is price inelastic, a business is able to increase price in order to increase its revenue. Reducing price is not a sensible option as revenue will fall.
- When demand is price elastic, the business should decrease price to increase the quantity demanded and therefore revenue. Increasing price would only decrease sales and revenue.

Figure 8.10 shows how PED influences revenue when price changes.

An objective of some firms is to make the PED for their product more price inelastic in order to increase revenue. This can be achieved in various ways such as:

- Firms use persuasive advertising to try to influence (persuade) consumers to buy a product. Persuasive advertising highlights the benefits of the product compared to its substitutes. For example, this type of advertising may emphasise the health benefits of a product or a well-known celebrity may promote (endorse) the product. It results in a shift to the right of the demand curve for the product, with increased sales. There is no change in price.
- A firm may create a brand image (branding) for its products in order to make the products appear superior when compared to similar products from competitors. Branding is often used by multinational companies to persuade consumers to buy their brand rather than similar supermarket own brands.
- A firm takes over or merges with a competitor to increase market share and therefore control over a market.
- A firm creates a monopoly product where a firm is the only producer of the product which is protected by a patent or regulations.

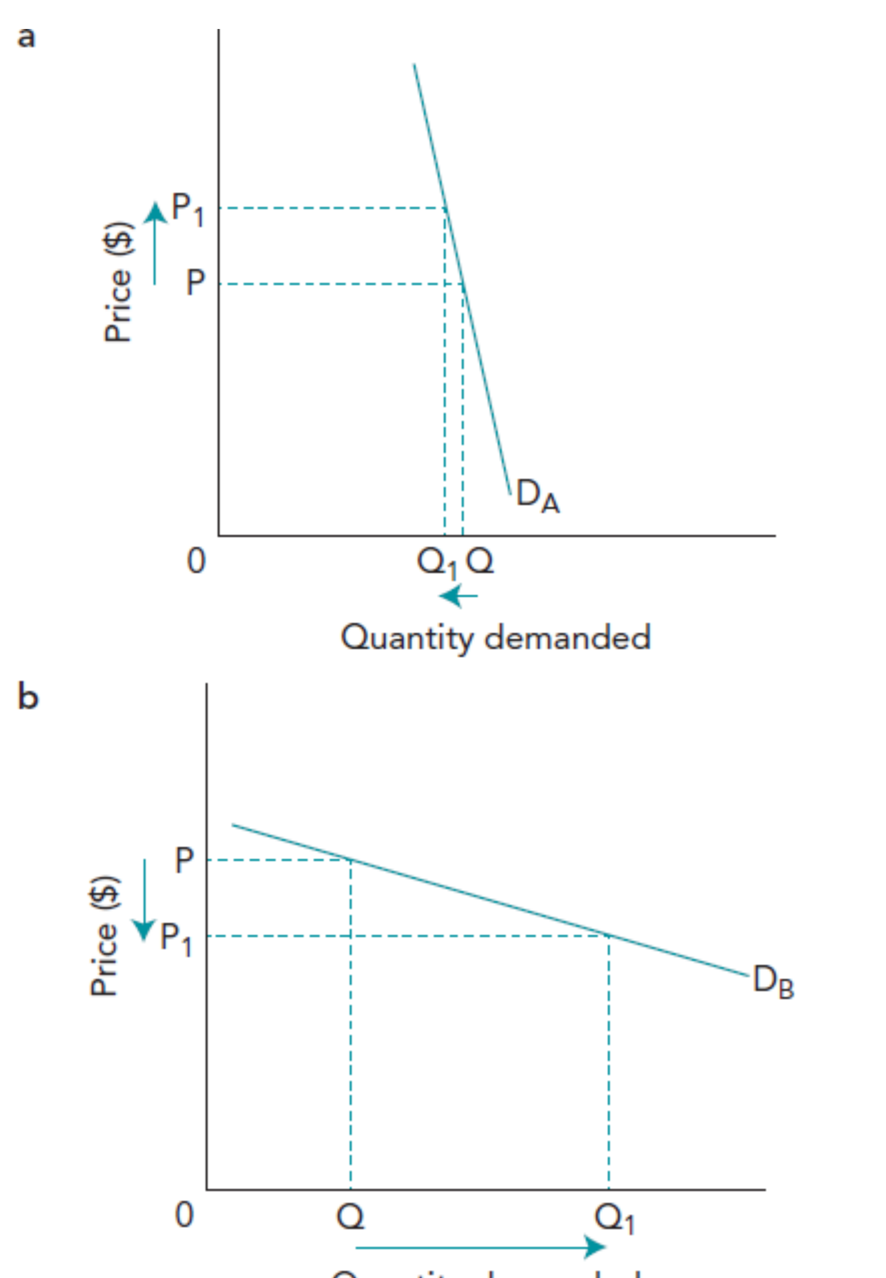


Figure 8.10: Influence of PED on revenue when price changes: **a** Inelastic – increase in price results in increase in revenue **b** Elastic – decrease in price results in increase in revenue

Making a product more price elastic is more difficult. It can be done if a product is one of many products in a market where demand is particularly price sensitive. Retailers often use special sales promotions to increase sales by reducing the price of the product with the intention that consumers continue to purchase the product when the promotion has ended. Such a policy is risky since competitors are likely to make the same price reduction, in which case all producers will probably lose out.

Income elasticity of demand (YED)

YED provides information on how the quantity demanded varies with a change in income. It is potentially of great importance for firms and for governments in forecasting the future demand for a whole range of consumer goods and services. In emerging markets like China, India, Malaysia and Pakistan, for example, as incomes increase, then people demand more cars. In some cases the demand is for upmarket brands to replace a budget vehicle. As a result, vehicle production and assembly plants develop to satisfy this demand. Government spending needs to be changed to allocate more resources to build more roads to accommodate the increased demand for personal and business mobility.

If the YED for a normal good is greater than 1, then demand will be expected to grow more quickly than consumer incomes. This is usually the case in times of sustained economic growth such as that experienced by China, India and Vietnam in recent years. During a recession (economic downturn), as experienced by some high-income countries in 2008 and globally in 2020, firms producing these types of product suffered reduced demand.

If YED is negative, in the case of inferior goods, firms that produce these can expect their sales to decline when the economy is doing well; at a time of recession, though, demand for their product is likely to increase.

ACTIVITY 8.6

1 Table 8.5 shows some recent estimates of the YED for electricity in three countries. Explain the likely reasons for the differences in these estimates.

Country	YED for electricity
Australia	0.60
Pakistan	1.60
Bangladesh	1.91

Table 8.5: Recent estimates of the YED for electricity in three countries

2 How could you use YED values to advise a firm on how to produce a mix of goods and services that would reduce the risks often associated with only producing a very narrow range of products?

3 Why might government planners be interested in the YED values of different products?

Cross elasticity of demand (XED)

Many firms are concerned about the impact that competitors' pricing strategies will have on the demand for their own products. Remember that substitutes are characterised by a positive XED: the higher the price, the more likely it is that consumers will buy a cheaper substitute. In such cases, there is a high degree of interdependence between suppliers, and the dangers of a competitor cutting its price are likely to be significant.

The size of the XED is important. Suppose a firm has an XED of 1.5 with another related product. This indicates that a 10% decrease in price is likely to cause a 15% decrease in the quantity demanded of its own product. An even higher XED would lead to an even greater decrease in the quantity demanded.

Firms are increasingly concerned with trying to get consumers to buy not just one of their products but a whole range of complementary ones, for example, computer printers and cartridges from the same manufacturer. XED will identify those products that are most complementary and help a firm introduce a pricing structure that generates more revenue.

Market research may indicate that families spend most money at restaurants when special deals are offered, even though the PED for meals is low. In this case, for example, the high negative cross elasticity between meal prices and the demand for soft drinks (such as Pepsi Cola and Coca-Cola) means that although the revenue from food sales may fall, the demand for soft drinks may increase. This indicates that the restaurant may need to introduce a more sophisticated pricing structure by looking at the relationships between the demand for all of the products and services it offers.

It might be assumed that calculating demand elasticity values is straightforward. In practice, there are many practical problems, which mean that elasticity values are best seen as reasonable estimates. This is because in all three cases we are trying to measure *change* in the market and this is by no means easy, as data for two points in time are required. For instance, consider the difficulties of calculating PED values from past data. Have the price changes only been caused by supply variations? Have there been any non-price influences at work? Remember, if we are to calculate a meaningful PED value, there is a need to separate out all the other influences that affect the quantity demanded and to only measure the impact of the price change alone on quantity demanded. This is difficult.

Similar problems occur when trying to estimate YED. The data available are likely to be unreliable the longer the time span involved

available are likely to be unreliable the longer the time span involved. Over time, the products available in the market are subject to change, particularly in technological terms. Think about smartphones as a typical example and how they have changed in a short period of time. Such problems make YED estimation difficult. Therefore, many firms may prefer to make rough estimates of elasticity values or to work with incomplete data, particularly if they are operating in markets where rapid change means past data has only limited value.

ACTIVITY 8.7

The owner of a local restaurant has asked for your help. Sales of the most popular dish, chicken and rice, have fallen sharply since the price of the meal increased. The owner is keen to know if the price increase is the only reason for the fall in sales or whether there are other reasons.

In a group, undertake an investigation and then report findings to the whole class. In planning your investigation, you should consider the following:

1. What data do you need?
2. How might the data be collected?
3. How certain are you about what you have found out?

You could present your findings using a presentation app.

REFLECTION

How easy was it for your group to undertake Activity 8.7? How did you allocate tasks to group members? What might you do differently if you were to repeat the activity?

How well was your presentation received by the rest of the class?

How has this activity increased your understanding of the three elasticity of demand concepts?

THINK LIKE AN ECONOMIST

The price elasticity of natural gas demand in China

Natural gas is a type of low-carbon energy which is increasingly being used instead of coal and oil to generate electricity. Natural gas is cleaner and therefore more environmentally acceptable in its production, particularly in China, which relies heavily on coal-fired power stations. China's remarkable economic growth has been fuelled by coal and oil.

Figure 8.11: A solar power plant in China produces green energy

A paper by four Chinese economists seeks to explain how energy price changes affect natural gas consumption. It is one of only a few recent examples where economists have set out to estimate demand elasticities. Their main findings are:

- Short-and long-run PED estimates of natural gas demand are -1.52 and +0.41.
- XED of the demand for coal with respect to a change in natural gas prices is -0.76 in the short run and +0.01 in the long run.

The economists conclude that natural gas consumption can be enhanced by increasing coal and oil prices as part of a strategy to promote greener forms of energy.

1. Consider how the researchers' data is used to provide their conclusions.
2. Explain the long-run PED estimate of the demand for natural gas.
3. Try to think more widely about how this type of research might be used by the Chinese government to show whether it is committed to green energy production.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Price elasticity of demand is:

A the change in demand given a change in price.

B how the price changes given a change in quantity demanded.

C the percentage change in quantity demanded given a change in price.

D the percentage change in quantity demanded given a percentage change in price.

2 Along a downward sloping demand curve, the value of price elasticity of demand:

A falls as the quantity demanded increases.

B increases as the quantity demanded increases.

C is the same along the demand curve.

D varies with the level of expenditure.

3 The price of a can of iced tea increases from $1.00 to $1.10. The quantity demanded falls from 300 cans a week to 240 cans a week.

Calculate the price elasticity of demand.

A –0.5

B –2.5

C –2.0

D –2.22

4 The price elasticity of demand for a product is 1.

Which of the following changes is correct?

A A rise in price will result in total spending on the product to rise and then fall.

B A rise in price will result in no change in total spending on the product.

C A fall in price will result in an increase in total spending on the product.

D A fall in price will lead to an increase in quantity demanded but total spending on the product will fall.

5 Why must total spending on a product increase when its price increases?

A if demand for the product is price elastic

B if demand for the product is price inelastic

C if the price of a substitute product increases

D if the price of a complementary product increases

6 If pulses are an inferior good:

A demand will increase as income increases.

B supply will increase to satisfy the increase in demand.

C demand will fall as income increases.

D demand will be unchanged as income increases.

7 Given the value of income elasticity of demand. Which of the following is likely to be a necessity?

A a new pair of trainers +1.5

B a visit to KFC or McDonald's +0.8

C petrol for the motorcycle +0.2

D a trip to a Premier League cricket or football game +2.5

8 The cross elasticity of demand for the change in quantity of a brand of cooking oil compared to a change in price of another brand is +1.3. Which of the following best describes the relationship between the two brands?

A complement and elastic

B complement and inelastic

C substitute and elastic

D substitute and inelastic

9 The cross elasticity of demand for Australian tourists visiting Indonesia is 2.4 when the price of visits to Malaysia increases by 5%.

What is the percentage change in the number of Australian tourists visiting Indonesia?

A 5%

B 0.48%

C 2.08%

D 12%

10 A firm makes four products, A to D, with differing elasticities of demand. The demand for the products is growing due to rising incomes. Which product should the producer spend most on to promote sales?

Product	Price elasticity of demand	Income elasticity of demand	Cross elasticity of demand
A	–0.3	+2.5	+0.3
B	–1.5	+0.6	+1.4
C	–0.8	–0.6	+1.8
D	–2.0	–1.7	+2.4

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand the concept of elasticity and the difference between elastic and inelastic demand			
Describe price elasticity of demand (PED) and calculate PED			
Explain the difference between PED values: perfectly elastic, (highly) elastic, unitary elasticity, (highly) inelastic, perfectly inelastic			
Explain the factors affecting PED			
Describe income elasticity of demand (YED) and calculate YED			
Explain how goods may be identified using YED: normal good, inferior good, necessity good, superior or luxury good			
Describe cross elasticity of demand (XED) and calculate it			
Understand that the sign (positive or negative) of the XED indicates the relationship between two goods			
Discuss how estimates of PED, XED and YED have implications for decisions that have to be made by businesses			

Chapter 9

Price elasticity of supply

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of price elasticity of supply (PES)
- calculate price elasticity of supply using the formula
- explain the significance of the relative percentage changes, the size and sign of the coefficient of price elasticity of supply
- analyse the factors affecting price elasticity of supply
- discuss how price elasticity of supply is related to the speed and ease with which businesses react to changed market conditions.

ECONOMICS IN CONTEXT

Supply of cashew nuts from Tanzania

Tanzania is the world's largest producer of cashew nuts. Revenue from this crop is a valuable source of export revenue. The income of many farmers is entirely dependent on getting a good price for their crop of cashew nuts. Demand is high, particularly from Asian countries where cashew nuts are widely used in cooking. Supply though is unpredictable; it is dependent on the weather and the extent to which farmers increase their plantings.

Figure 9.1: A cashew nut farm in Tanzania

Cashew nut prices are usually but not always determined by supply and demand. Auctions are organised where private buyers bid for the cashew nut harvest. In 2019, prices were high with farmers obtaining a return that was greater than the guide price set by the government. By way of contrast, in 2018, prices were lower than the target price and the government was forced to step in to buy up unsold stocks. The government then sold this stock to Vietnam which has a substantial cashew nut processing industry. Tanzania, unfortunately, does not have such a facility.

Discuss in a pair or a group:

- Why are cashew nut prices volatile?
- Why does the Tanzanian government find it necessary to set an annual guide or target price for cashew nuts?
- How might Tanzania benefit from a cashew nut processing industry?

KEY CONCEPT LINKS

The margin and decision-making / Time: The price elasticity of supply is concerned with change. This is how businesses such as manufacturers and farmers make choices when the price of their product changes. There are clear differences in the speed and ease with which this change can occur.

9.1 Price elasticity of supply

Price elasticity of supply (PES) measures the responsiveness of the quantity supplied of a product following a change in the price of the product. More simply, how the quantity supplied is affected by a change in the product's price. This is the only change that occurs, *ceteris paribus* or other things equal. The supply could be that of an individual business or producer or it can also be the market supply of an industry. PES is calculated as the percentage change in quantity supplied divided by the percentage in price of the product.

Since the supply curve is upward sloping, the PES will always be positive. If the numerical value of PES is greater than 1, then supply is relatively price elastic meaning that the quantity supplied responds more than proportionately to a change in its price. This is referred to as **price elastic supply**. If PES is less than 1, it is relatively price inelastic meaning that the quantity supplied is proportionately less than the change in price. This is referred to as **price inelastic supply**.

An example helps to explain the difference. In the case of two garment manufacturers in Bangladesh, both sell their garments for $10 each and supply 100 garments a day. A celebrity has liked the garments which has led to a big increase in demand for the products. The garment manufacturers are asked to supply more garments. Both manufacturers increase their price to $12 each. Producer A can supply 110 units a day but producer B can supply 140 units a day. Using the PES formula:

$$\text{PES} = \frac{\%\text{ change in quantity supplied}}{\%\text{ change in price}}$$

$$\text{Producer A PES} = \frac{(10 \div 100)}{(2 \div 10)} \times 100\,\% = \frac{10\,\%}{20\,\%} = 0.5$$

$$\text{Producer B PES} = \frac{(40 \div 100)}{(2 \div 10)} \times 100\,\% = \frac{40\,\%}{20\,\%} = 2$$

So, for producer A, supply is price inelastic and for producer B, supply is price elastic.

TIP

Remember that the percentage change in quantity supplied and the percentage change in price always change in the same direction.

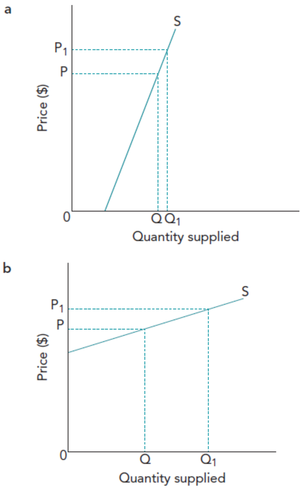


Figure 9.2: Inelastic and elastic supply curves: **a** Inelastic supply **b** Elastic supply

ACTIVITY 9.1

In a pair, suggest possible reasons that might explain the difference in the PES estimates for producers A and B above. Set yourself a time limit of five minutes. Then share your reasons as a class or group.

Figure 9.2 shows an elastic supply curve and an inelastic supply curve. In each diagram, the price increases from P to P_1 For the elastic supply curve, the increase in quantity supplied, Q to Q_1, is greater than the increase in price. For the inelastic supply curve, the increase in quantity supplied is less than the increase in price.

Two further cases that have real-world relevance are where the PES is zero and where it is ∞ (infinity). These are shown in Figure 9.3.

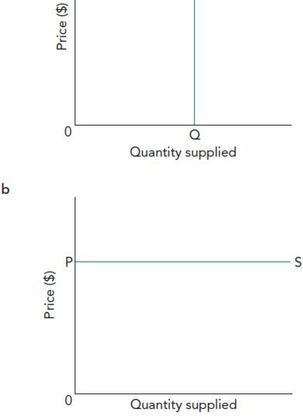


Figure 9.3: Two further supply curves: **a** Perfectly inelastic **b** Perfectly elastic

If it is not possible for a producer to increase or decrease supply, regardless of any change in price of the product, the PES is zero. The vertical supply curve means that the quantity supplied, Q, is the only quantity that the producer can supply at this point in time. An example is in horticulture or flower production where perishable products have to be supplied once they are ready for sale.

At the other extreme, a producer may only be willing to supply products for a given price and no less. This gives a horizontal supply curve and has a PES of infinity (∞). Supply can be varied but the price remains at P.

ACTIVITY 9.2

Table 9.1 shows the number of sacks of tea that a producer in Kenya is willing to supply for each of the range of prices shown.

Price per sack ($)	Number of sacks supplied
90	19
80	19
70	16
60	9
50	0

Table 9.1: Prices and quantities of tea

Using Table 9.1:

1. Sketch the supply curve.
2. Calculate the PES as the price falls from $90 to $80 down to $50 per sack.
3. How do the PES estimates relate to the shape of the supply curve? Explain why this might be so?

9.2 Factors influencing price elasticity of supply

The key to understanding PES is supply flexibility – if businesses and industries are more flexible in the way they operate, supply tends to be more elastic. The main influences on PES include:

- availability of stocks
- the time period
- productive capacity.

Availability of stocks

The ease with which businesses can accumulate or reduce stocks of goods can influence the PES. Stock allows companies to meet variations in demand through changing output rather than changing the price of the product – the

more easily manufacturers can do this, the higher the PES. Firms that provide services are unable to build up stocks and in most cases the product is 'perishable'. For example, in the cases of an airline or a hotel, if a seat or room is not sold for a particular flight or night, revenue is lost. Their supply is fixed in the short run. Another example is the case of a football stadium where the supply curve will have a PES of zero since capacity is limited to the number of seats that are available.

Time period

The time period or ease with which producers are able to increase production is also relevant. In the short run, businesses and industries with spare productive capacity tend to have a higher PES. However, shortages of critical factor inputs (skilled workers, components, fuel) will often lead to an inelastic PES. This is particularly the case with most agricultural products, where it takes time to alter the type of crops produced. It can often take a whole growing season for producers to switch from a poor-performing to a more saleable crop.

Productive capacity

Over time, firms may increase their available productive capacity by investing in more capital equipment, often taking advantage of technological advances. Equally, over time, more businesses can enter or leave an industry and this will increase the flexibility of supply.

9.3 Implications of PES for the ways in which businesses react to changing market conditions

Knowledge of PES can help to explain the speed and ease with which businesses can respond to changing market conditions. Especially in the short run, the PES for agricultural products is usually more price inelastic than the PES for manufactured goods. Businesses can hold stock for variations in demand; when there is an unexpected increase in demand, stock can be released quickly and without too many problems. In the longer term, if the increase in demand is expected to persist, the scale of the business can be expanded to increase productive capacity. This takes time depending on the scale of change that is required.

The situation in agricultural markets is different. The market supply, nationally and internationally, is more price inelastic than in the case of manufactured goods. Supply is also unstable since crop yields are not easy to predict due to various external forces that affect the agricultural market. External forces include natural disasters, the growing effects of climate change on crop yields, health scares such as swine flu outbreaks and the increased scale of protection of agricultural markets by developed economies such as the USA and the European Union. These external forces mean that the PES for agricultural goods is more price inelastic than for manufactured goods.

The stability of global markets is also affected by changes in demand for manufactured goods and agricultural products. Figure 9.4 shows how changes in demand have a greater effect in agricultural markets than in markets for manufactured goods. Where the PES is inelastic, any change in demand has a big impact on global agricultural prices and, as a result, farmers' incomes. In contrast, when PES is price elastic, the effect of changes in demand on prices is not as great as when the PES is more price inelastic.

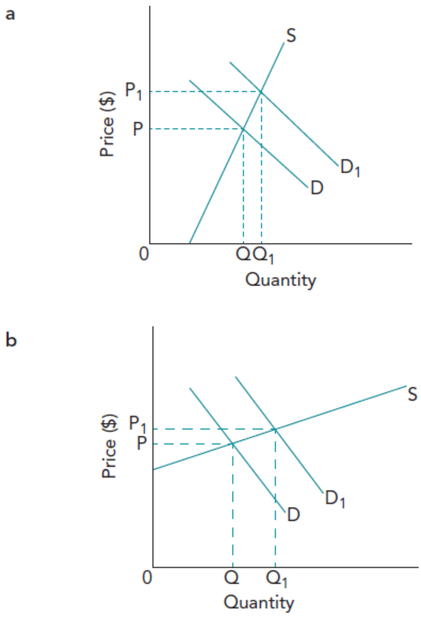


Figure 9.4: An increase in demand – effects depend on PES: **a** Agricultural market **b** Manufactured goods market

REFLECTION

In theory, PES appears to be a straightforward concept. You probably thought this when you were working through the numerical examples. How important are numbers in economics? How do you think an understanding of numbers and data can influence your learning?

THINK LIKE AN ECONOMIST

The price of onions

Figure 9.5: The onion trading centre in Maharashtra

Onions are an essential ingredient in Asian cooking. Most producers are small farmers who have no control over supply and whose only income is from the sale of onions. The biggest trading centre for onions in India is at Lasalgaon in Nashik, Maharashtra, where millions of tonnes are traded. The harvest is spread over three seasons; supply can be highly variable.

In early 2017, there was a bumper harvest and prices crashed. Supply was up 11% on the previous harvest yet wholesale prices were down 30–40%. When there is a poor harvest, supply drops and prices rocket. This occurred in November 2017 when wholesale prices increased by 170% over a matter of weeks.

Was any of this good news for farmers? This is debatable. The difficult truth of this market is that 'when farmers grow more they get less; when they grow less they still get less'.

1. What evidence is there that the PES for onions is highly price inelastic?
2. What additional data would you need in order to calculate the PES?
3. Explain why 'when farmers grow more they get less; when they grow less they still get less'.
4. Discuss whether onion farmers can do anything to combat the market conditions they face?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 The price elasticity of supply is:

A the change in supply given a change in price.

B how the price changes given a change in quantity supplied.

C the change in quantity supplied given a change in price.

D the percentage change in quantity supplied given a change in price.

2 The price of a product falls from $5 to $4. As a result, its supply in a given time period falls from 800 units to 700 units.

What is the PES?

A 0.71

B 0.625

C 1.6

D 0.5

3 A firm supplies 10 units of a product at $48 per unit.

If the PES is 4, how many units will the firm supply at a price of $60 per unit?

A 10

B 20

C 40

D 60

4 Which of these estimates of PES is most likely to apply to the supply of raw coffee beans?

A 0.1

B 1

C 1.1

D 10

5 The short-run supply of fresh flowers for export from Kenya to the UK is less price elastic than the supply of green beans.

Why is this?

A The price of cut flowers fluctuates more than the price of green beans.

B Fresh flowers are purchased for special occasions.

C Fresh flowers only last a few days.

D Fresh flowers cannot be stored for as long as green beans.

6 Which of these products is most likely to have a perfectly elastic PES?

A seats to watch athletics finals at the Olympic Games

B music downloads to an electronic device

C an original painting by the famous French artist Monet

D a limited edition Hublot wristwatch

7 In very hot weather, an ice cream manufacturer decides to increase the price of its product by 10%. It is able to increase production by 6% one week after the price increase was announced.

How can the PES be described?

	When the price increase was announced	One week after the price increase was announced
A	zero	elastic
B	zero	inelastic
C	infinite	elastic
D	infinite	inelastic

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe the concept of price elasticity of supply (PES) and calculate PES			
Explain the factors influencing PES			
Discuss the implications of PES for the ways in which producers react to market conditions			

Chapter 10

The interaction of demand and supply

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of equilibrium and disequilibrium in a market
- explain the effects of shifts in demand and supply curves on equilibrium price and quantity
- explain the relationships between different markets, including: joint demand (complements); alternative demand (substitutes); derived demand; joint supply
- analyse the functions of price in resource allocation; signalling (transmission of preferences) and the provision of incentives.

ECONOMICS IN CONTEXT

Kenyan farmers are passionate about passion fruit

Horticulture, the business of growing vegetables, fruit and flowers, is a developing business in Kenya. In 2018, horticulture generated about 2% of GDP. Most horticultural products are exported to the European Union and the UK. Both are heavily dependent on Kenya's green beans, roses and most recently, passion fruit.

Figure 10.1: Passion fruit farming in Kenya

Kenyan farmers are finding it difficult to meet the increased demand for some types of flowers and passion fruit. In 2017, flower exports to the UK grew by 2%; their traded price typically increased by 10%. The chief executive of a Kenyan horticultural export company explained that the scarcity of produce is due to increased demand, resulting in price rises.

Supplying fresh flowers which are then air freighted to the UK is a risky business and well known for having peaks and troughs in demand.

The demand for passion fruit outstrips current supply. One firm reported that it exports about two tonnes a week. Future supply is heavily dependent on how quickly farmers can switch from what they grow to planting passion fruit trees. A great incentive for Kenyan farmers is that passion fruit is the most profitable to grow of all Kenya's fruit crops. Only a little capital is required to buy the young trees and, significantly, a first season crop is possible. As a luxury product, it seems unlikely that demand will collapse in the future.

Discuss in a pair or a group:

- From the information, what do you understand about the price elasticity of demand (PED) for cut flowers for the UK market?
- How might the market respond to the shortage of supply of passion fruit?

10.1 Market equilibrium and disequilibrium

A market is in **equilibrium** when the quantity supplied equals the quantity demanded. This is a balanced situation with no tendency to change, *ceteris paribus*. The price mechanism ensures that the market 'clears'. Equilibrium exists because the plans of consumers as represented by the market demand curve match the plans of suppliers as represented by the market supply curve. In other words, consumers and suppliers are satisfied with the present situation. Figure 10.2 shows a market in equilibrium at price P and quantity Q.

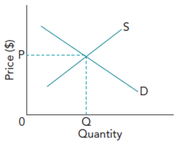


Figure 10.2: Equilibrium price and quantity

Markets are not always in equilibrium. Real-world markets are invariably in **disequilibrium** as market supply and demand are not equal. It is usual for there to be excess supply or excess demand in a market. These situations are shown in Figure 10.3. A key feature of the market mechanism is that it adjusts supply or demand to reach the equilibrium position. Where there is excess supply, this indicates that the clearing price is too high. The obvious response is for suppliers to reduce prices. As this happens, more and more consumers will buy the product until a new equilibrium position is reached and the market clears. If there is excess demand in the market, this provides a sign to suppliers that they should increase the price of the product. When this happens, fewer and fewer customers are willing to buy the product at its new price. Price continues to increase until the market reaches its new equilibrium position and clears. These processes can now be shown with a numerical example.

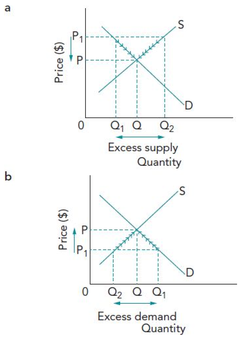


Figure 10.3: Disequilibrium – excess supply and excess demand: **a** Excess supply **b** Excess demand

Table 10.1 shows the market supply and demand schedules for PCs. This information is combined in Figure 10.4. The market equilibrium is at the **equilibrium price** of $1400, with 4000 units traded (bought and sold) being the **equilibrium quantity**. Total consumer expenditure (and therefore total revenue) is $5 600 000 ($1400 × 4000) per week.

Now think about what would happen if businesses thought that consumers were prepared to pay $1600 and firms supplied 5000 units to the market. In this case, the market would be in disequilibrium (an imbalance where change will happen). At a price of $1600, under present circumstances, consumers are only planning to buy 3000 units. This means that businesses will build up excess stocks at the rate of 2000 PCs per week. There is disequilibrium due to excess supply as the quantity supplied is greater than the quantity demanded. Firms would be irrational to carry on with this unplanned stock building. So how might they react?

Price of a standard PC ($)	Quantity supplied per week	Quantity demanded per week
800	1000	7000
1000	2000	6000
1200	3000	5000
1400	4000	4000
1600	5000	3000
1800	6000	2000
2000	7000	1000

Table 10.1: Market supply and demand schedules for PCs

Figure 10.4: Equilibrium price and output in the market for PCs

First of all, firms could cut prices; they would also probably start to reduce the quantity they supply. Of course, as they cut prices, some consumers who would not have been prepared to pay the higher price are attracted back into the market – the disequilibrium starts to narrow.

On the assumption that there is no change to any of the conditions of supply or demand, and nothing prevents firms changing what they produce, the market price and quantity will move back to equilibrium eventually.

Next, think what would happen if the price was set at $1200. Again there is disequilibrium – this time of excess demand since the quantity demanded is greater than the quantity supplied. Consumers are now keen to buy what they consider to be a good deal. However, given the low prices, supplies are fairly low and there are not enough PCs to meet demand – suppliers will run out of stocks far quicker than they had expected, so there are unmet orders. Firms that exist to make a profit, if they are reasonably astute, will recognise this and will start to raise the price and increase the number of PCs available for sale. As prices rise, some consumers will decide that PCs have become too expensive and the quantity demanded will fall. Once again, the market will adjust back to the equilibrium and clear.

The process of market adjustment may not happen instantly. There will be time lags, perhaps quite lengthy ones, if firms cannot react quickly to increase or decrease production. In the case of agriculture, the time to adjust what is produced will be subject to delay. It may not even be possible due to geographical considerations such as weather and soil conditions. The market may well stay in disequilibrium for a very long time. Even so, there will always be a tendency for the market to move back to its equilibrium position because that is where the underlying motives and plans of consumers and suppliers are driving it.

ACTIVITY 10.1

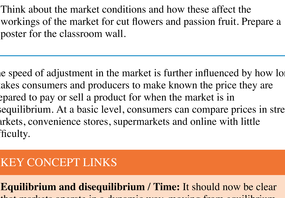


Figure 10.5: A commercial flower market in Kenya

In a pair, refer to the 'Economics in context' feature at the start of this chapter. For both cut flower and passion fruit production, carry out research to see what information you can find on market supply in Kenya. Research where there is a demand for cut flowers and passion fruit. Each take a product and then compare your notes.

Think about the market conditions and how these affect the workings of the market for cut flowers and passion fruit. Prepare a poster for the classroom wall.

The speed of adjustment in the market is further influenced by how long it takes consumers and producers to make known the price they are prepared to pay or sell a product for when the market is in disequilibrium. At a basic level, consumers can compare prices in street markets, convenience stores, supermarkets and online with little difficulty.

KEY CONCEPT LINKS

Equilibrium and disequilibrium / Time: It should now be clear that markets operate in a dynamic way, moving from equilibrium to disequilibrium and back again to equilibrium; the market moves from an efficient position to being inefficient and then adjusts naturally to being efficient once again. The time taken for these changes to come about is dependent on the price elasticity of supply.

10.2 The effects of shifts in demand and supply curves on equilibrium price and quantity

The equilibrium pri[illegible]arket changes when there are chan[illegible]or a product. Remember that the[illegible]factors; the result is an increase or dec[illegible]ome cases, a change in both (see[illegible]

> when there is a shift in the demand (supply) curve due to a change in factors other than the price of the product.

TIP

In your answers, remember that a shift in the demand or supply curve causes a change to the equilibrium price and quantity due to non-price factors.

Shifts in the market demand curve

Let's look again at the market for PCs. The price of a PC is not the only factor influencing its demand – other factors such as the price of laptops play a part and are not always constant. Changes in these factors other than price are shown by shifts in the demand curve. A rightward shift indicates an increase in demand; a leftward shift indicates a decrease in demand.

TIP

You need to be aware of the difference between a 'shift' in a demand or supply curve and a 'movement' along each of these curves. A shift in the entire demand or supply curve represents a change in demand or supply rather than a change in the quantity demanded or supplied, which is represented by a movement along each of these curves. A common error in answers is to confuse the difference.

Table 10.2 and Figure 10.6 show what happens when there is an increase in demand for PCs:

- Consumers are now willing and able to buy more PCs at each and every price. So, whereas previously as shown in Table 10.1 consumers had only been prepared to buy 3000 units per week at $1600 each, now they are prepared to buy 4000.
- Consumers who previously were prepared to pay $1600 for 3000 PCs are now prepared to pay $1800 each for the same quantity.

Price of a 'standard' PC ($)	Quantity demanded per week – demand curve D_1
2000	2000
1800	3000
1600	4000
1400	5000
1200	6000
1000	7000
800	8000

Table 10.2: Shifts in the market demand curve

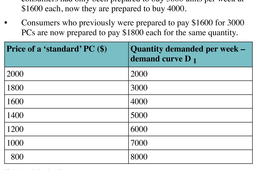


Figure 10.6: A shift to the right in the demand curve for PCs

Causes of shifts in the demand curve

Individuals may differ widely in their attitudes towards products. Some people may like fruit juices to drink, others prefer a glass of cold water. You could spend a lot of time making a very long list of non-price influences. This might be useful in certain circumstances but not in all cases. As explained in Section 7.7, economists have identified three key non-price categories that can be used to analyse the factors that influence the demand for most products.

These same factors can now be used to explain shifts in the market demand curve and the effects on equilibrium price and quantity. They are:

- the income/ability to pay for a product
- the price and availability of substitutes and complements
- fashion, taste and attitudes.

ACTIVITY 10.2

Refer to Table 10.2. An increasing number of college students now prefer a laptop to a PC. The demand for PCs has now fallen by 1000 for each price shown in the table. Draw the new demand curve and compare it to those in Figure 10.6.

Discuss your results with another learner.

Income/the ability to pay

What influences someone's ability to pay for a product? The key things are:

- an individual's income or, more specifically, the purchasing power of their income after personal taxation
- the availability of loans or credit and the interest rate that must be paid on loans or credit card balances.

In general, we expect a positive relationship between the ability to pay and the demand for a product. Such products are called normal goods (see Section 8.3). An increase in the purchaser's income generally leads to an increase in demand. This is represented by a rightward shift in the demand curve from D to D_1 in Figure 10.6. A decrease in the ability to pay could also lead to an increase in demand. This more unusual case is that for inferior goods (see Section 8.3).

ACTIVITY 10.3

1 Explain how you might expect changes in the following to influence the position of the demand curve for PCs:
   - a an increase in interest rates
   - b a large increase in unemployment
   - c a sustained rise in earnings from work
   - d a reduction in the rate of income tax.

   Compare your findings with those of another learner.

The price and availability of related products

In the case of substitute products, a change in the price, availability and even the attractiveness of one product will have an impact on the demand for all of its substitute goods. If the price rises, then the demand for substitutes will increase as consumers switch their demand to the relatively cheap products. Equally, a health scare (for example, involving chickens), will lead to an increase in demand for a close substitute such as duck. In both of these cases, the demand curve for chicken will shift to the left. It will shift to the right if the price of substitutes increases or if there is a positive report in the media of the health benefits of the product.

For complements, a rise in the price of one product will reduce the quantity demanded for it and its associated product. Equally, a fall in price of a product will lead to an increase in the quantity demanded and will also lead to an increase in demand for its complement. For example, a fall in the price of footballs might increase demand for football boots. The outcome for both situations is a shift to the right of the demand curve.

ACTIVITY 10.4

1 Explain how an increase in the price of the first good will affect the demand for the second good:
   - a Lipton tea and Tetley tea
   - b ink cartridges for a PC and computer paper.

2 Explain how a fall in the price of the first good will affect the demand for the second good:
   - a duck and chicken
   - b cricket bats and cricket balls.

Fashion, taste and attitudes

People buy products for a reason: an individual's behaviour is purposefully motivated, at least at the time of purchase. Economists usually consider an individual's behaviour to be a reflection of their tastes and preferences towards different types of goods and services. You may buy a particular type or brand of electronic device because of its reputation for reliability. You may buy a pair of brand-name trainers because you want to play sport and you genuinely believe them to be of better quality or you may buy them simply because they are fashionable.

ACTIVITY 10.5

1 Suppose there has been an outbreak of chicken flu in a country. With the help of a diagram, show how the outbreak is likely to affect the demand for chicken in the country. Explain your answer.

2 Unofficial clinical trials have shown that drinking pu-erh tea from Yunan in China may have potential health benefits. With the help of a diagram, show how the potential health benefits may affect the demand for pu-erh tea. Explain your answer.

Shifts in the market supply curve

So far, our analysis of supply and the supply curve assumes that price is the only factor that influences supply. While this is useful, one of the limitations is that the supply intentions of firms are influenced by several factors other than the price of the product (although this is the most obvious expression of consumers' buying intentions). Other things are most certainly not always equal.

Changes in the supply conditions can be shown by shifts in the supply curve. A rightward shift indicates an increase in supply; a leftward shift indicates a decrease in supply. Once again, notice a difference between a shift and a movement. A shift in the whole curve represents a change in supply rather than a change in the quantity supplied (which is shown by a movement along the curve).

Table 10.3 and Figure 10.7 show what happens when suppliers increase the market supply of PCs by 1000 units per week compared to the initial market position (as shown earlier in Table 10.1 and Figure 10.4).

Price of a 'standard' PC ($)	Quantity supplied per week – supply curve S_1
800	2000
1000	3000
1200	4000
1400	5000
1600	6000
1800	7000
2000	8000

Table 10.3: An increase in market supply

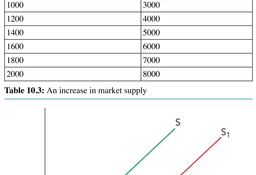


Figure 10.7: A shift to the right in the market supply curve for PCs

The outcome of the increase in supply is:

- Firms are now more willing and/or more able to supply an additional 1000 PCs at each and every price. Previously they were only prepared to supply 3000 per week at $1200; now they

are prepared to supply 4000.

- Firms previously wanted $1200 per unit to persuade them to supply 3000 units per week; now firms are prepared to accept $1000.

Causes of shifts in the supply curve

Firms clearly differ in their willingness and ability to supply products and, as with demand, you could spend a lot of time making a list of possible factors other than price that will affect supply. If you were asked to conduct a detailed analysis of supply conditions in a particular industry, such a list might be justified. Here it is only necessary to simplify and generalise the factors that can influence supply in most industries. These factors are:

- the costs associated with supplying the product
- changes in the prices of other products
- the size and nature of the industry
- government policy.

Costs associated with supply

In a market-based economy, no business (in the absence of government support) can exist indefinitely if it makes losses, so firms will make supply decisions on the basis of the price they can get for selling the product in relation to the cost of supplying it. What you are interested in is the factors that can influence the position of the supply curve – in other words, the factors that can cause an increase or a decrease in the costs of supplying each and every unit, since it is likely that this will impact on the price that firms charge. Below are some potentially influential factors – if any factor pushes up costs, there is likely to be a leftward shift in the supply curve or a decrease in supply; if the factor lowers costs, there is likely to be an increase in supply:

- wage rates
- worker productivity (output per worker)
- raw material and component prices
- equipment maintenance costs
- distribution costs
- changes in technology.

Changes in the prices of other products

In the case of manufactured goods particularly and for any producer, the supply of products onto the market can be determined by the actions of competitors. For example, a competitor may lower prices to increase sales; this will affect sales of a substitute product, reducing its supply to the market. Equally, an increase in the price of a similar product from a competitor should increase sales and supply from another firm that has left price unchanged.

The size and nature of the industry

If it is clear that there is substantial profit to be made by selling a product, then firms inside and outside the industry are likely to react. Those currently in the industry may invest in capital equipment in an attempt to grow bigger and take advantage of the situation. Firms outside the industry may try to enter this market and new local competitors may also emerge.

If the size of the industry increases, because there are more firms or bigger firms, then it is likely that the supply curve of the industry will shift to the right. Equally, if firms in the industry start to compete more intensively on price, it is likely that the supply curve will shift to the right as the effects of this price competition start to affect the price that all firms are willing to accept for their products. Of course, if a price war breaks out, then consumers, at least temporarily, may enjoy much lower prices for any given level of supply.

Government policy

Governments influence business decisions in many ways. Legislation designed to protect consumers or workers may impose additional costs on companies and this may affect the supply curve.

Governments may also impose a specific tax such as **excise duties** on the output of firms or an ***ad valorem* tax** such as a general sales tax or value added tax on particular goods and services. The impact of tax is like a cost increase because firms may seek to pass the tax on to the consumer in the form of higher prices. As such, indirect taxes often result in a decrease in supply. On the other hand, a relaxation of certain types of legislation or government subsidies can increase supply by encouraging firms to reduce prices for any given level of output. Government policy in agriculture may involve the release of stocks to calm the volatility (unpredictable nature) of markets associated with a poor harvest.

A change in supply and demand

In many situations, the conditions of both supply and demand may change simultaneously (at the same time). Look at Figure 10.8. The initial equilibrium is at P and Q with the demand curve D and the supply curve S. The increase in demand for the product (caused by, say, the increase in the price of a substitute) puts upward pressure on price. However, the simultaneous increase in supply (caused by a fall in raw material and energy costs) puts downward pressure on price. The resulting effect is that the equilibrium price remains unchanged, although of course there is a fairly significant increase in the quantity traded (from Q to Q1).

Figure 10.8: An increase in demand and supply

KEY CONCEPT LINKS

Equilibrium and disequilibrium: The equilibrium position in a market is affected by a shift in the demand curve, a shift in the supply curve or a combination of both. The outcome is disequilibrium leading to changes in price and quantity through the workings of the free market mechanism.

TIP

It is a common misconception that a market responds almost instantly to a change in demand or a change in supply. A time lag is always involved. This is usually shorter when there is a change in demand than when there is the need for a change in supply.

ACTIVITY 10.6

Below are four short case studies that show how non-price factors affect equilibrium in their respective markets. Two case studies are based on a change in demand and two feature a change in supply.

1. Read each case study. In a group of four, make a list of the supply and demand issues in each market.
2. Assign one member of the group to each market. Use the internet to research for latest information on the market. Each member reports their findings to the group.
3. Using the new information, comment on whether you believe that market conditions have changed.
4. Has the new information altered the focus of any of the four examples?
5. Make a presentation of your assessment of each market to the class. You may find it helpful to do this on an 'old' and 'new' market basis.
6. When each group has made its presentation, as a class, discuss any differences between them. Were there any aspects of evaluation covered by some groups but not others? What was distinctive about your group's evaluation?

Cocoa market in Côte d'Ivoire and Ghana

The global market for cocoa is expected to grow at around 4% over the next few years. There is increasing demand for cocoa to be used not just for chocolate and confectionery but also for pharmaceuticals and cosmetics. This ought to be good news for the thousands of small producers in West Africa and elsewhere, but it isn't. The world price of cocoa has been falling due to oversupply. This means that producing cocoa is no longer the way out of poverty that it used to be for farmers. In 2018, the governments of Côte d'Ivoire and Ghana agreed to introduce measures to reduce the risk of oversupply. Central to these measures was crop diversification.

Market for biscuits in India

Parle Products is the largest biscuit producer in India. It manufactures a range of premium and lower priced biscuits that are sold throughout India, particularly in rural areas. Its supply to the market has been hit by a change in the GST (Goods and Services Tax) which is now 18% on its products. Previously, GST was 12% on premium biscuits and just 5% on others. Since the change in GST, production at its factories has been reduced and there are serious concerns about job losses.

The increasing demand for avocados

The demand for avocados has increased over the last few years (Figure 10.9). This increase in demand is due to the growing global awareness of the health benefits of consuming this so-called 'super food'. It is hardly surprising that the increased demand has resulted in escalating avocado prices.

The increased demand has come from the USA, China and Europe, where demand has almost doubled between 2018 and 2020. The increase in consumption has resulted in more countries producing avocados for the export market. One such country is Kenya where there are plans for huge investment by multinational companies in avocado farming. These plans are risky since they depend on demand continuing to increase, along with prices.

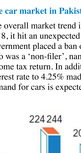


Figure 10.9: Avocados have become increasingly popular

The car market in Pakistan

The overall market trend in Pakistan has been upwards, but in 2018, it hit an unexpected barrier (see Figure 10.10). The government placed a ban on the purchase of new cars by anyone who was a 'non-filer', namely someone who had not submitted an income tax return. In addition, the government increase in the interest rate to 4.25% made loans very expensive. The growth in demand for cars is expected to fall.

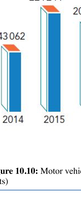


Figure 10.10: Motor vehicle sales in Pakistan, 2014–2018 (in units)

REFLECTION

How easy was it to find more up-to-date information to complete Activity 10.6? What new skills has this activity taught you? How has it helped you to reflect upon the accuracy of information sources?

10.3 Relationships between markets

The relationship between two products (substitutes and complements) is now extended to show how market conditions change when there is a change in the price of either of them. The special cases of derived demand and joint supply are also introduced below.

Alternative demand

As explained in Section 7.3, a substitute is an alternative good. A typical example could be a well-known brand of sweet chilli sauce and an own-label brand from a supermarket. A rise in price of one product will lead to an increase in demand and a rise in price of the substitute product. This is shown in Figure 10.11.

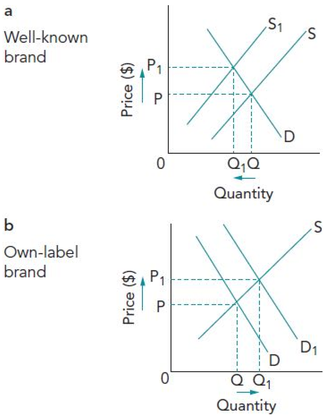


Figure 10.11: An increase in the price of a substitute

Joint demand

A complement is in joint demand, meaning that it is consumed with another product. An example is a replica football shirt and shorts. Here, an increase in supply will see the price of one product fall prompting an increase in demand for the complement (see Figure 10.12).

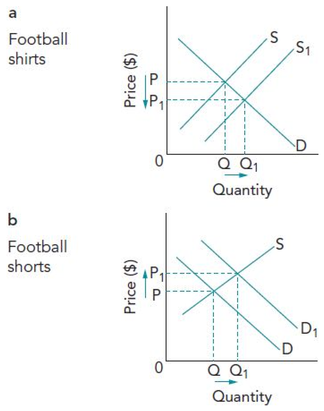


Figure 10.12: A fall in the price of a complement

Derived demand

Derived demand applies where something is required because it is needed for the production of other goods and services. A typical example is labour, a factor of production. A hotel business demands labour in order to provide accommodation and food for its visitors. If there is an increase in demand for the hotel's services, the demand for hotel workers will also increase. Therefore, the demand for hotel workers is derived from the demand for the hotel's services. This is shown in Figure 10.13.

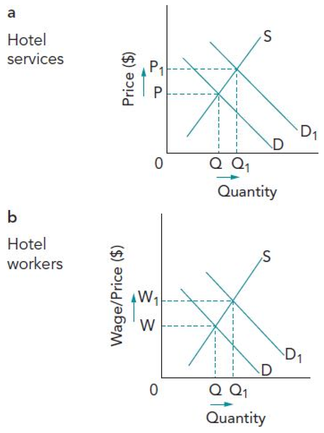


Figure 10.13: Derived demand

Joint supply

Joint supply occurs when two goods are produced together but for different purposes. An example is the case of soya bean processing in the US where the crop is first processed for human consumption and the remainder is made into animal feed. Figure 10.14 shows how an increase in demand for processed soya for humans leads to an increase in supply and a fall in price of the animal feed.

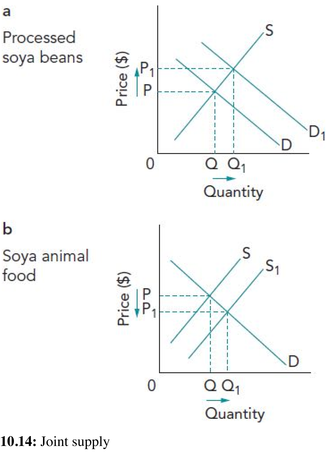


Figure 10.14: Joint supply

10.4 The functions of price in resource allocation

As this chapter has shown, prices have a very important role in the allocation of resources in the market economy. The price mechanism works automatically; this was referred to by the economist Adam Smith (1723–90) as 'the invisible hand'. The principles behind this process remain good today.

Rationing

In other situations, the price system can ration (limit) products in the market. The process of **rationing** is automatic. For example, a producer may wish to limit the supply of products so that they remain exclusive in the market. Exclusive products are likely to have a high price, such as designer jewellery or an upmarket sports car. A form of rationing will take place because of the products' high price. Demand is limited and ensures that it is in line with the quantity supplied to the market.

Signalling and the transmission of preferences

Prices also act as a **signal** to both producers and consumers. A rise in the quantity demanded results in an increase in price, signalling to (telling) producers that they should put more of their products onto the market. In turn, if consumers withhold their demand, prices can be expected to fall. This signals to producers that less should be produced. The price mechanism works in such a way that the outcome is a new equilibrium position with consumers' demand equal to producers' supply.

The price mechanism allows the wants of consumers to be made known to producers. This is called the **transmission of preferences** and is automatic. If consumers do not buy a particular product because it is not liked or it is too expensive, then the message is transmitted back to producers. If they wish to stay in business, producers should react by either improving the product, reducing its price or both.

The provision of incentive

Price also acts as an **incentive** to buyers and sellers. Low prices and special offers such as discounts generally encourage consumers to buy more goods. This is because consumers get more satisfaction from consuming a product when they think they are getting a good deal.

Higher prices can stop consumers purchasing a good; however, they can encourage suppliers to produce more for the market in a way that low prices can discourage their willingness to supply. If low prices persist, suppliers may well decide to exit a market.

THINK LIKE AN ECONOMIST

Winners and losers in the global coffee market

The global demand for drinking coffee continues to grow. China is the latest market to see a sharp increase in the number of retail coffee outlets. The coffee shop market is dominated by the US giant Starbucks, which has around 3600 outlets in 150 cities in China. In 2018, Coca Cola purchased Costa from its UK owners and now has over 500 stores and ambitious plans for expansion. Both Starbucks and Costa face serious competition from Chinese-owned Luckin Coffee which has entered the market setting up 1800 new outlets in 2018, giving it a total of over 2400 outlets.

Demand for coffee continues to grow in well-established markets such as the USA and the UK. Even so, the economics of the coffee market do not seem to add up. Coffee farmers at the bottom of the supply chain are losing out. The reason is the falling price of coffee beans on the global commodity market (see Figure 10.15).

Figure 10.15: Global price of coffee beans, 2009–2019 ($ per pound)

Source: *From Macrotrends, Coffee Prices – 45 Year Historical Chart*

Much of the world's production of raw coffee is grown by small farmers in Brazil, Colombia, Vietnam, Kenya and Tanzania. These farmers, in general, are unable to influence the market price. Some may have a 'fair price' arrangement with a processor and others may have a speciality crop which commands a premium price, but they are the exception. For the vast majority, their livelihoods are dependent on the global price, which is determined on the US commodity market. The human cost of falling prices is not something many people consider when enjoying their coffee – maybe they should!

1. Is the volatility of the world price of coffee only a question of supply and demand?
2. Should coffee drinkers be concerned about the human costs of low coffee prices?
3. What can be done to improve the well-being of coffee farmers and by whom?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A market is in equilibrium. If there is an increase in supply and no change in demand, how does this affect the equilibrium position?

A Equilibrium price rises and equilibrium quantity remains the same.

B Equilibrium price falls and equilibrium quantity rises.

C There will be no change in the equilibrium position.

D Equilibrium price falls and equilibrium quantity falls.

2 A market is in equilibrium. There is then a fall in supply and an increase in demand for the product.

How does this affect the equilibrium price and quantity?

	Equilibrium price	Equilibrium quantity
A	increase	increase
B	increase	decrease
C	decrease	increase
D	decrease	decrease

3 The linear demand curve for a product is shown by $Q_d = 100 - 5p$ where p is the price in dollars. The linear supply curve is $Q_s = -20 + 10p$. Calculate the equilibrium price of the product.

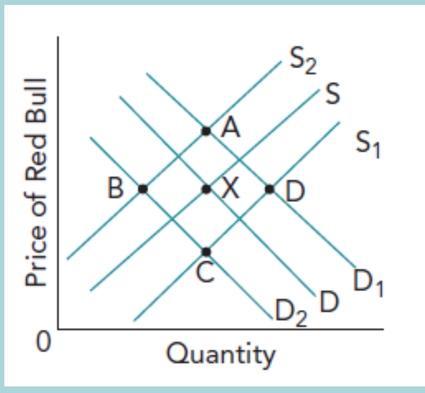
A \$5

B \$8

C \$16

D \$24

4 The diagram shows the supply and demand curves – S_1 and D_1 – for Red Bull, a caffeine drink, in a market. The market equilibrium is at X.



Which point, A, B, C or D, on the diagram will be the new equilibrium position if there is a fall in the production costs of Red Bull and a rise in price of Eastroc Super, another caffeine drink?

5 A market is in disequilibrium when:

A there is excess supply in the market.

B consumers' wants are being satisfied.

C prices are almost stable.

D sellers have more control over the market than buyers.

6 What is the relationship between lemons and lemon juice?

A substitutes

B complements

C joint supply

D derived demand

7 A train journey is an example of a derived demand because:

A it is the only way of making the journey.

B it is the cheapest way of making the journey.

C it is necessary in order to get too work.

D it is preferable to other means of transport.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand the difference between a market that is in equilibrium and a market that is in disequilibrium			
Analyse the effects of shifts in the demand and supply curves on equilibrium price and quantity in the market			
Explain the causes of shifts in the market demand curve			
Explain the causes of shifts in the market supply curve			
Analyse how market conditions may change when there is a change in the price of complements or substitutes			
Understand derived demand and joint supply			
Analyse the different functions of price in resource allocation: rationing, signalling, transmission of preferences			

Chapter 11

Consumer and producer surplus

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the meaning and significance of consumer surplus
- explain the meaning and significance of producer surplus
- explain the causes of changes in consumer and producer surplus
- analyse the significance of price elasticity of demand and supply in determining the extent of changes in consumer and producer surplus.

ECONOMICS IN CONTEXT

The prices of airline tickets

Anyone who books airline tickets on the internet via an airline or a travel agent will see lots of different prices for what is essentially the same product. Prices tend to vary depending on when you wish to travel and the flexibility of your travel plans.

Consider two examples. First, the lowest price of a return ticket from Manchester to Islamabad, Pakistan, with PIA (Pakistan International Airlines), the state-owned airline, was $612 in September 2019. The same flight in October was $837. Secondly, if you wanted to fly on to Karachi, the cost of a flight with Airblue, a privately-owned low-cost carrier, was fixed at $240 almost for every flight until the end of 2019.

Figure 11.1: A Pakistan International Airlines flight

Discuss in a pair or a group:

- Why does the price differ for the PIA flight?
- Why is there no variation in price for the Airblue flight?
- Who gains? The passenger or the airline?

11.1 The significance of consumer surplus

As explained in Section 7.3, the demand curve can be used to show how much consumers are willing to pay for the different quantities of products they want to consume. Those who receive most satisfaction will be willing to pay a higher price than those receiving very little satisfaction. For most products, the price is given; firms are unable to charge a higher or lower price whatever the customer's level of satisfaction.

When price falls, say due to a 'special offer', more will be demanded since the product now appeals to more consumers. A rise in price, in contrast, will see a fall in the quantity demanded since the price increase is greater than the satisfaction of some of the consumers.

This leads on to the idea of **consumer surplus**. Consumer surplus is the difference between the price a consumer is willing to pay for a product and its market price. For any good or service, there are likely to be people who are prepared to pay above the market price. Some may want the product at almost any price. An example could be to watch the final of a World Cup cricket match or to watch a live concert featuring a world-famous singer.

Consumer surplus is shown in Figure 11.2. Consumer surplus is shown by the shaded area above the price line, P. Some consumers may be willing to pay as much as P_1 to consume the product. This is because they do not want to miss out on consuming it. As price increases above P, consumer surplus decreases as less people are prepared to pay the higher prices.

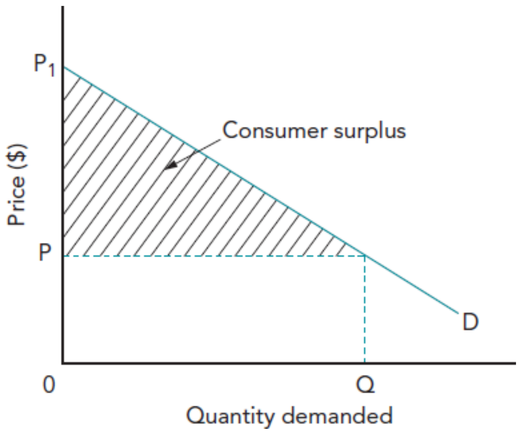


Figure 11.2: Consumer surplus

In contrast, a fall in the market price will lead to an increase in consumer surplus since consumers who were previously paying above the market price now end up paying less. When the price falls, the change in consumer surplus applies to new customers as well as to existing customers. This is shown in Figure 11.3. The explanation is that the fall in price means that more consumers are now willing to buy the product at the reduced price. They are willing to a pay a price between P_1 and P.

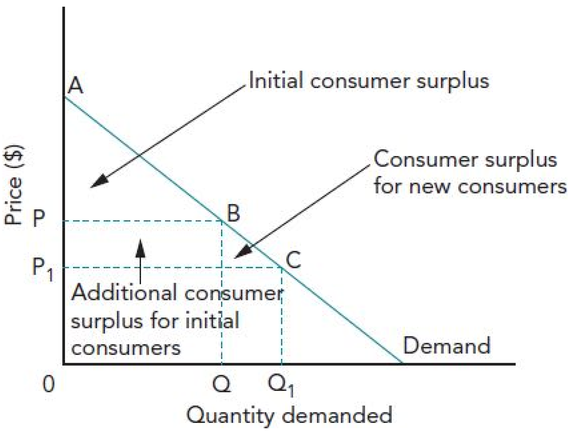


Figure 11.3: Change in consumer surplus as the price decreases

The impact of a price change on consumer surplus depends on:

- the extent of the price change. The larger the change in price, the greater will be the change in consumer surplus.
- the price elasticity of demand. When demand is price inelastic, an increase in price will see less of a fall in consumer surplus than if demand is price elastic. This can be seen in Figure 11.4. For the same increase in price, the area of the loss of consumer surplus is bigger in the elastic case.

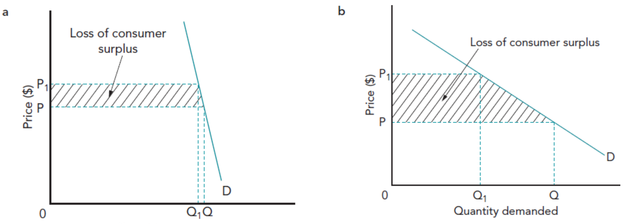


Figure 11.4: Change in consumer surplus for inelastic and elastic demand curves: **a** Inelastic **b** Elastic

11.2 The significance of producer surplus

Producer surplus is a similar concept to consumer surplus. The difference is that we are now dealing with the supply curve. This supply curve shows that producers have different prices at which they are willing to supply products to the market. In general, producers are keen to supply consumers who are willing to pay a price above that which they would normally be prepared to accept.

Referring back to air fares, suppose the base line price for a return flight from Manchester to Islamabad is $588. This is the average fare and from the airline's perspective, it is the minimum that it is prepared to accept. There will always be passengers who are willing to pay above this price; they are likely to be those who have left it late to book or who have urgent business in Pakistan. These customers provide additional revenue to the airline over and above that for the base line price. This additional revenue is called producer surplus.

The extent of producer surplus is shown by the shaded area in Figure 11.5. It is the area above the supply curve but below the price line P_1. Anything the firm sells below P_1 is because it is willing to sell to consumers at a discounted price. There is a price P below which the producer is unwilling to supply anything since the costs of production would not be covered.

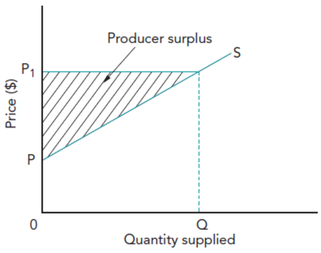


Figure 11.5: Producer surplus

The impact of a price change on producer surplus depends on:

- The extent of the price change. The greater the price change, up or down, the greater will be the change in producer surplus.
- The price elasticity of supply. When supply is elastic, an increase in price will see a much greater increase in producer surplus than if supply is inelastic. This is because there are producers already in the market willing to supply at a lower price; the increase in price adds to their consumer surplus. This can be seen in Figure 11.6. For the same increase in price, the gain in producer surplus is bigger when demand is elastic.

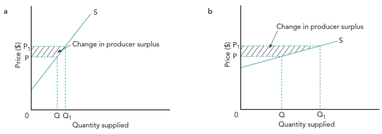


Figure 11.6: Change in producer surplus for inelastic and elastic supply curves: **a** Inelastic **b** Elastic

Finally, if we take consumer surplus and producer surplus together in a market, their sum represents the net benefit to society of this market's operations. This is shown in Figure 11.7.

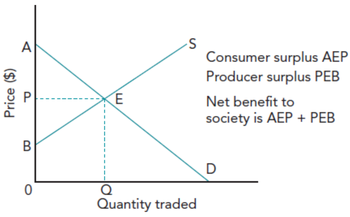


Figure 11.7: Net benefit to society

KEY CONCEPT LINK

Efficiency and inefficiency: A market is efficient when consumers and producers are satisfied with the market price and the output that is being produced. Where there is consumer surplus or producer surplus there is an inefficient allocation of resources.

ACTIVITY 11.1

In a pair:

1 a Re-draw Figure 11.2 to show the new consumer surplus when price increases above P but below P_1.

b With the help of your diagram, explain which consumers have lost out due to the price increase.

2 Re-draw Figure 11.5 to show the new producer surplus when the quantity supplied decreases below Q.

TIP

It may not be necessary for you to draw diagrams like those in Figures 11.4 and 11.5 unless the question specifically asks you to do so. If your answer needs to include diagrams, take time to draw them correctly. You can explain what the diagrams show in one or two sentences, leaving you more writing time.

REFLECTION

Learners sometimes find the topics covered in this chapter difficult to follow. How did real-world examples make it easier for you to understand the topics in this chapter? Look for more examples to help improve your understanding.

THINK LIKE AN ECONOMIST

Chinese shoppers go wild on Single's Day

It was the Americans who invented Black Friday when retail stores and websites offer all sorts of goods at low prices. What is now even better is 11 November in China - Singles Day. This is an annual 24-hour shopping spree created in 2009 by the CEO of the internet giant Alibaba, Daniel Zhang.

Figure 11.8: Workers sorting out packages at a warehouse after the annual Singles Day in China

Singles Day is now bigger in terms of sales than Black Friday and Cyber Monday put together. In 2018, Alibaba recorded sales of $30.9bn from over 1bn orders. This was a 27% increase on 2017. Although most customers were from China, Singles Day attracted buyers from Japan, Korea, Australia, the UK and USA.

Sales were not just confined to Alibaba. Many thousands of other retailers joined the event. There were even heavily discounted lunch prices on offer at fast food restaurants.

1 Do you think consumers are really increasing their consumer surplus at the expense of producers?

2 Are producers turning consumer surplus into producer surplus?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Consumer surplus is when:

A a consumer has spare income to purchase more wants.

B there is a difference in the price a consumer is willing to pay for a good and its market price.

C consumers benefit from a decrease in the price of a good.

D consumers buy too many goods to satisfy their needs.

2 Producer surplus is:

A when a producer becomes more efficient and produces more goods with the same amount of resources.

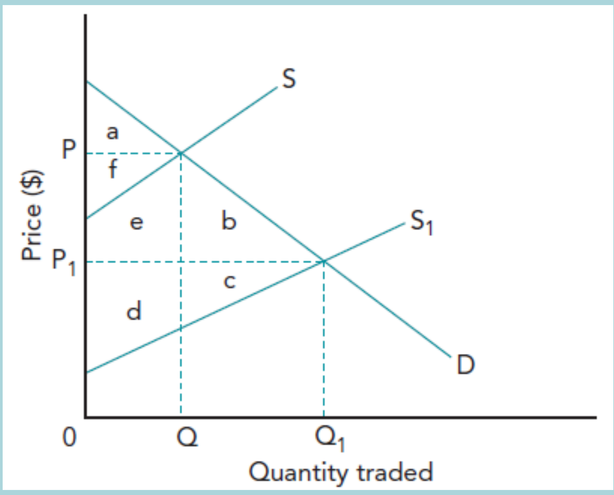
B the profits left for an entrepreneur when all costs have been deducted.

C the difference between what a producer is willing to accept and what is actually paid.

D when the price of a good increases unexpectedly.

3 In the diagram, D is the demand curve for a chocolate bar and S is the initial supply.

An increase in production causes the supply curve to shift to S_1. What is the gain in consumer surplus?



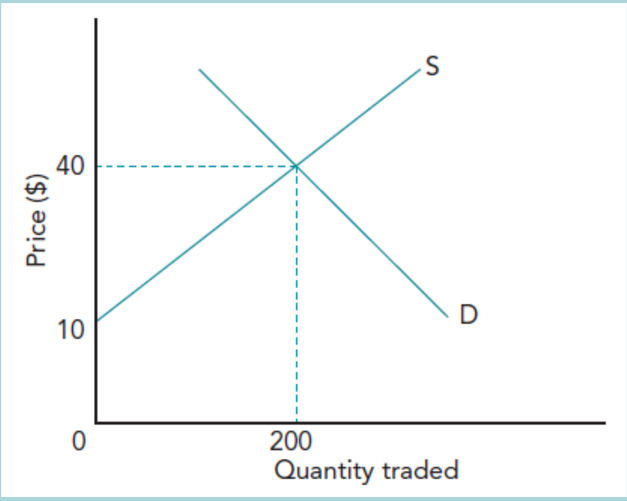
A a+b+e

B b+e+f

C b+c

D d+e

4 From the diagram below, calculate the producer surplus.



A $1000

B $3000

C $4000

D $6000

5 How might a seller turn consumer surplus into producer surplus?

A through having a unique product

B through restricting supply in the market

C through identifying a group of consumers who are willing to pay higher prices for the same product

D through identifying a group of consumers who are willing to pay lower prices for the same product

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain the meaning of consumer surplus and its significance for consumers			
Explain the meaning of producer surplus and its significance for producers			
Analyse the causes of changes in consumer surplus and producer surplus			
Use diagrams to show how changes in consumer surplus and producer surplus can be represented			
Consider how PED and PES may determine the extent of changes in consumer surplus and producer surplus			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 The volatile price of cocoa

The price of many commodities, including cocoa, is determined by the global commodities market. Price is set by supply and demand. As Figure 1 shows, there can be volatility in the market. The volatility in price is for various reasons.

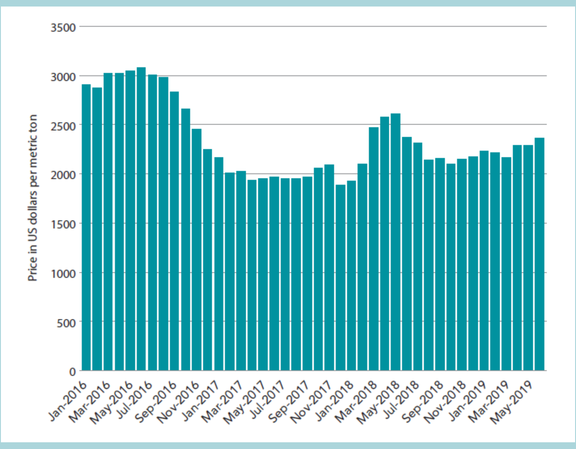


Figure 1: Monthly cocoa price worldwide, 2016–2019 (in US dollars per tonne)

Africa, particularly Côte d'Ivoire and Ghana, is by far the biggest producer of cocoa, supplying over 70% of the world's product. Supply is never certain, changing for all sorts of reasons. For example, the Harmattan winds blow in sand from the Sahara desert, which destroy young cocoa pods and remove the moisture from the soil. This is a regular problem in Côte d'Ivoire and Ghana. In 2019, producers in Ghana suffered from an outbreak of swollen shoot cocoa disease which affected an estimated 16% of the year's crop.

The global demand for chocolate is forecast to grow at around 3% per annum. In particular, consumers in high-income countries have an increasing demand for dark chocolate on account of its positive health benefits. With a higher cocoa content than cheaper chocolate, this has increased the demand for cocoa beans. Much of the increased demand for this chocolate is from the Asia-Pacific region.

a Describe how the world price of cocoa is determined. **[1]**

b Using the data in Figure 1, consider whether the price of cocoa beans is volatile. **[3]**

c Explain whether the price elasticity of supply of cocoa beans is price elastic or price inelastic? Justify your answer. **[2]**

d With the help of a diagram, explain how the Harmattan winds or the outbreak of swollen shoot cocoa disease are likely to affect the world price of cocoa. **[4]**

e Explain *one* demand-side and *one* supply-side reason for the change in the world price of cocoa from July 2016 to September 2017. **[4]**

f Discuss whether demand-side or supply-side factors are more important in determining change in the world price of cocoa. **[6]**

Essay

2 a With the help of a diagram, explain what happens to consumer surplus when the price of a product increases **and** consider how this might occur in a market of your choice. **[8]**

b Discuss what factors determine the change in consumer surplus and how these factors vary for different types of goods and services. **[12]**

3 a Explain the difference between an inferior good and a necessity **and** consider whether this difference is clear. **[8]**

b Discuss whether estimates of income elasticity of demand are likely to be more useful than estimates of price elasticity of demand to the owner of a small garment manufacturing business. **[12]**

Unit 3

Government microeconomic intervention (AS Level)

UNIT INTRODUCTION

The theme of this unit is how and why governments find it necessary to intervene in markets. The reason is usually because the processes of demand and supply are not giving what economists call the best allocation of resources. In these situations, markets are said ‘to fail’. This is a valid reason why governments find it necessary to provide information for consumers, to impose taxes and to provide subsidies to producers of some goods and services. The unit includes a brief overview of how and why the market system leads to inequality in the distribution of income and wealth.

Chapter 12

Reasons for government intervention in markets

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain why there is the non-provision of public goods
- explain why there is overconsumption of demerit goods and the underconsumption of merit goods
- explain why governments control prices in markets.

ECONOMICS IN CONTEXT

Education in Sub-Saharan Africa

There are powerful arguments for government intervention in education. As a merit good, it is underprovided if left solely to the private sector. The case for government intervention is much wider, given that education is a fundamental human right. In most low and lower middle-income countries government intervention involves the direct provision of education or providing subsidies where fees are charged. There is often legislation making education compulsory up to a certain age, usually 11.

Figure 12.1: Learners in Kenya

According to UNESCO, Sub-Saharan Africa has the highest rates of children not in education (education exclusion). One-fifth of children between the ages of six and 11 are not in school, one-third between 12 and 14 years, and 60% between 15 and 17 years. Far fewer girls attend school than boys in each of these age ranges. There are many reasons why children may not be in education, including corruption and conflict. The main reason though is poverty.

There are exceptions. In Kenya, government education is free from primary school through to high school. Boarding fees have to be paid, although government subsidies are available for low-income families. Ghana and Sierra Leone have recently introduced free high school education.

Discuss in a pair or a group:

- What are the benefits of a good education for yourselves and for the economy?
- Is additional funding the only way in which education in Sub-Saharan Africa can be improved?

12.1 What is market failure?

When markets work efficiently, they produce the best allocation of resources. This is an ideal situation. In reality, as economies grow and become more complex, markets do not always operate in the way that is set down by economic theory. When this happens, there is **market failure**. Market failure is an inefficient allocation of goods and services in the market. In this case, the free market mechanism does not make the best use of scarce resources.

Market failure occurs when the price mechanism fails to take into account all of the costs and benefits that are necessary to produce or consume a product. Markets are not perfect due to inefficient production and consumers not having perfect information to be able to make informed choices.

Microeconomics has many situations where market failure occurs, and requires government intervention. These situations include:

- lack of public goods (see Section 6.3)
- underproduction of merit goods (see Section 6.4)
- overconsumption of demerit goods (see Section 6.4)
- information failure (see Section 6.4).

ACTIVITY 12.1

In a group of four, look at the market failure situations identified above. Each learner should research two examples. You could look at local or national newspapers and news websites.

For each example, say why you think the free market has failed to produce the best allocation of resources. As a group, discuss the findings to decide whether the market has failed in each case. Prepare a leaflet summarising each case.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: A consequence of market failure is that government intervention can take various forms in order to produce greater social equality and equity.

TIP

Before reading the next section, you may find it helpful to recap public goods, the overconsumption of demerit goods and underconsumption of merit goods (see Sections 6.3 and 6.4).

12.2 How governments intervene in markets

Addressing the non-provision of public goods

Public goods include the police force, national defence, fire protection, street lights, non-toll roads and flood control systems. The nature of public goods is that they are consumed collectively (by everyone) and their use by one person does not make the public good less available to others. The free rider problem means that people can enjoy the use of a public good without contributing towards its cost.

TIP

A lighthouse clearly matches the two characteristics of public goods. It is a good example to include in an answer for this reason.

It is therefore difficult, if not impossible, to make a direct charge for consuming a public good. It is obvious that the private sector would not be interested in providing public goods as there is no opportunity to make a profit from their investment. When left to the free market, public goods would not be provided despite the benefits they give to those who consume. It is for this reason that public goods have to be funded by the government out of tax revenue and provided free of charge for the public. Opportunity cost is an issue since the funding for public goods is competing with other types of government spending, often in countries with a modest tax base.

Addressing the overconsumption of demerit goods

Demerit goods are ones that are considered undesirable for consumers and that tend to be over provided, therefore over consumed in the free market. The main reason for this is that consumers invariably lack full and proper information on demerit goods such as cigarettes and tobacco. This is why governments have increasingly intervened in this particular market.

Over the past ten years or so, in many countries, regulations banning smoking in public places have been introduced. Manufacturers may be required to put written warnings and graphic photographs on packaging explaining the dangers of smoking. Governments reason that measures such as this will help protect the health and well-being of the population; other reasons are to promote a more productive workforce and to make savings in the healthcare budget through treating fewer patients with smoking-related complaints. These reasons have tended to be more relevant than the loss of tax revenue through reduced sales of tobacco products.

ACTIVITY 12.2

For your economy or an economy of your choice, compare how the government has sought to restrict the excessive consumption of unhealthy foods such as fried chicken, chocolate and sugar-heavy drinks. Discuss your findings with another learner.

Addressing the under consumption of merit goods

Merit goods are more beneficial to consumers than they may realise. This is the result of information failure on the part of consumers. For example, healthcare and secondary education are both considered by governments as desirable and able to act as an incentive for economic growth and development.

The problem for merit goods is that when provided by the private sector, the quantity supplied is less than what is required. Access is restricted to those who can afford to pay. This is therefore a case of market failure, as shown in Figure 12.2. Assume this is the market for healthcare. The government believes that OY should be produced to meet the needs of the population. This is represented by the vertical supply line. The private sector only provides OX and this is at an average price of p to those in need of healthcare. This leaves under production of OY – OX.

To correct the market failure, the government could decide to fully take over the provision of healthcare. Resources would be allocated to meet OY, with no private sector involvement. A less expensive option would be to allow the private sector to still provide healthcare with the government providing the difference OY – OX. The government's provision would be for those unable to afford to pay for private sector fees.

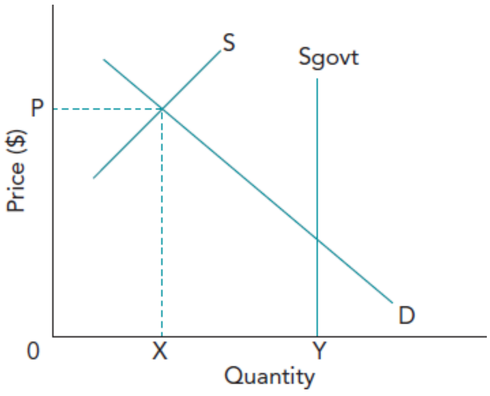


Figure 12.2: Underproduction of a merit good

12.3 Controlling prices in markets

Governments also set maximum prices. This means that sellers of the good cannot sell it legally at any price above the price ceiling. In some former socialist economies and elsewhere, basic food items such as bread were allocated a maximum price. The reason behind this policy was to protect those on low incomes by providing heavily subsidised items that were used daily. To be effective the maximum price must be below the equilibrium price.

Another example is the case of rent controls, the purpose of which is to provide affordable housing for families on low incomes. Rent controls are also used to attract key workers such as nurses and teachers to areas where there are shortages due to the high cost of housing. Most governments are keen to protect their agricultural sectors to safeguard food supplies. Prices and farmers' incomes are unpredictable due to uncertain supply conditions (see Section 9.3). Governments support farmers' incomes by setting a minimum price or price floor for key agricultural products like wheat and rice. The effect of a minimum price is to raise the price of a crop above the equilibrium market price. In this way, the income of farmers is protected and the government can be more certain about the security of future supplies, as there is likely to be less need to buy crops on the international market. The downside is that consumers are likely to be worse off, since the price is now above the equilibrium and a smaller quantity is being traded. It can also be argued that this represents an inefficient use of resources (see Section 13.4).

REFLECTION

Market failure is an important concept in microeconomics. Now that you have studied market failure, how has your confidence grown in being able to explain things you may have taken for granted?

THINK LIKE AN ECONOMIST

Reforms to Pakistan's healthcare system

There never seems to be enough money to fund healthcare. Given the limited tax base, the problem is particularly acute in low-income economies like Pakistan. Prime Minister Imran Khan has promised to reform Pakistan's healthcare system. His objective is to provide quality care for all of Pakistan's residents, something that had previously been just for the few who could afford to pay private providers. And even then, there was no guarantee of a quality experience.

Figure 12.3: A modern healthcare facility in Pakistan

The most important issue is that of funding, especially for public sector hospitals. Other priorities include the need to develop preventative healthcare services. Pakistan still struggles to contain polio and other preventable diseases due to the lack of an effective immunisation programme. A third priority is to establish effective regulatory bodies, both for the private and state-owned sectors.

Providing a better healthcare system for the entire population will take time. The priority is to increase the healthcare budget and to widen the scope of government provision. Extra funding has to come from provincial and federal governments to build new hospitals, especially in rural areas, and to upgrade existing facilities with modern equipment. Investing at a local level should take pressure off overcrowded hospitals in major cities.

1 How might the government in Pakistan obtain additional funding for healthcare?

2 What are the benefits and costs of a better healthcare system for Pakistan's economy?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Why do governments provide public goods?

A Public goods are needed by the public.

B Public goods are mostly consumed by lower-income families.

C The private sector does not find it profitable to provide public goods.

D The government allocates a fixed sum of its budget for public goods.

2 Healthcare is often provided by the government because:

A no private firm is prepared to do so.

B healthcare is a merit good and people deserve it.

C information failure means most people do not appreciate the benefits of staying healthy.

D it is appropriate to fund healthcare from tax revenue.

3 A government fixes a maximum price for bread. What is the most likely reason for this?

A Too much bread is being consumed.

B Production of bread is less than consumption.

C It is a way of supporting low-income families.

D It is a way of reducing non-market transactions.

4 Governments provide minimum prices for agricultural products in order to:

A reduce demand from consumers.

B allow farmers to compete with imported agricultural products.

C get farmers to produce as much as they can.

D stabilise farmers' incomes.

5 Governments restrict the consumption of demerit goods because:

A resources used in their production can be put to better use.

B consumers of demerit goods are irresponsible in their consumption.

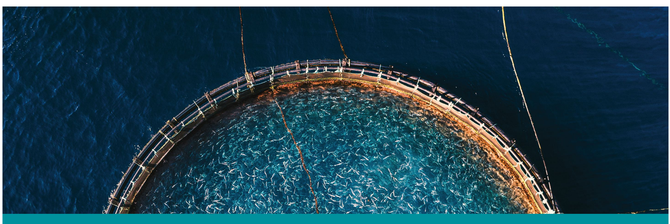
C consumers lack proper information on the effects of consumption.

D the value of imported demerit goods has an adverse effect on the balance of trade.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand the concept of market failure			
Explain why governments may intervene in markets to address non-provision of public goods, overconsumption of demerit goods and underconsumption of merit goods			
Analyse why governments may set maximum prices or minimum prices in the market			



Chapter 13

Methods and effects of government intervention in markets

LEARNING INTENTIONS

In this chapter you will learn how to:

- analyse the impact and incidence of specific indirect taxes
- analyse the impact and incidence of subsidies
- explain direct provision of goods and services
- analyse maximum and minimum prices
- analyse buffer stock schemes
- explain provision of information.

ECONOMICS IN CONTEXT

Vegetable oil imports subject to new tax

The government of India plans to impose an extra 5% tax on vegetable oil imports and to use the additional revenue to help boost the country's stagnating oilseed production.

Vegetable oil is a staple ingredient in Indian cooking. India buys palm oil from Indonesia and Malaysia, soy oil from Latin America and sunflower oil from Black Sea suppliers. The demand for vegetable oils has trebled over the past 20 years as a result of population growth and rising incomes. Critically, output has increased by less than one-third. As a result, the cost of imported vegetable oils is nearly $10 bn a year.

Figure 13.1: Vegetable oil for sale in a supermarket in India

The principle behind the extra tax is the government's policy to create a new oilseed fund that will assist farmers to increase their oilseed production. If successful, the increased production would hit its main overseas suppliers.

Discuss in a pair or a group:

- What microeconomic and macroeconomic issues underpin the Indian government's plan?
- If the plan is successful, who will be the winners and who will be the losers?
- What are the obstacles that might see the plan fail?

13.1 The impact and incidence of specific indirect taxes

There are two main types of indirect taxes:

- *Ad valorem* taxes are a proportion or percentage of the price charged by the retailer. VAT in Kenya or Mauritius or a GST as charged in Canada and New Zealand are typical examples. The final price paid by consumers is inclusive of such taxes. The tax element may be included in the published retail price or, in cases where the GST is on everything, added to the price at the final transaction stage.
- Specific taxes are in the form of a fixed amount per unit purchased. For example, specific taxes are widely used to tax fuel. The tax is based on a measurable quantity, such as per litre. The final price includes this tax.

Indirect taxes are widely used to discourage the production and consumption of demerit goods such as cigarettes and high-sugar sports drinks. These taxes tend to be passed on to consumers through increased prices in the market, although technically they are imposed on the producer.

When an indirect tax is imposed, this tax must be paid to the government by retailers, wholesalers, manufacturers and other providers of taxable goods and services. This means that a business requires a price that is higher than the original price by the amount of the tax. With a specific tax, this is represented by a shift to the left of the supply curve by the amount of the tax. Figure 13.2 shows that:

- the market price is now higher at P_1 compared to the previous equilibrium price of P
- the quantity traded is less at Q_1.

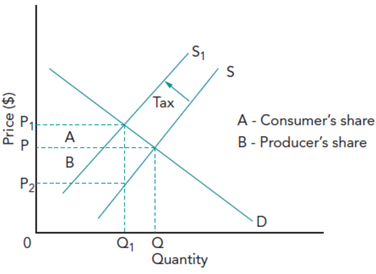


Figure 13.2: The effects of imposing a specific indirect tax

ACTIVITY 13.1

Using Figure 13.2, and using D and S, explain how imposing an *ad valorem* tax will produce a different outcome compared to imposing a specific indirect tax.

Figure 13.2 can also be used to show the **incidence** of an indirect tax. This is the term used to describe the extent to which the tax burden is borne by the producer, by the consumer or by both. In Figure 13.2 the producer bears a slightly higher burden as area B is greater than area A. The producer now receives P_2 and not P for the product; the consumer pays a higher price at P_1.

The extent to which the producer is able to pass on the tax by raising price depends on the price elasticity of demand for the product. The more price inelastic the demand, the easier it is for the seller to pass on the tax to the consumer in the form of higher prices. This explains why essential products, like petrol, are heavily taxed in most economies. If demand is price elastic, then consumers will invariably buy less of the product as price rises, resulting in the producer having to absorb a greater part of the indirect tax. Figure 13.3 shows the effects of varying price elasticity of demand on the incidence of indirect taxation.

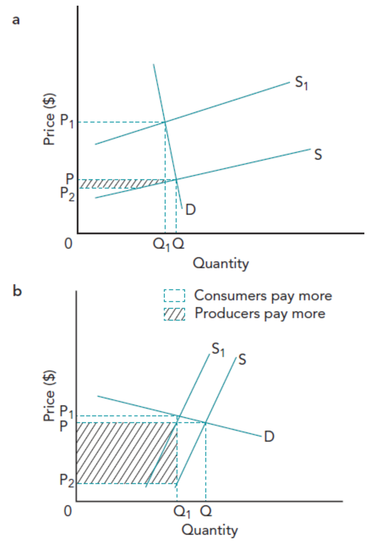


Figure 13.3: Incidence depends on price elasticity of demand and supply: **a** Elastic supply – inelastic demand **b** Inelastic supply – elastic demand

In contrast to most high-income economies, many low and lower middle-income market economies struggle to collect taxes. In India, it is estimated that less than one per cent of the working population submit a tax return. Cash is still the main form of money. In November 2016, seeking to do something about this situation, the Indian government took the unprecedented action, without warning, of withdrawing the two highest bank notes in circulation, RS500 and RS1000. Known as demonetarisation, owners of these notes could change just RS4000 for new currency. The government's action aimed to improve India's record on tax collection and to force businesses to adopt more digital means of receiving payments. Evidence of success is mixed. However, India's tax take has improved and revealed more people and businesses who had not submitted a tax return.

Given the above problems of collecting taxes, it is not surprising that in emerging market economies, governments feel more confident of collecting indirect rather than direct taxes. Table 13.1 compares the sources of taxation in two emerging market economies with New Zealand, one of the world's most developed economies.

	Direct taxes	Indirect taxes
Indonesia	Income tax rate: 5–30% Corporate tax rate: 25%	Sales tax: 10%
Malaysia	Income tax rate: 26% Corporate tax rate: 25%	Sales tax: 5–10% Service tax: 5%
New Zealand	Income tax rate: 10–33% Corporate tax rate: 28%	GST: 15%

Table 13.1: Sources of taxation in three economies

ACTIVITY 13.2

Using Table 13.1:

1. Compare the tax structures of Indonesia and Malaysia with that of New Zealand.
2. Can you explain the differences?
3. What additional information would you need to make a more detailed comparison? Discuss with another learner.

13.2 The impact and incidence of subsidies

Another form of government intervention in the market is through the provision of subsidies. These are direct payments made by governments to the producers of goods and services. Subsidies may be provided for many reasons including:

- to keep down the market prices of essential goods
- to encourage greater consumption of merit goods
- to contribute to a more equitable distribution of income
- to provide services that would not be provided by the free market
- to raise producers' income, especially in the case of farmers
- to provide an opportunity for exporters to sell more goods
- to reduce dependence on imports by paying subsidies to domestic producers of close substitutes.

When paid to a producer, a subsidy has the opposite effect of an indirect tax – it is the equivalent of a fall in costs for the producer and results in a rightward shift in the market supply curve. This is shown in Figure 13.4. Conversely, a reduction in a subsidy payment shifts the supply curve to the left.

Figure 13.4 shows that introducing a subsidy in the market results in a fall in price from P to P_1 and an increase in the quantity traded from Q to Q_1. This is the usual effect on the market when governments pay money to producers.

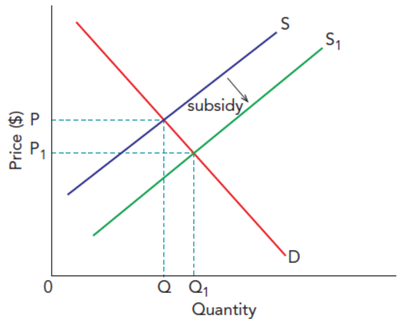


Figure 13.4: The effects of introducing a subsidy

The incidence of a subsidy is shared between consumers and producers. In Figure 13.5, consumers benefit through a lower price P_1 rather than the free market price of P. Producers benefit through receiving a higher price than they would selling an increased supply on the market.

The allocation of subsidies from limited government revenue is a controversial issue. It not only interferes with the workings of the market mechanism but it also has implications for opportunity cost. Subsidy payments usually come out of tax revenue where there will be other conflicting demands for funding.

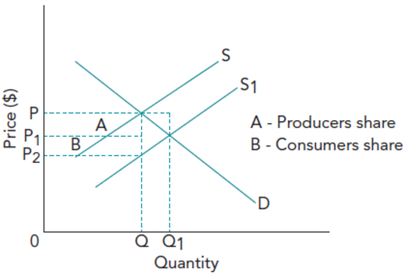


Figure 13.5: The incidence of a subsidy

Estimating the size of subsidy required is a further difficulty. Another problem is that subsidies are 'blanket' or lump sum payments and, unlike taxes on consumers, cannot easily be linked to incomes and the ability to pay. Consequently, in the case of food items both high-income and low-income consumers pay the same amount per unit of what they consume. It is therefore necessary to assess who benefits from a particular subsidy. This is shown by the following examples:

- Staple foods like rice, bread and cooking oil are subsidised in some low and lower middle-income economies. As world food prices continue to rise, the case for subsidy is a strong one, mainly to provide relief for the lowest income groups in the economy. However, subsidised prices are paid by all income groups, many of whom can afford to pay more. There could also be shortages since demand is greater than supply. If the subsidy is paid to producers, there is no incentive for inefficient producers to improve; neither is it certain that the money received as a subsidy payment will be used for its intended purpose.
- Mass transit (public transport) is heavily subsidised in all parts of the world, especially in cities and large towns. This is done to give low earners access to employment opportunities, to provide social mobility for older people, to reduce road congestion and to reduce the negative environmental impact of road traffic. The benefits are to individuals and to the community as a whole.

TIP

Do not confuse the effects of indirect taxes and subsidies on the prices of goods and services. An indirect tax raises prices, a subsidy reduces prices.

ACTIVITY 13.3

Figure 13.6: University students

In a pair, use information from a country you have studied to consider the benefits of the government subsidising:

- poultry production
- long-distance train or bus services
- university education.

13.3 The direct provision of goods and services

Governments provide certain important services free of charge at the point of use or consumption. Such services are financed through the tax system. If these services are used equally by all citizens, then those on lowest incomes gain most as a percentage of their income, thereby lowering inequality. The two most common instances of direct provision are merit goods and public goods (see Sections 6.3 and 6.4).

Merit goods, such as healthcare and education, are provided free in some but not all economies. A common model is for there to be part free provision, with other parts being paid for at the point of use. The healthcare and education markets are subject to various market failures. These failures, though, do not justify free provision to the consumer. The justification must be on the grounds of equity. The view is that everyone should have access to a certain level of healthcare and education regardless of income. This means that where these services are provided universally free, they are the same as universal benefits.

The characteristics of public goods mean that they will not be provided by the market mechanism. Neither will consumers be willing to pay for them. The only way in which they can be provided is directly by the government and paid for out of tax revenue. A frequent criticism is that this leads to inefficiency, with costs higher than what would have been the case in a competitive market.

There are major differences in the direct provision of goods and services between economies, for example in healthcare provision. The UK has had a free National Health Service for more than 70 years; in contrast, free health care in the USA is limited. Those who can afford to pay are obliged to take out medical insurance. In most low-income countries, Cuba being a notable exception, a charge is usually made for most types of healthcare provision. This is especially the case in many countries in sub-Saharan Africa, where only a very basic system of healthcare is provided free of charge.

The direct provision of goods and services is a controversial issue. The main criticism is that the market overprovides, especially where no direct charge is made. Resources are not allocated efficiently. If a charge is made or introduced, demand is likely to fall. It can also be argued that many consumers could afford to pay a charge, so reducing the tax burden or allowing the funding saved in this way to be put to alternative uses.

13.4 Maximum and minimum prices

Market failure can occur where the price of a good in the free market is too high. This can prompt the government to pass legislation to impose a **maximum price** on a particular good or service. This is seen as a way of assisting families on low incomes, reducing inequalities in income or in recognition that the wider benefits of consuming a particular product are not fully appreciated.

Maximum price controls or price ceilings are only valid in markets where the maximum price imposed is below the normal equilibrium price as determined in a free market. This means that the price that can be legally charged by sellers must not be any higher. Governments use legislation to enforce maximum prices for:

- staple food items such as rice and cooking oil
- petrol and diesel fuel
- rents in certain types of housing
- services provided by utilities, such as water, gas and electricity
- transport fares, especially where a subsidy is being paid.

Suppose the government passes legislation to impose a maximum price for cooking oil. A problem arises because if prices are forced down, producers of cooking oil are only willing to supply Q_1, leading to a shortage in the market. Figure 13.7 indicates that at the maximum price of P_1, production is not sufficient to satisfy everyone who wishes to buy the product. This is because the lower price makes cooking oil more affordable and Q_2 is now demanded. Some consumers who bought OQ_1 of cooking oil when its price was higher are now better off due to the lower price; others are not, since the product is not available. The extent of the shortage is Q_2 minus Q_1 in Figure 13.7. Consequently, as the price cannot rise, the available supply has to be allocated in some other way. The most likely way is by means of queuing, a common form of control in the former planned economies of Central and Eastern Europe.

Rationing is another means of restricting demand – but this inevitably leads to an informal or underground market for the products involved, with consumers then having to pay inflated prices well above the maximum price. Such markets inevitably arise when there are dissatisfied people who have not been able to buy the goods they want because not enough has been produced.

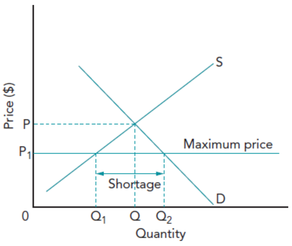


Figure 13.7: Effects of maximum price control

ACTIVITY 13.4

Figure 13.8: A yellow cab in New York

Taxi fares in most cities are regulated, often with maximum as well as minimum fares. In New York, there is a maximum fare for travel from JFK and Newark airports to central Manhattan. This fare applies whatever the day, time or volume of traffic. The fare is below what it would be in an unregulated market.

Not all of New York's yellow cab drivers are happy with this arrangement. At peak times, when traffic is gridlocked, they are reluctant to pick up anyone with a large suitcase. Many cabbies are known to take their cars off the road. This affects their earnings and frustrates locals and visitors wanting to travel around the city and to get to the airports. It can though be argued that maximum fares promote competition with Uber, which has the largest number of vehicles anywhere on the streets and avenues of New York.

1 Discuss the case for maximum fares for taxi rides in cities such as New York or another city that is known to you.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Maximum prices interfere with the unregulated market mechanism largely for reasons of social equity. The prices of essential items are capped to help those who are on low incomes and this goes some way towards a more equal distribution of income. The trade-off is that the free market is distorted and may not bring the full benefits that might be expected.

Why governments may impose a minimum price control

There are different situations where the government may find it necessary to impose **minimum price** control in a market. The minimum price acts as a price floor. These cases are not as common as those where maximum price control is imposed. Controls are only valid in markets where the minimum price is set above the normal equilibrium price. Governments use legislation to enforce minimum prices for:

- demerit goods such as high-sugar sports drinks
- agricultural products, particularly in middle and in high-income countries
- wages in certain occupations, usually low skilled, to avoid employers exploiting their employees
- certain types of imported goods where close substitutes produced by domestic producers are available.

Figure 13.9 shows that at the minimum price, suppliers are willing to supply considerably more products than are demanded by consumers. The minimum price of P_1 reduces demand from OQ to OQ_1. It also increases supply from OQ to OQ_2 resulting in an excess supply of Q_2 minus Q_1. As price cannot fall, supply is restricted to Q_1– this is all consumers can afford to buy. A lower quantity is traded than would have occurred at the equilibrium price.

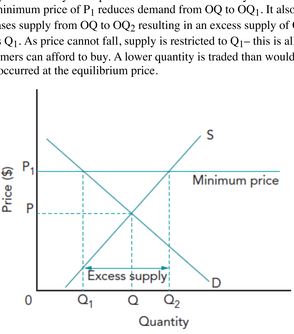


Figure 13.9: Effects of minimum price control

It is also the case that producers are likely to be inefficient; firms with high costs have little incentive to reduce costs since the high minimum price protects them from lower-cost competitors. As with maximum price control, there is a danger that an informal market will develop, especially for products like imported cigarettes. The high rate of indirect taxation and high minimum price mean these products are attractive for non-market trading. Consumers will be more than happy to buy from dealers offering these goods at less than the regulated minimum price.

TIP

In your answers, remember that a maximum price must always be fixed below the equilibrium price to be effective; and a minimum price must always be fixed above the equilibrium price.

The position in agricultural markets is different. A minimum price tends to be set at a level that should provide a living income for producers. Where there is excess supply, it is expected that the government agency will purchase any excess at the minimum price.

13.5 Buffer stock schemes

In Sections 7.1 and 10.2 it was explained how prices in agricultural markets can be unpredictable (volatile) particularly due to changes in supply. A **buffer stock scheme** is designed to smooth price rises and falls by buying and selling stocks of products depending on market conditions. In general terms, buffer stock schemes combine the principles of minimum and maximum price controls.

A buffer stock scheme starts by setting a minimum price for a particular product, say potatoes. If the market price looks like going below this minimum, the buffer stock scheme will buy up stocks of potatoes from growers. These will be stored in warehouses. This action should raise the price of potatoes since supply in the market has fallen.

The scheme can also set a maximum price. The effect will be to increase supplies from growers which in time will see a reduction in the price of the product. For many years, the European Union's (EU) Common Agricultural Policy (CAP) was an example of this type of intervention. The CAP was heavily criticised for its inefficiency. This resulted in CAP focusing instead on implementing structural reform to make agricultural production more efficient.

13.6 Provision of information

In Section 6.4 it was explained how information failure can result in the under consumption of merit goods and the over consumption of demerit goods. It therefore seems logical for the government itself to use information provision as a form of direct intervention. A few examples are:

- compulsory information on cigarette packets warning of the dangers of smoking
- public health announcements and campaigns
- advice on non-prescription medicines
- nutrition and allergy information on food packaging.

REFLECTION

In your class debate, were the most effective arguments backed up by the use of data? How could the least effective arguments have been improved by using data?

THINK LIKE AN ECONOMIST

Do high-income economies unfairly support their farmers?

The question of agricultural subsidies is one that has confronted the World Trade Organization (WTO) for many years. The root of the problem is that high-income countries subsidise their farmers as a means of ensuring output (for example, through the EU's Common Agricultural Policy). The criticism is that subsidies protect inefficient producers at a high cost to taxpayers and consumers.

From a wider perspective, it can be argued that there is a global misallocation of resources. There is too much being produced in high-income countries, and too little being produced in low-income and lower middle-income countries. As a consequence, many low-income and lower middle-income countries struggle to sell their food exports to high-income countries, especially where both produce the same agricultural product. Sugar is a good example. So, low exports and low prices translate into low incomes and lower investment opportunities for farmers in low- and lower middle-income countries.

This concern is rejected by Australian farmers. Using data from an OECD (Organisation for Economic Co-operation and Development) study, Australian farmers point out that they receive the second lowest level of support after New Zealand farmers. They add that their farmers do not receive any subsidies for commodity production; what they do receive are cheap loans from the government to help them through periods of drought and floods when their output is badly affected.

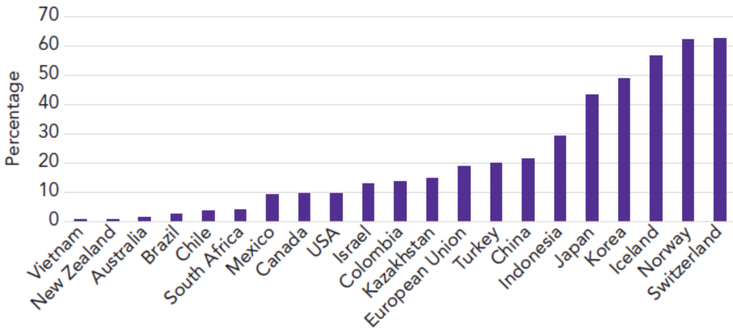


Figure 13.10: Subsidies as a percentage of gross farm receipts in different countries

As a class, debate the topic: 'Do high-income economies unfairly support their farmers?'

Consider the following:

1. To what extent does the OECD data support the case made by Australian farmers?
2. What other data and information do you need to be able to be more certain about your conclusions? (Hint: visit the WTO website)

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 The government wants to impose a maximum on the price of rice. There are three possible ways in which this can be achieved, either individually or in combination. These are:

1 to give a subsidy to rice producers

2 to provide more information on the health benefits of consuming more rice and less meat

3 to ration the amount of rice that each person is allowed.

Which is the best way for the government to impose a maximum price?

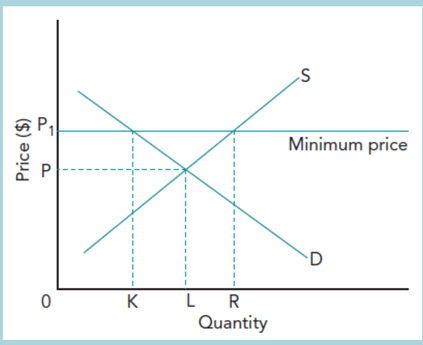
A 1

B 3

C 1 and 3 combined

D 2 and 3 combined

2 The diagram below shows the market situation when a minimum price has been imposed on a demerit good.



What should the government do to maintain the minimum price at P_1?

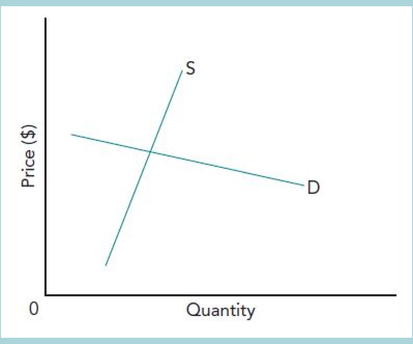
A buy KL

B buy KR

C sell LR

D sell KR

3 The diagram below shows the demand and supply curves for a product on which the government has imposed a new specific indirect tax.



What will be the outcome of the tax?

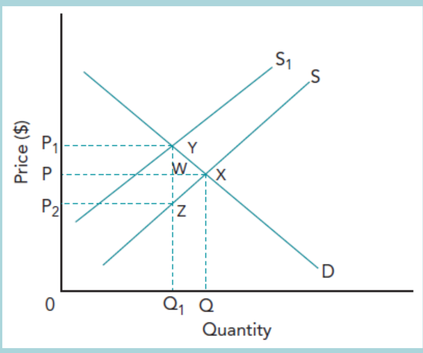
A There will be a new demand curve parallel and above D.

B Most of the incidence of the tax will fall on the producer.

C Most of the incidence of the tax will fall on the consumer.

D The quantity traded will remain the same.

4 In the diagram below, the government imposes a specific indirect tax on a product. Which area represents the amount of tax paid by consumers?



A YWX

B P_1YXP

C P_1YWP

D P_1YZP_2

5 A new subsidy is paid to farmers who grow corn (maize). Which of these is the most likely consequence?

A More corn is produced at a higher price to consumers.

B More corn is produced at a lower price to consumers.

C More corn is produced at a price to consumers that is determined by market demand and supply.

D There will be a decrease in the price of corn oil for consumers.

6 Suppose the government uses a buffer stock scheme to reduce the market price of wheat.

Which is the best way in which this can be achieved?

A by increasing the supply of wheat in the market

B by buying supplies of wheat in the market

C by providing a subsidy for farmers to produce more wheat

D by a campaign to get consumers to buy less wheat

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Analyse how indirect taxes and subsidies affect the demand and supply of products in the market			
Understand the situations when governments may need to impose maximum and minimum price controls			
Analyse the importance of buffer stock schemes in smoothing price rises and falls of products			
Explain when governments may directly intervene in the market by providing information			

Chapter 14

Addressing income and wealth inequality

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the difference between income as a flow concept and wealth as a stock concept
- measure inequality in income and wealth with a Gini coefficient
- explain the economic reasons for inequality of income and wealth
- discuss policies that redistribute income and wealth, including the minimum wage, transfer payments, progressive income taxes, inheritance and capital taxes, and state provision of essential goods and services.

ECONOMICS IN CONTEXT

The richest and poorest in Asia

We live in an unequal world. A recent study found that 1% of India's richest population own 73% of the total wealth. The poorest 50% own just 1% of the wealth.

The scale of inequality in income and wealth is extreme not just in India but throughout Asia. The three richest people in Asia are from China, yet their wealth is small compared to that of the chief executive of Amazon, Jeff Bezos, the richest man in the world in 2019.

Figure 14.1: Villagers collect water from a well

Millions of people, especially in Asia and Africa, are living below the international poverty line of $1.90 per day and have no regular running water supply.

At the same time, we should not fail to recognise that inequality is not just confined to low-income countries; there are huge differences evident in the UK, USA and most other high-income countries.

Discuss in a pair or a group:

- To what extent is there inequality of income and wealth in your own country?
- How could governments and the international community do more to reduce inequality in income and wealth?

14.1 Income and wealth

You need to be aware of the difference between income and **wealth**. Income is the reward for the services of a factor of production (see Section 3.1). For labour, income is paid in wages, salaries and bonuses. For other factors of production, income takes the form of rent, interest and profits.

Income is a flow concept. This is because the returns to the various factors of production are variable over any given period of time.

Wealth describes the stock of assets that someone has built up over time, for example businesses, property, shares, gold and antiques. These assets are there to provide security and in some cases, an income stream for the future.

Table 14.1 shows the wealth that had been accumulated by 2019 by the top three wealthiest people in China, India and Malaysia.

As you can see from Table 14.1, most of the wealth has come from firms. This is different from some high-income countries, such as the UK and the countries of the European Union, where much of the wealth has been inherited from past generations of families.

TIP

Wealth is often wrongly used to mean income. Remember that wealth is a stock of assets that have been built up often over a long time period. Income is a flow of payments to factors of production over a given time period.

14.2 Measuring income and wealth inequality

The **Gini coefficient** is a numerical measure of the extent of income inequality in an economy. If the income distribution in an economy is equal, the Gini coefficient will have a value of 0. At the other extreme, if all income accrues to just one person, then the Gini coefficient will be 1. Both extremes do not occur in the real world. The norm is for Gini coefficients to be somewhere between the values of 0 and 1. A Gini coefficient of 0.3 therefore indicates a more equal distribution of income than a coefficient of 0.5. Table 14.2 contains some examples from various types of economy. (The data in this table is shown as percentages: 100% represents full inequality).

Rank	Country/Name	Estimated wealth (in $ billion)	Source of wealth or company
	China		
1	Jack Ma	38.2	e-Commerce
2	Ma Huateng	36.0	Internet media
3	Hui Ka Yan	27.7	Real estate
	India		
1	Mukesh Ambani	51.4	Reliance Industries
2	Gautam Adani	15.7	Adani Ports & SEZ
3	Hinduja brothers	15.6	Ashok Leyland
	Malaysia		
1	Robert Kuok	12.8	Palm oil, shipping, banking
2	Quek Leng Chan	9.4	Banking, property
3	Teh Hong Piow	6.7	Banking

Table 14.1: Asian billionaires, 2019 (estimates)

Low income economies	Emerging economies	Developed economies
Lesotho 63.2%	China 46.5%	Hong Kong 53.9%
South Africa 62.5%	Malaysia 46.2%	USA 45.0%
Nigeria 48.8%	Indonesia 36.8%	Russia 41.2%
Kenya 48.5%	Mauritius 35.9%	New Zealand 36.2%
Sri Lanka 39.2%	India 35.2%	UK 32.4%
Bangladesh 32.1%	Pakistan 30.7%	Australia 30.3%

Table 14.2: Selected Gini coefficients (various dates), shown as percentages (100% equals total inequality)

ACTIVITY 14.1

Some economists argue that other types of economy have a more unequal distribution of income than developed economies, giving 0.45 or 45% as a benchmark. Does the data in Table 14.2 support this view?

You may like to look online at the CIA World Factbook to find more data.

14.3 Economic reasons for inequality of income and wealth

Economists agree that inequality of income and wealth acts as a barrier to economic growth and development. There are many reasons for this inequality, some economic, others social, cultural and political. Below are some economic reasons for inequality:

- a lack of formal employment opportunities, particularly for young people, but also for those with professional skills
- poor vocational training, which means that local industries cannot obtain the labour needed to maintain a viable operation in national and international markets
- a lack of investment in the education and health sectors, which holds back human capital needed to promote economic growth
- poor infrastructure such as roads, railways, power and water supplies
- a low rate of savings, which holds back private and public sector investment
- the inability of many people to obtain credit to fund small businesses and improved personal education.

14.4 Policies to redistribute income and wealth

Governments may use a range of policies to reduce inequality in the distribution of income and wealth. Most governments seek to reduce income inequality; there may also be policies to redistribute wealth. Many of the policies depend on funds generated from tax revenue for their implementation and regulation.

The collection of taxes causes serious difficulties in most low-income countries and many middle-income countries, where the **informal economy** is huge with only a very small percentage of the population paying direct as opposed to indirect taxes. Corruption and tax evasion (where people deliberately do not pay tax) are also commonplace. This hinders the ability of governments to successfully implement policies that redistribute income and wealth.

KEY CONCEPT LINK

Regulation, equality and equity: There are various ways in which governments can reduce inequality in the distribution of income; the problem is that choice is largely determined by the limited resources available.

Minimum wage rates

A **minimum wage** rate is a legal requirement of what employers must pay an employee per hour. It is a rate before tax and any social security deductions are made. It is now widely applied in many economies (see Figure 14.2). Employers who do not pay the legal minimum wage rate can be fined or face other forms of penalty.

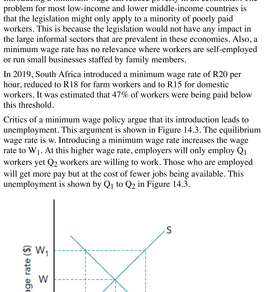


Figure 14.2: Minimum wage (annualised) in selected countries (wages in 2018 $, PPP)

Introducing a minimum wage can reduce poverty in all economies. The problem for most low-income and lower middle-income countries is that the legislation might only apply to a minority of poorly paid workers. This is because the legislation would not have any impact in the large informal sectors that are prevalent in these economies. Also, a minimum wage rate has no relevance where workers are self-employed or run small businesses staffed by family members.

In 2018, South Africa introduced a minimum wage rate of R20 per hour, reduced to R18 for farm workers and to R15 for domestic workers. It was estimated that 47% of workers were being paid below this threshold.

Critics of a minimum wage policy argue that its introduction leads to unemployment. This argument is shown in Figure 14.3. The equilibrium wage rate is W. Introducing a minimum wage rate increases the wage rate to W_1. At this higher wage rate, employers will only employ Q_1 workers yet Q_2 workers are willing to work. Those who are employed will get more pay but at the cost of fewer jobs being available. This unemployment is shown by Q_1 to Q_2 in Figure 14.3.

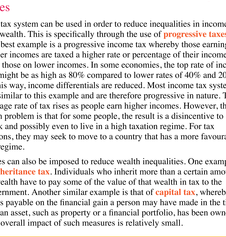


Figure 14.3: Effects on introducing a minimum wage

Transfer payments

A **transfer payment** is a payment from tax revenue that is received by certain members of the community. These payments are not made through the market, as no production takes place. Their function is to provide a more equitable distribution of income. The main recipients are vulnerable groups such as the elderly, the disabled, the unemployed and those on the lowest incomes. Payments tend to transfer income from those able to work and pay taxes to those unable to work or in need of assistance. Examples of transfer payments include:

- old age pensions
- unemployment benefits
- housing allowances
- food coupons
- child benefits.

The extent to which transfer payments can be paid is dependent on how much tax is collected and how many people have paid tax. In low-income and lower middle-income countries, this is affected by all sorts of problems. For example, Pakistan has a growing elderly population, yet it has a low tax base. Pension and social security coverage is limited to the formal sector and therefore only covers a small percentage of the population. Those who work or who have worked in the informal sector are not covered by these schemes. Similar arrangements apply in India although a higher proportion of the population is eligible for help. In Bangladesh, there is little or no provision of assistance, even for government workers.

The effect of transfer payments on the market is a controversial issue. It is clear that in most cases they are necessary to protect the most vulnerable groups in the community. Transfer payments result in less poverty and provide for a more equitable distribution of income. The opposing argument is that unemployment benefits and benefits to those on the lowest incomes can act as a disincentive to accepting work, so increasing the unemployment rate. As a consequence, output in the economy is less than it might be and there is a form of inefficiency

Progressive income taxes, inheritance and capital taxes

The tax system can be used in order to reduce inequalities in income and wealth. This is specifically through the use of **progressive taxes**. The best example is a progressive income tax whereby those earning higher incomes are taxed a higher rate or percentage of their income than those on lower incomes. In some economies, the top rate of income tax might be as high as 80% compared to lower rates of 40% and 20%. In this way, income differentials are reduced. Most income tax systems are similar to this example and are therefore progressive in nature. The average rate of tax rises as people earn higher incomes. However, the main problem is that for some people, the result is a disincentive to work and possibly even to live in a high taxation regime. For tax reasons, they may seek to move to a country that has a more favourable tax regime.

Taxes can also be imposed to reduce wealth inequalities. One example is **inheritance tax**. Individuals who inherit more than a certain amount of wealth have to pay some of the value of that **wealth in tax** to the government. Another similar example is that of **capital tax**, whereby a tax is payable on the financial gain a person may have made in the time that an asset, such as property or a financial portfolio, has been owned. The overall impact of such measures is relatively small.

TIP

When explaining a progressive tax, be careful to talk about an increasing rate of taxation as income rises. A common mistake is to define a progressive tax as one where taxes increase as incomes rise.

ACTIVITY 14.2

For your own country or for one that is known to you, make a list of the policies that are currently being used to redistribute income and wealth.

Compare your list with a learner who has chosen a different country.

State provision of essential goods and services

A further way of reducing inequalities in society is for the government to provide certain important goods and services, often free of charge to the user. Such services are financed through the tax system. If the goods and services are used equally by all citizens, then those on lowest incomes gain most as a percentage of their income. Inequality is therefore lowered.

The two main examples of free provision in many economies are health care and junior and secondary education. These markets are characterised by various market failures. However, the failures do not justify free provision to the consumer. The justification must be on the grounds of equity. The view is that everyone should have access to a certain level of health care and education regardless of income and wealth. Therefore, these services are provided universally free: they are the material equivalent of monetary universal benefits. Governments also provide goods to support those on low incomes. This provision could consist of food and other essentials items, water and in some cases, housing. Like health and education, the justification is on equity grounds.

THINK LIKE AN ECONOMIST

Inequality in Malaysia

Figure 14.4: Kuala Lumpur, Malaysia

Reducing income inequality has been a key policy objective in Malaysia for at least 50 years. It is seen as essential if Malaysia is to sustain its impressive recent rate of economic growth. The Gini coefficient in 2018 was 0.4 compared to well over 0.5 in 1970.

What is not good news is that the earnings gap between Malaysia's top 20% and the rest of the population has nearly doubled since 2000. This has put more people into relative poverty although less than one per cent are in absolute poverty.

Some economists hold the view that income inequality is not a bad thing. The point behind this argument is that there needs to be incentives for people to improve their circumstances, for entrepreneurs to want to take risks and for firms to continuously strive to improve their efficiency. If everyone earned the same amount, these incentives would be irrelevant.

1 Consider whether it is better for Malaysia to have a more inclusive but a slower rate of economic growth.

REFLECTION

You have now completed the microeconomics sections of AS Level Economics.

Consider how satisfied you are with the way in which you have understood the various topics. Which topics were the most difficult? What have you learned from studying them? How will your experience prepare you for A Level Economics?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What is a Gini coefficient?

A a measure of the extent of wealth inequality in a country

B a measure of the extent of income inequality in a country

C the difference in income between the rich and poor in a country

D the difference between a country's average income and the international poverty line

2 The table below shows the Gini coefficients for four countries in Sub-Saharan Africa.

Country	Gini coefficient
Botswana	60.5
Zambia	57.5
Central African Republic	43.6
Tanzania	37.6

Use the data in the table to say which of these statements is correct.

A The income distribution is more equal in Botswana than Zambia.

B Tanzania has the lowest income in the group.

C The income distribution is more equal in Tanzania than in the Central African Republic.

D Poverty is more widespread in Botswana than in Tanzania.

3 The government of a middle-income country is reviewing its tax system to give a more equal distribution of income. The current arrangements are:

- no income tax is paid where annual earnings are below $5000
- the tax rate increases more than in proportion to incomes above $5000
- there is a 5% general sales tax
- exemptions from the sales tax apply to necessities.

Which of the combinations below will help the government to achieve its objective of a more equal distribution of income?

	Income tax	Sales tax
A	Increase tax-free allowance	Increase tax rate
B	Lower tax-free allowance	Increase number of exempt goods
C	Increase top rate of tax	Lower tax rate
D	Lower top rate of tax	Reduce number of exempt goods

4 Which of these policies would be most effective in achieving a more equal distribution of wealth?

A a progressive income tax system

B an increase in the minimum wage rate

C providing universal benefits

D a new tax on property ownership

5 The state provision of which of these services is most likely to lead to an improvement in the distribution of income in a lower middle-income country?

A free primary education up to 11 years

B free university education

C free child vaccinations

D free meals for the elderly

6 A more equitable distribution of income and wealth is likely to lead to which of the following consequences for an economy?

A Rich people will leave the country.

B A budget deficit is required to pay for additional government spending.

C Workers will be able to retire earlier.

D People will be better motivated to work harder to improve the standard of living.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe the difference between income and wealth			
Understand that income is flow of the return to factors of production			
Understand that wealth is the stock of accumulated assets			
Explain that the Gini coefficient can be used to measure the extent of income inequality in an economy			
Explain the economic reasons for inequality of income and wealth			
Discuss how governments use many different policies to try to produce a more equal distribution of income and wealth			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Agricultural subsidies in East Africa

The agricultural sector employs well over half of the working population in many countries in East Africa. Compared to other sectors in these economies, agriculture is inefficient when considered in relation to its contribution to Gross Domestic Product (GDP).

Country	% Employment in agriculture	% Contribution to GDP (estimated)
Ethiopia	65.3	33.2
Kenya	57.0	21.9
Malawi	71.7	25.1
Tanzania	65.7	19.5
Uganda	70.4	20.7
Zambia	53.6	6.6

Table 1: Agricultural employment and contribution to GDP, 2018

It is difficult for farmers in these East African countries to earn a good living. Without subsidies, especially for fertilisers, many farmers would be forced to leave their farms or pass them on to others who might try to make the farms more profitable.

In 2019, the World Bank published a report on agriculture in Kenya. A key recommendation was that if agricultural productivity (output per employee) increased then this would reduce poverty in rural areas. The report found that despite subsidies, the use of fertilisers was still inadequate to boost crop yields. A particular concern was that the government's fertiliser subsidy programme benefited medium- to large-scale farmers relative to small farm holders. The report stressed that targeting small farm holders with increased subsidies was the key to increasing productivity and reducing poverty.

a Using the data in Table 1, identify the country in which agriculture is relatively most efficient. Justify your answer. **[2]**

b With the help of a diagram, analyse how an increased subsidy for fertilisers is likely to affect the market for fertilisers in Kenya. **[4]**

c Explain how opportunity cost applies to the recommended policy of increasing fertiliser subsidies paid to small farm holders. **[2]**

d Explain how increased subsidies for fertilisers will reduce poverty among Kenya's small farm holders. **[2]**

e Explain *two* ways other than subsidies which the Kenyan government might use to support the incomes of small farm holders. **[4]**

f Discuss whether agricultural subsidies should only be paid to farmers in lower middle-income countries such as those shown in Table 1. **[6]**

Essays

2 a Using examples from your own country or one that is known to you, explain why governments find it necessary to provide merit goods **and** consider why such a policy may not be successful. **[8]**

b Discuss the extent to which the reasons for providing merit goods are the same reasons why governments provide public goods. **[12]**

3 a Explain the difference between a progressive direct tax and a regressive indirect tax. **[8]**

b Discuss the ways in which a government can redistribute income in a lower middle-income country. **[12]**

Unit 4

The macroeconomy (AS Level)

UNIT INTRODUCTION

Economists study individual markets. Economists also study how the whole economy of a country works. In this unit you will explore how economists measure the output a country produces. You will consider how the total demand for the country's goods and services and the total supply of the country's goods and services determine output. You will examine some of the key indicators of how well the economy of a country is performing. You will also consider the causes and consequences of changes in a country's output, level of average prices and the number of workers without a job.

Chapter 15

National income statistics

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of national income
- explain the purpose of national income statistics
- explain the difference between gross domestic product (GDP), gross national income (GNI) and net national income (NNI)
- analyse the three methods of measuring GDP
- explain how measures of national income are adjusted from market prices to basic prices
- explain how measures of national income are adjusted from gross values to net values.

ECONOMICS IN CONTEXT

Nigeria's output grew 90% overnight

People in Nigeria have never actually produced 90% more output overnight. However, on 5 April 2013, Nigeria appeared as if it really had produced 90% more output overnight. The increase in output was because the Nigerian government statisticians had made changes in the way they measured the country's output. The changes caused the government to announce a significantly higher figure for the country's output. The increase was due to the government statisticians including figures on industries that had not been included before or had been underestimated. For instance, the output of the country's famous film industry, known as Nollywood (Figure 15.1), and its growing telecommunications industry were revised upwards.

Figure 15.1: Behind the scenes in Nigeria's film industry, Nollywood

The new figure for the country's output appeared to show that average annual income in the country had increased from $1,500 to $2,688. It also suggested that Nigeria had overtaken South Africa as Africa's largest economy. Nigeria and South Africa produce almost half of Africa's output. They are close competitors, with both wanting to be the continent's largest economy.

In 2018, Nigeria's output was valued at $398bn in comparison to South Africa's output of $368bn. Nigeria's population is significantly higher than that of South Africa. In 2018, Nigeria had a population of 96m while South Africa had a population of 58m. While total output was higher in Nigeria, average income was three times as high in South Africa.

Discuss in a pair or a group:

- Why do you think governments measure their countries' output?
- Were Nigerians richer on 5 April 2013 than they were on 4 April 2013?
- Are Nigerians likely to be richer now than they were in 2013?

15.1 National income statistics

National income is a country's total output. People earn an income from producing the output. This income is then spent on the output. This means that total output should equal total income and total expenditure.

National income statistics is a general term for a number of measures of a country's economic activity in terms of its output, income and expenditure. A government measures a country's total output to assess the performance of the economy. An economy is usually considered to be doing well if its output is growing at a sustained and sustainable rate. A government is also likely to compare its country's output and the growth of that output with those of other countries. International organisations, including the United Nations, also make use of national income statistics to compare the performance of different countries.

Higher output has the potential to increase people's living standards. If an economy is growing at a slower rate than it is considered capable of, a government is likely to introduce policy measures to stimulate the economy.

Economists examine both the level and rate of growth of a country's output. For instance, in 2019 the output of Malaysia increased to $354 billion from $319 billion the previous year and the output of the USA increased from $19.52 trillion to $20.58 trillion. The US experienced a greater absolute increase in output but a smaller percentage increase than Malaysia as it was starting from a larger base ($19.52 trillion compared with $319 billion).

KEY CONCEPT LINK

Time: National income is measured each year and compared both in the short run and long run. For example, a country's national income could be compared with last year's national income and with the national income of fifty years ago.

ACTIVITY 15.1

	1991	2018	2050 (predicted)
1	USA	USA	China
2	Japan	China	India
3	Germany	Japan	USA
4	France	Germany	Indonesia
5	Italy	UK	Brazil
6	UK	France	Russia
7	Canada	India	Mexico
8	Brazil	Italy	Japan
9	Spain	Brazil	Germany
10	Russia	Canada	UK

Table 15.1: The world's top ten economies

1 Using the information in Table 15.1, in pairs:

   a Produce a wall chart showing the information, including arrows to show movements up and down the table in 2018 and 2050.

   b Discuss which countries that did not appear in 1991 are predicted to be in the top ten in 2050, and which countries are predicted to drop out of the top ten.

   c Discuss, in terms of population size and geographical location, how the top countries differ in 2018 and 2050 (predicted).

   d Share your findings with other pairs in the group.

REFLECTION

In Activity 15.1, how did you benefit from sharing your findings with other pairs in the group?

15.2 Gross domestic product and gross national income

Gross domestic product

The most widely used measure of national income is known as **gross domestic product (GDP)**. GDP is used by economists, governments and international organisations to assess what is produced, earned and spent in an economy. 'Gross' means total, 'domestic' refers to the home economy and product means 'output'. So, for example, Pakistan's GDP is a measure of the total value of output produced by the factors of production based in Pakistan in a year.

Gross national income

Gross national income (GNI) is increasing in importance as a measure. GNI is included, for instance, by the United Nations in its Human Development Index. GNI goes further than GDP in changing the focus from output produced in a country to income earned by the country's residents and firms regardless of where it is earned. As well as adding **net property income from abroad**, GNI also includes other sources of income that residents receive from abroad and deducts other sources of income that foreigners receive from the country. These payments are net receipts of **compensation of employees** and net taxes less subsidies on products.

Compensation of employees is wages earned by workers who are resident in one country but who work abroad for short periods. These include seasonal and cross-border workers.

ACTIVITY 15.2

Figure 15.2: Richard Stone won the Nobel Prize for economics

National income statistics provide a measure of an economy's performance. In 1984, Richard Stone won the Nobel Prize for economics (see Figure 15.2) for his work on the development of national income statistics. In pairs, prepare a presentation on the work of a Nobel Prize winner in economics. (You will find a list of Nobel Prize winners in 'Prize in Economic Sciences' on the Nobel Prize website.)

Some tax revenue on products may be paid to other countries and international organisations and some production subsidies may be received by other governments and international organisations. For example, Germany pays some of its tax revenue to the European Union and also receives some production subsidies from the European Union.

Governments also measure **gross national disposable income**. This includes income sent home to relatives by people working abroad minus income sent by foreigners working in the country to their relatives abroad.

Differences in countries' GDP and GNI

Most countries' GDP and GNI are relatively similar. However, in the case of some countries, there is a clear difference between their GDP and GNI. A number of countries, including Ireland, have a noticeably higher GDP than GNI. This is because foreign **multinational companies (MNCs)** and foreign workers make an important contribution to the output of these countries. A major reason for the rapid rise in Ireland's GDP in recent years is its ability to attract foreign investment. However, foreign investment has also resulted in a net outflow of profits and other income.

Other countries have a higher GNI than GDP because they receive a net inflow of property income from abroad. German firms, for example, have invested large amounts in other countries in the past and now receive an inflow of profits from their multinational companies operating in other countries. A number of countries receive a significant inflow of income from their citizens working abroad, for example Nepal.

ACTIVITY 15.3

Countries' GDP and GNI can vary for a number of reasons, including having different numbers of their people working in other countries and different numbers of people from other countries working in their countries. There can also be differences in how much their firms produce in other countries and how much foreign firms produce in their countries.

Country	GDP ($ million)	GNI ($ million)
Japan	4 970 915	5 159 764
Philippines	330 910	397 063
Qatar	192 009	188 264
US	20 494 100	20 738 399

Table 15.2: GDP and GNI in selected countries, 2018

1 Using the information in Table 15.2, notice the differences in GDP and GNI in the countries shown. Then check information on each countries' economy in, for example, *The World Factbook* (CIA) or *The Economist Pocket World in Figures*. Now decide which country had:

   a a relatively high percentage of its people working in other countries

   b its MNCs earning more profit abroad than foreign MNCs earn in the country

   c a relatively high percentage of foreign workers working in the country.

REFLECTION

What did you learn from Activity 15.3 about why it may it be important to know whether a country's output is measured as GDP or GNI? How did your research on the countries help you to form your decisions?

TIP

The words in the name of any measure of national income tell you what is included. The first word tells you the type of investment included, the second word indicates whether it is the output produced in the country or that produced by the country's residents and the third word emphasises that it is a measure of output.

15.3 Methods of measuring GDP

There are three ways of calculating GDP: the output, income and expenditure methods. Each method should give the same total because they all measure the **circular flow of income** produced in an economy. So the value of output is equal to the incomes that are earned producing it, meaning wages, rent, profit and interest. If it is assumed that all incomes are spent, expenditure will, by definition, equal income.

The output method

The **output method** measures the value of output produced by industries such as manufacturing, construction, distributive, hotel and catering and agricultural industries or sectors. It is also sometimes called the production method.

When using the output measure it is important to avoid counting the same output twice. For example, if the value of cars sold by manufacturers is added to the value of output of the firms which make the tyres, double counting will occur. To avoid double counting, output is measured either by totalling the value of the final goods and services produced or by adding the value added at each stage of production. **Value added** is the difference between the price a firm pays for the goods and services it buys from other firms and the price it sells its product for. For example, a TV manufacturing firm buys components costing $280 000 and uses them to make TVs that it sells for $350 000. The firm has added $70 000 to output. The $280 000 has already been counted and then the $70 000 is added. Adding the value at each stage of production should give the figure as the market value of the finished product produced.

The income method

The value of an output produced is based on the costs involved in producing that output. The costs include wages, rent, interest and profits. All these payments represent income paid to factors of production. For instance, workers receive wages and entrepreneurs receive profits. In using the **income method** it is important to include only payments received in return for providing a good or service.

So transfer payments, which are transfers of income from taxpayers to groups of individuals for welfare payments and to firms in the form of subsidies, are not included.

The expenditure method

Using the **expenditure method**, GDP is calculated by adding up consumer expenditure (spending by households), government spending on goods and services, total investment, changes in stocks and the difference between exports and imports. As with the income method, transfer payments are not included. In this case, government spending on welfare payments does not represent spending on goods and services. It is spending which transfers income to the country's households and firms.

What is produced in a year will either be sold or added to stocks. So, if additions to stocks are added to expenditure on goods and services, a measure is obtained that will equal output and income. In using this method it is necessary to add expenditure on exports and deduct expenditure on imports. This is because the sale of exports represents the country's output and creates income in the country, whereas expenditure on imports is spending on goods and services made in foreign countries and creates income for people in those countries.

TIP

One way of remembering the three methods is to think about the circular flow and how output creates income which is then spent.

ACTIVITY 15.4

In a group, decide which of the following should be included in measuring GDP by the income method:

- government subsidies to farmers
- the pay of civil servants
- the pay of nurses
- profits of firms
- state pensions.

15.4 Market prices and basic prices

GDP and GNI are measured both in **market prices** and **basic prices**. Market prices are the prices charged to consumers. They include any taxes on products (indirect taxes) that have been imposed and they deduct any subsidies that have been given to producers (Figure 15.3).

Figure 15.3: The price shown is the market price

Basic prices (also referred to as factor cost) are the prices which would be charged without government intervention and which equal the income paid to the factors of production for making the output. To get from market prices to basic prices, taxes on products are deducted and subsidies on products are added. For example, if a product which sells for $12 has a $4 tax on it, the market price would be $12 but the basic price would be $8. A product that a producer would sell for $15 but which is subsidised at $2 per unit, will have a basic price of $15 but a market price of $13.

TIP

When you think about what is the difference between basic and market prices, remember that basic prices are the prices which would exist without indirect taxes and subsidies. Market prices are the prices consumers actually pay.

15.5 Gross values and net values

GDP and GNI include **gross investment**, that is total investment. Gross investment includes the output of capital goods both used to replace existing capital goods that have worn out or become out of date due to advances in technology and capital goods required to expand capacity. **Net domestic product (NDP)** and **net national income (NNI)** only include **net investment**. They deduct the value of the replacement capital goods. This value is referred to as **depreciation** or capital consumption.

Net investment gives an indication whether the country's ability to produce goods and services in the future will increase, stay the same or even decrease.

ACTIVITY 15.5

A country's NNI at basic prices is $980 billion. Its net property income from abroad is $60 billion, depreciation is $30 billion, taxes on products (indirect taxes) are $40 billion and subsidies on production are $15 billion. What is the country's GDP at market prices?

THINK LIKE AN ECONOMIST

Interpreting national income figures

Vietnam and Laos are two neighbouring Asian countries. National income data indicated that economic activity was greater in Vietnam than in Laos in 2019. It suggested that more was produced in Vietnam than Laos and that people in Vietnam had, on average, a higher income allowing them to buy more goods and services.

Figure 15.4: A market in Vietnam

1. Consider the national income data you would need to assess the accuracy of the statement:

   'National income data indicated that economic activity was greater in Vietnam than in Laos in 2019.'

   Where can you find the information?

2. Apart from comparing economic activity between countries, how else can national income data be used?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What *cannot* be measured to find a country's GDP?

A expenditure

B income

C output

D wealth

2 What is included in net property income from abroad?

A compensation of employees

B interest

C subsidies

D taxes

3 What must be zero if GDP at market prices is equal to GNI at market prices?

A indirect taxes

B net property income

C subsidies

D transfer payments

4 The table shows some national income statistics.

	$ billion
GNI at basic prices	500
Indirect taxes	40
Net income from abroad	20
Subsidies	10
Unemployment benefits	30

What is GDP at market prices?

A $450bn

B $480bn

C $510bn

D $550bn

5 What would it mean if GDP at basic prices is of a higher value than GNI at basic prices?

A capital goods exceed consumer goods

B net exports are negative

C net income from abroad is negative

D taxation on products exceeds subsidies

6 Five people lose their jobs. Each was paid $40 000 a year. One gains a new job paying $45 000, another gets a new job paying $38 000 and a third gets a new job paying $25 000. Two of the workers do not get another job. One retires, receiving a state pension of $12 000 and the other unemployment benefit of $8 000.

What is the resulting change in GDP?

A minus $108 000

B minus $92 000

C minus $72 000

D minus $20 000

7 An economy's GDP is $640bn. Its consumer expenditure is $490bn, its government spending is $100bn, its investment is $80bn and its exports are $50bn.

What is the value of its imports?

A $20bn

B $30bn

C $50bn

D $80bn

8 How would NNI at basic prices be converted to GDP at market prices?

	depreciation	indirect taxes	net income from abroad	subsidies
A	add	add	deduct	deduct
B	add	deduct	add	add
C	deduct	add	deduct	deduct
D	deduct	deduct	add	add

9 The table shows information on a country.

	$ billion
Consumer expenditure	700
Total investment	200
Government spending	100
Net exports	–50
Net property income from abroad	10
Other net income from abroad	5
Indirect taxes	30
Subsidies	15
Depreciation	250

What is GDP at basic prices?

A $685bn

B $715bn

C $935bn

D $960bn

10 Why may the output of image processors used in the production of smartphones in a country not be included in the calculation of its GDP?

A The production of image processors is more likely to be in the private sector than in the public sector.

B The production of image processors is in the same sector as the production of smartphones.

C The value of image processors is included in the value of the smartphones produced.

D The value of image processors is too low to be included.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain that national income statistics measure a country's economic activity in terms of its output, income and expenditure			
Understand that gross domestic product (GDP) is the output produced in a country whoever produces it			
Understand that gross national income (GNI) is the total income earned by the country's residents wherever they earn it			
Understand that net national income (NNI) is GNI minus depreciation			
Explain the three methods used to calculate GDP: output method, income method, expenditure method			
Explain how measures of national income are adjusted from market prices to basic prices			
Explain how measures of national income are adjusted from gross values to net values			

Chapter 16

Introduction to the circular flow of income

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the circular flow of income
- explain the difference between the circular flow of income in a closed economy and in an open economy: the flow of income between households, firms and the government and the international economy
- analyse the impact of injections and leakages on the circular flow of income
- identify the difference between the country's income being in equilibrium and being in disequilibrium.

ECONOMICS IN CONTEXT

India rising towards the top

The output of countries regularly changes. Most years, countries' output increases but the rate of growth of output can vary significantly between countries. In 1990, India's output was only one-quarter that of the UK's output. However, by 2019, India's GDP was almost the same as the UK's GDP. India's output has increased by a remarkable 7% a year, on average, since 2000. In contrast, the output of the UK grew by an average of 1.8% a year over this period.

Figure 16.1: Many households in India have increased their spending on consumer goods

One reason for the rapid growth of the Indian economy has been the decision by firms in the country to spend more on capital goods including electrical equipment and textile machinery. The rise in investment has created more jobs. The higher employment has led to more spending by Indian households on consumer goods and more tax revenue for the Indian government. With more revenue, the Indian government has spent more on education and healthcare, for example.

India has exported more goods and services. Between 2008 and 2018 its exports doubled. Its position in the global league of exporting countries rose from 27th to 19th. Over this period, India's imports also doubled, taking it from the world's 16th largest importer to its 10th largest.

Discuss in a pair or a group:

- What effect will higher output have on expenditure?
- Why do different households spend different amounts?

16.1 The circular flow of income

The circular flow of income model shows how income, spending and output move around an economy. Figure 16.2 shows the simplest model of the circular flow of income. The model shows that output generates income which is then spent on the output. This flow explains why GDP can be measured by calculating the country's output, income and expenditure.

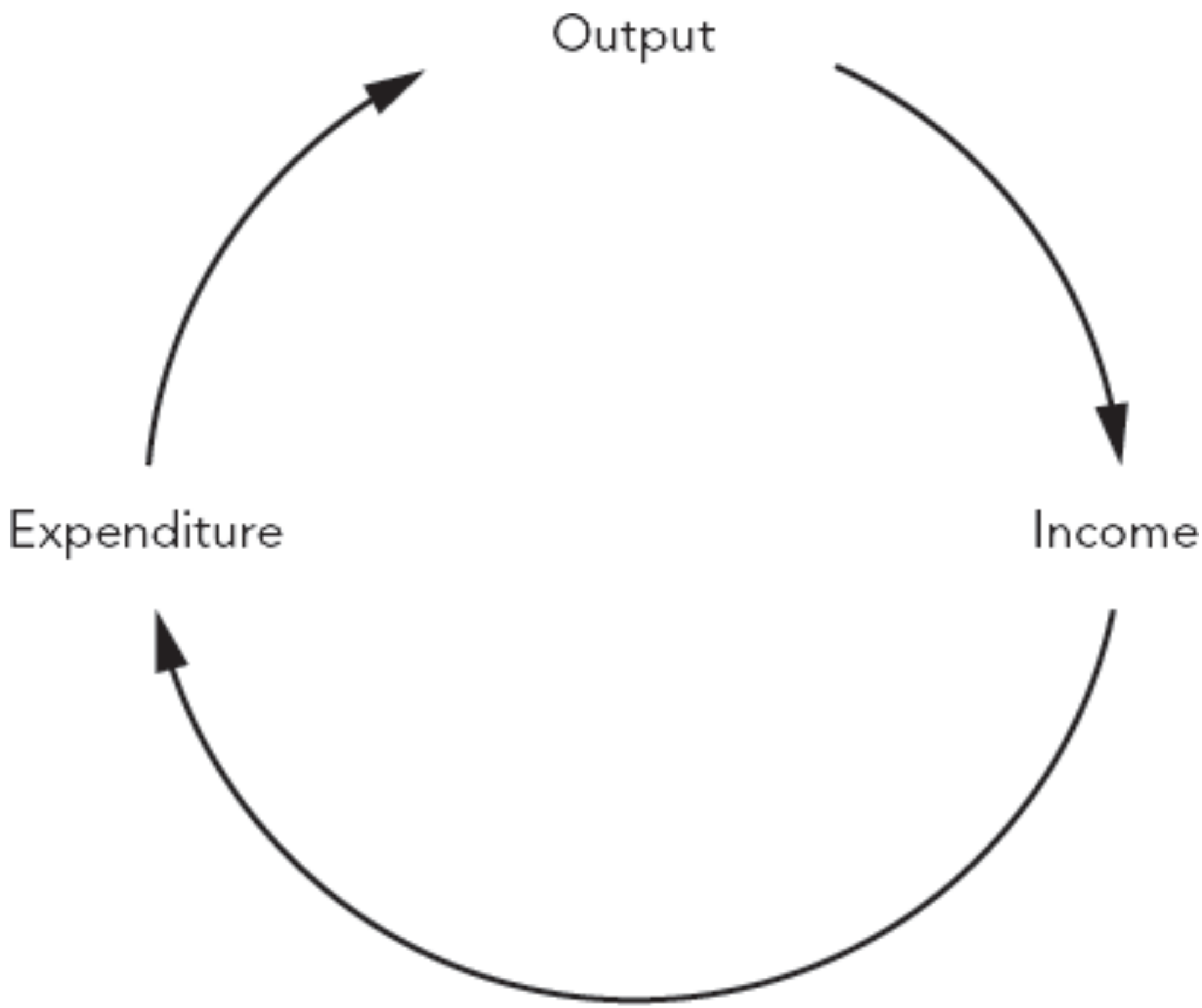


Figure 16.2: A simplified circular flow model

16.2 The difference between an open and a closed economy

An **open economy** is an economy that takes part in international trade. In contrast, a **closed economy** is one that does not export or import goods and services. Of course, no economy is a totally closed economy but such an economy can be used in a model of how an economy works.

The circular flow in a closed economy and an open economy

Figure 16.3 shows the process of circular flow in a closed economy. The inner circle shows the real flow of products and factor services and the outer circle the money flow of spending and incomes.

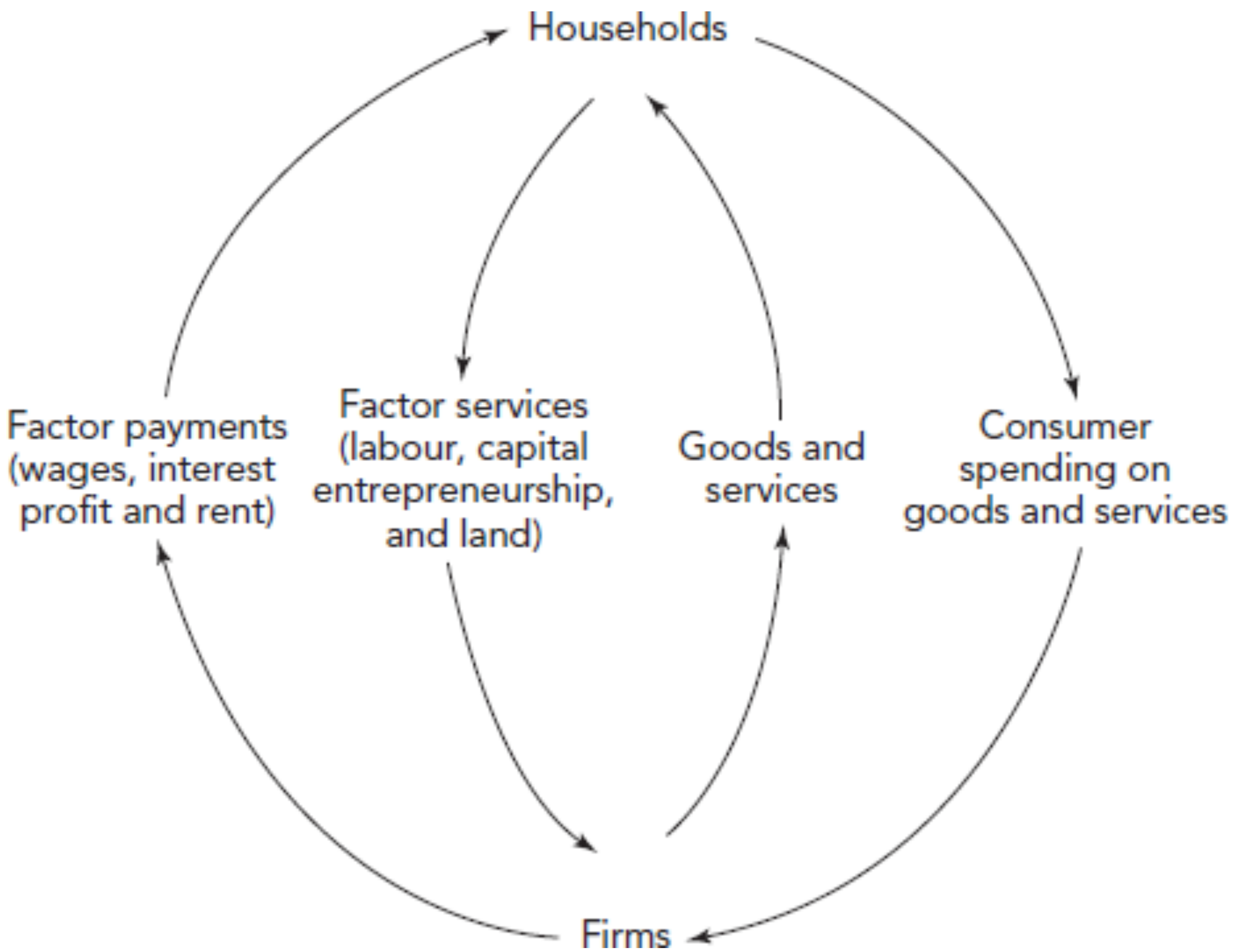


Figure 16.3: The circular flow of income in a closed economy

16.3 The impact of injections and leakages on the circular flow

In practice, there are leakages out of the circular flow – some income is saved, some is taxed and some is spent on imports. Some expenditure is also additional to the spending that comes from the incomes generated by domestic output. These extra items of spending, known as **injections**, are investment, government spending and spending by foreigners on a country's exports. Figure 16.3 includes these **leakages**, also known as withdrawals, and the injections, in a circular flow of income diagram of an open economy.

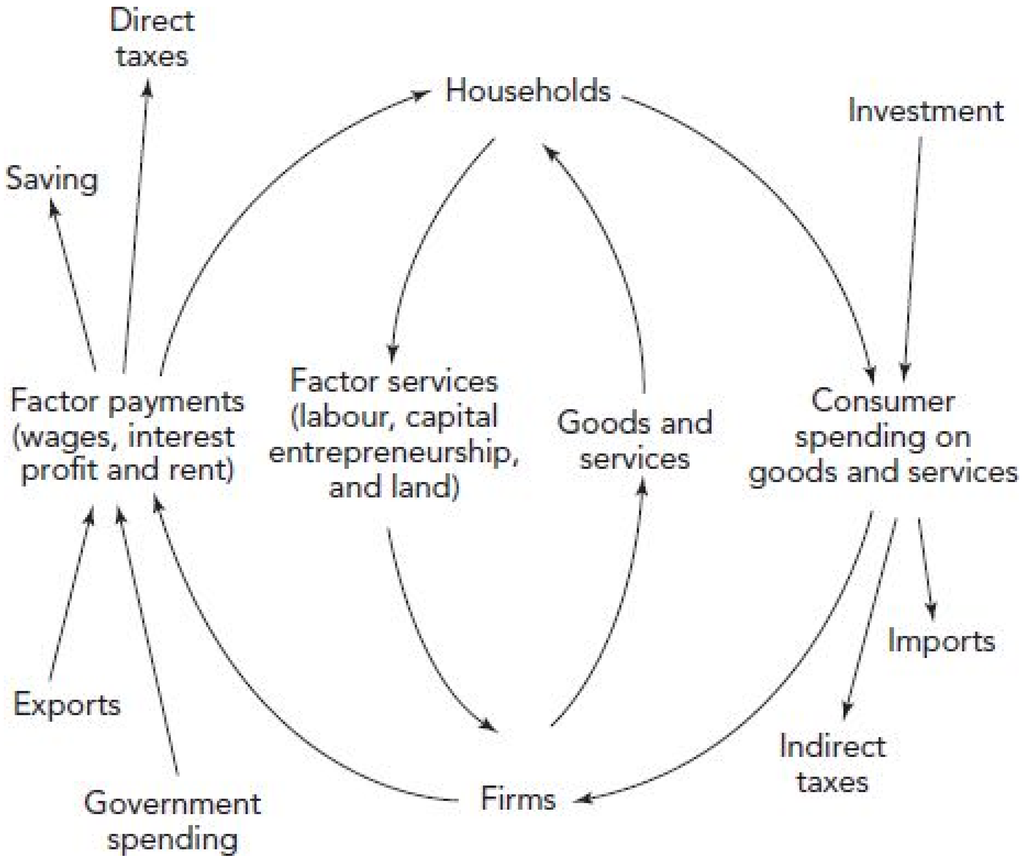


Figure 16.4: The circular flow of income in an open economy

TIP

Remember, injections add to spending in the economy whereas leakages reduce spending.

ACTIVITY 16.1

The extent to which economies trade with other countries varies. For example, Singapore is a very open economy. It has the highest international trade-to-GDP ratio in the world. In contrast, Burundi, a landlocked African country, is a more closed economy. It exports only 5% of its output but imports 25% of the products it consumes.

1. How open is your economy?
2. Explain how an economy opening up to international trade may affect its circular flow of income.
3. What sources did you use to answer question 1? Did the information on Burundi help you with your answer to the question 2?

16.4 Equilibrium and disequilibrium income

For income to be unchanged, injections of extra spending into the circular flow of income must equal leakages from the circular flow.

If injections are greater than leakages, there will be extra spending in the economy, causing income to rise. In contrast, if leakages exceed injections, more spending will leave the circular flow, and income will fall. Figure 16.5 shows equilibrium income in a closed economy without a government. Such an economy has only two sectors: households and firms.

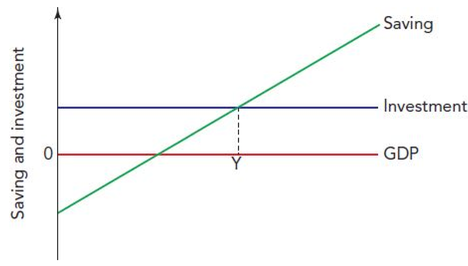


Figure 16.5: Equilibrium income in a two-sector economy

A rise in investment will cause a rise in GDP. This is shown in Figure 16.6. The higher investment results in an increase in production, income and spending.

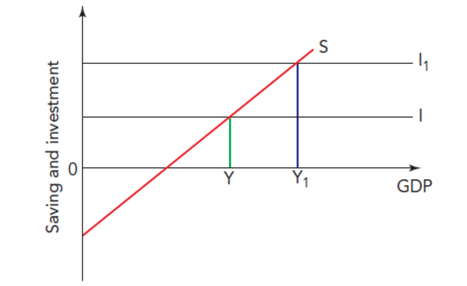


Figure 16.6: A rise in investment in a two-sector economy

A fall in saving will have a similar effect. However, in contrast, an increase in saving will mean that some products will be unsold and so production will fall.

Figure 16.7 shows equilibrium income. This is where investment (I) plus government spending (G) plus exports (X) equals saving (S) plus taxation (T) plus imports (M). This is in a four sector economy. The four sectors are households, firms, the government and the international economy.

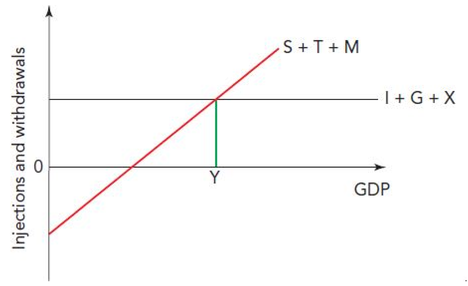


Figure 16.7: Equilibrium income in a four-sector economy

Income will move to a higher equilibrium level if any injection rises or any withdrawal falls. Figure 16.8 shows what will happen if tax rates rise without any change in government spending. More tax revenue collected from households and firms will reduce the amounts they have available for spending.

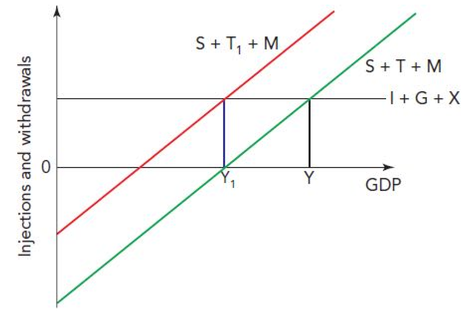


Figure 16.8: Impact of a rise in taxation on equilibrium income in a four-sector economy

A rise in saving or imports will also cause GDP to fall, at least in the short run.

KEY CONCEPT LINK

Equilibrium and disequilibrium: The circular flow of income shows how and why macroeconomic equilibrium can change.

ACTIVITY 16.2

1 Identify the links between households and firms in:
   a the product market
   b the factor market.

2 Copy and complete Table 16.1

	Closed economy without a government	Closed economy with a government	Open economy with a government
Economic agents			
Injections			
Leakages			

Table 16.1: Economic agents, injections and leakages in open and closed economies

16.5 Links between injections and leakages

In the long run, links can occur between changes in injections and leakages. For instance, an increase in investment will raise incomes. As people get richer, they tend to save more. Extra savings can finance more investment. Higher government spending may raise tax revenue by increasing incomes. A greater value of exports will also increase incomes. As incomes rise, more tends to be spent not only on domestically produced products but also on imports.

KEY CONCEPT LINK

Time: An injection will cause GDP to increase until, after a time, leakages rise to match the higher total injections.

ACTIVITY 16.3

In a pair, produce a wall chart, without words, showing the circular flow of income. You could illustrate the terms with photographs, drawings, symbols or emojis. Show your wall chart to other learners who are not studying economics. See if they can identify what the terms should be.

THINK LIKE AN ECONOMIST

Venezuela's circular flow of income

In 2018, Venezuela's output fell. The value of the country's exports, consisting mainly of oil, declined. At the same time, the country's residents increased their spending on imports. Government spending increased and reached a level more than twice that of the tax revenue raised.

1. Consider why a decrease in export revenue and an increase in import expenditure is likely to reduce a country's GDP.
2. Consider whether if a government is spending more than it is raising in taxes, there will be a net injection or net leakage arising from the government sector.
3. What other information would you need to make a full assessment of changes in Venezuela's circular flow in 2018?

Figure 16.9: Caracas, Venezuela

REFLECTION

In Activity 16.3, how did thinking about the best way to illustrate the terms help you understand the circular flow? How many of the terms did the other learners identify? If there were terms they could not identify, were you able to amend your wall chart?

TIP

In explaining the circular flow, it is useful to illustrate it with at least one diagram.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which combination of changes would increase GDP?

	Injections	Leakages
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

2 What is meant by leakages from the circular flow of income?

A income that is spent on capital goods rather than on consumer goods

B income that is not spent on domestically produced goods and services

C products that are produced by the government

D products that are sold to other countries

3 Which of the following is **not** an injection into the circular flow?

A exports

B government spending

C imports

D investment

4 What is a leakage from the circular flow of Mauritius?

A income earned by Mauritian firms for selling goods and services to Mauritian consumers

B income earned by Mauritian people working for Chinese multinational companies producing in Mauritius

C spending by the government of Mauritius on computers for the country's schools

D spending by Mauritian firms on capital goods from France

5 An economy is in equilibrium with a GDP of $520bn. Its exports are $60bn, government spending $90bn, imports $50bn, saving $65bn and taxation $75bn.

What is the value of investment?

A $30bn

B $40bn

C $180bn

D $330bn

6 Who buys goods and services in an open economy?

A households

B households and firms

C households, firms and the government

D households, firms, the government and foreigners

7 What is an injection?

A extra saving that arises from higher incomes

B extra spending that enters the circular flow

C payments to factors of production

D spending that is withdrawn from the circular flow

8 Which is a combination of two flows from households to firms?

A factor payments and products

B factor payments and spending on products

C factor services and products

D factor services and spending on products

9 Which of the following changes would increase the income flowing round the Sri Lankan economy?

A a decrease in spending by Sri Lankan firms on capital goods

B a decrease in the tax the Sri Lankan government imposes on income

C an increase in goods Sri Lankan firms buy from India

D an increase in saving by Sri Lankan households

10 When is an open economy in equilibrium?

A when investment equals saving

B when investment plus exports equals saving plus imports

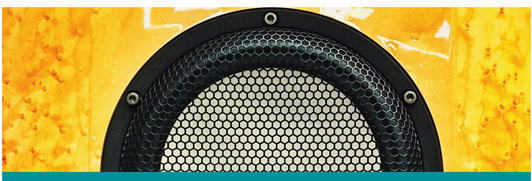
C when investment plus government spending equals saving plus taxation

D when investment plus government spending plus exports equals saving plus taxation plus imports

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe how the circular flow of income shows how income flows around the economy			
Explain how income flows between households, firms and the government in a closed economy			
Explain that in an open economy, there is also income coming into the economy from the sale of exports and an outflow of income used to purchase imports			
Analyse the impact of leakages and injections on the circular flow of income			
Explain how an economy is in equilibrium when injections equal leakages			



Chapter 17

Aggregate demand and aggregate supply analysis

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of aggregate demand (AD)
- explain the components of aggregate demand
- analyse the determinants of aggregate demand
- explain the shape of the aggregate demand curve
- analyse the causes of a shift in the aggregate demand curve
- define the meaning of aggregate supply (AS)
- analyse the determinants of aggregate supply
- explain the shape of the aggregate supply curve in the short run (SRAS) and the long run (LRAS)
- explain the causes of a shift in the AS curve in the short run (SRAS) and in the long run (LRAS)
- identify the difference between a movement along and a shift in aggregate demand and aggregate supply
- explain how equilibrium is established in the AD/AS model and how the level of real output, the price level and employment are determined
- discuss the effects of shifts in the AD curve and the AS curve on the level of real output, the price level and employment.

ECONOMICS IN CONTEXT

The rising star of Southeast Asia

Since the mid-1980s, Vietnam has increased its output at a steady and impressive rate. Each year, on average, it has produced over 6% more than the previous year. This higher output has led to higher incomes. This has caused the country to go from one of the poorest in the world to a middle-income country. The income per head of population was $320 in 1985; by 2019, this had increased to $2343. The rise in incomes has increased spending in the economy, both on consumer goods and capital goods.

Figure 17.1: Textile production in Vietnam

The rise in investment both by domestic firms and by foreign multinational companies, including Samsung, which have set up production units in the country, is one of the causes of the increase in the country's output. Other causes include a significant improvement in education and infrastructure and a move to more of a market economy.

The Vietnamese economy is also now a more open economy. The country has become a major exporter of high-tech products and clothing. With a growing population, more skilled workers and its development of new industries, including the artificial intelligence (AI) industry, the Vietnamese economy has the potential to continue to grow. Vietnam's total supply is likely to move in line with its total demand, keeping prices stable.

Discuss in a pair or a group:

- How are people affected by a change in the circular flow of an economy?
- If a country moves to more of a market economy, how is the relative size of its government sector likely to change?
- If an economy becomes more open, why is the size of its injections and leakages likely to change?
- Do countries always produce the amount of goods and services that they are capable of producing?

Whether the quantity of output an economy changes is determined by whether the total demand for goods and services equals the total supply of goods and services. Demand for an economy's products comes from households, firms and the government within the country and from households, firms and governments in other countries. An economy's output of products is made by producers in the country. Some of these will be in the private sector and some will be in the public sector.

17.1 Aggregate demand

The word 'aggregate' means total. **Aggregate demand (AD)** in economics is used to describe the total spending of consumers (households), firms and the government plus foreigners' spending on the country's exports minus spending by the country's consumers, firms and government on imports.

Aggregate demand consists of four components, as shown in Figure 17.2.

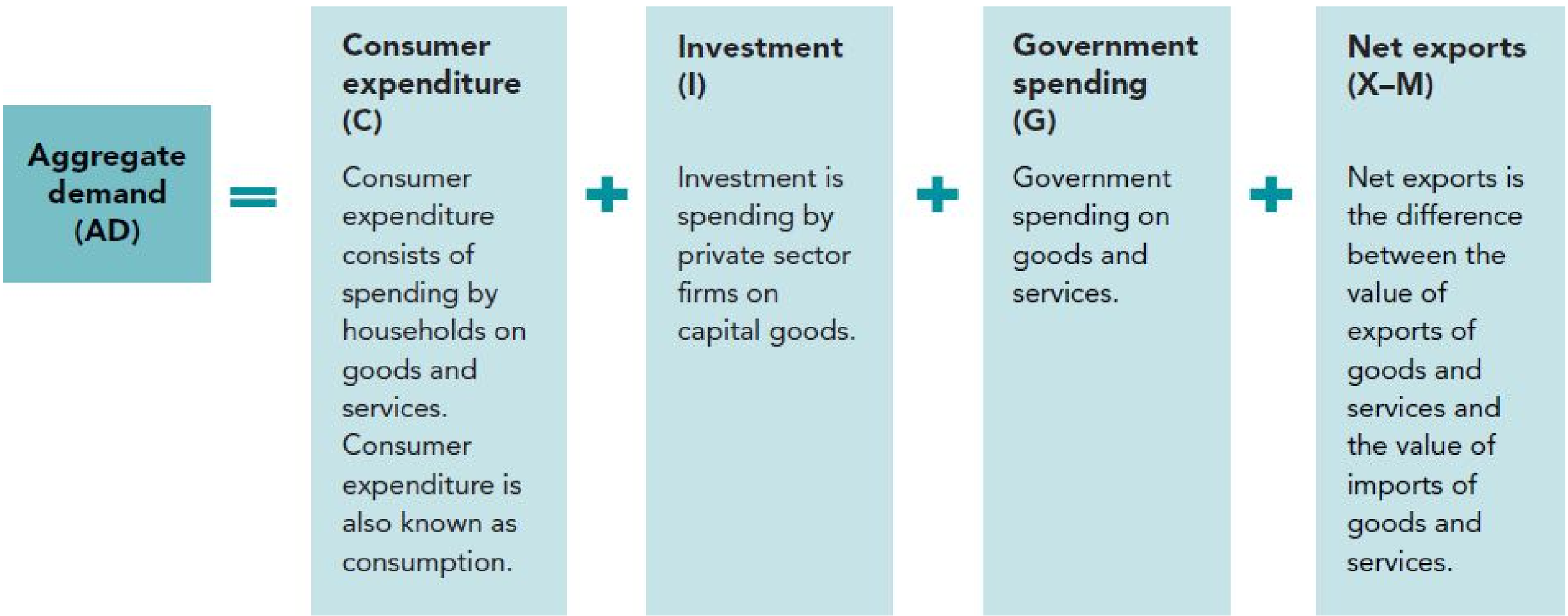


Figure 17.2: The components of aggregate demand (AD)

17.2 Determinants of the components of aggregate demand

There are a number of factors (determinants) that influence the components of demand.

Consumer expenditure

Consumer expenditure (also called consumer spending or consumption) is spending by households on goods and services to satisfy current wants, for example, spending on food, clothing, travel and entertainment.

ACTIVITY 17.1

Table 17.1 shows the predicted components of aggregate demand of several countries.

Country	Consumer expenditure (%)	Investment (%)	Government spending (%)	Exports (%)	Imports (%)
China	40	43	13	22	18
India	60	32	11	20	23
Pakistan	80	17	12	10	19
Russia	55	24	18	25	22
USA	67	19	16	12	14

Table 17.1: The predicted components of aggregate demand of selected countries, 2025

1 Using the information in Table 17.1:

a Which countries' international economies are predicted to make a positive contribution to aggregate demand?

b Explain whether you think consumer expenditure will be of a higher value in Pakistan than the USA in 2025.

c Which component of aggregate demand is predicted to vary the most between the countries shown?

TIP

Be careful to avoid confusing the amount and the proportion of income people spend. Remember, a rich person may spend much more in total than a person on a low income, but this amount may be a smaller proportion of the rich person's income.

The main influence on consumer expenditure is the level of disposable income. When income rises, total spending also usually rises, with rich people spending more than poor people.

When a person or country is poor, most (if not all) of the disposable income has to be spent to meet current needs. Indeed, consumer expenditure may exceed income with people or countries drawing on past savings, or borrowing. This situation can be referred to as **dissaving**. However, when income rises, some of the income can be saved. **Saving** is defined as disposable income minus consumer expenditure.

A number of other factors, apart from disposable income, influence consumer expenditure. These include the distribution of income, the rate of interest, the availability of credit, expectations and wealth. If income becomes more equally distributed because of, for example, an increase in direct tax rates and state benefits, consumer expenditure is likely to rise. This is because when rich people lose income they are unlikely to cut back on their spending significantly, while people on low incomes who gain more income will spend most of the extra.

Households will also usually spend more when interest rates are low. This is because the return from saving will be reduced, buying goods on credit will be cheaper and households that have borrowed before to buy a house, for example, will have more money to spend. If it becomes easier to obtain loans, total spending is likely to increase. However, people are unlikely to borrow and to increase their spending if they are pessimistic about the future. Indeed, expectations about future economic prospects are thought to be a major influence on consumer expenditure. When people become more optimistic that their future jobs are secure and that their incomes will rise, they are likely to increase their spending. An increase in wealth, which may result, for example, from a rise in the value of houses or the price of shares, will also probably increase consumer expenditure.

Investment

Investment includes private sector spending by firms on capital goods, such as factories, offices, machinery and delivery vehicles.

The amount of private sector investment undertaken is influenced by changes in consumer demand, the rate of interest, technology, the cost of capital goods, expectations and government policy.

If consumer demand rises, firms are likely to want to buy more capital equipment to expand their capacity. Similarly, a fall in the rate of interest is likely to stimulate a rise in investment. The cost of investment will fall. Firms that borrow to buy capital goods will find it cheaper and firms that use retained profits will find that the opportunity cost of investment will fall. Firms will also expect higher sales as lower interest rates will raise consumer demand.

Advances in technology will raise productivity of capital goods and so will probably stimulate more investment. Similarly, a fall in the price of capital equipment and/or cost of installation of capital goods is likely to raise investment.

TIP

Be careful to avoid confusing productivity and production. An economy's production may increase as a result of more people being employed, while productivity may fall. A rise in unemployment may reduce production while increasing productivity as it is usually the least efficient workers who lose their jobs first.

As with consumer expenditure, expectations can play a key role in determining investment. When firms are optimistic that economic conditions are improving and demand for their products will rise, they will be encouraged to raise their investment. Governments can also seek to increase private sector investment by cutting corporate tax (the tax on company profits) and by providing investment subsidies.

Government investment is usually included in the government spending component. This allows the contribution of the government sector and the difference between aggregate demand in a closed economy without a government sector and one with a government sector to be clearly seen.

Government spending

Government spending includes expenditure on providing merit goods, such as education and healthcare, and public goods, such as defence. It includes, for instance, medicines used in state hospitals, school equipment, military aircraft and government investment in infrastructure.

The amount of government spending in any period is influenced by government policy, tax revenue and demographic changes. If a government wants to raise economic activity, it may decide to raise its spending. Higher government tax revenue will enable a government to spend more, without needing to borrow. Pressure for a rise in government spending may come from an increase in the number of children (education) and/or an increase in the number of elderly people (healthcare).

Net exports

The level of **net exports** is influenced by the country's GDP, other countries' GDPs, the relative price and quality competitiveness of the country's products and its exchange rate. When a country's GDP rises, demand for imports usually increases. Some products may also be diverted from the export market to the domestic market. When incomes rise abroad, demand for the country's exports is likely to increase. A rise in exports may also result from an improvement in the competitiveness of the country's products, due for example to a rise in productivity or improved marketing.

The level of the **exchange rate** can be a key influence on net exports. If the exchange rate falls in value, the country's exports will become cheaper and imports will become more expensive. If demand for exports and imports is elastic, export revenue will rise while import expenditure will fall, causing net exports to fall.

ACTIVITY 17.2

1 It is expected that there will soon be a consumer boom (a rapid increase in consumer spending) in Africa. In Nigeria, Tanzania, Uganda and Zambia, for example, incomes and optimism about the future are increasing. Households are already demanding more products, a higher quality of products and a wider choice of products.

Discuss in a group:

a whether you expect households to spend more in your country in the next five years

b how Ugandan firms and firms from other countries could benefit from Ugandan households spending more

c why a consumer boom in Zambia might reduce Zambian exports.

Make a podcast of your discussion, using a recording device such as a smartphone.

REFLECTION

How many influences on consumer expenditure did you consider in Activity 17.2a? How did discussing your answers provide you with new ideas?

17.3 The aggregate demand curve

The aggregate demand (AD) curve shows the different quantities of total demand for the economy's products at different prices. A rise in the price level will cause a contraction in aggregate demand and a fall in the price level will result in an extension in aggregate demand. The downward sloping nature of the AD curve is shown in Figure 17.3.

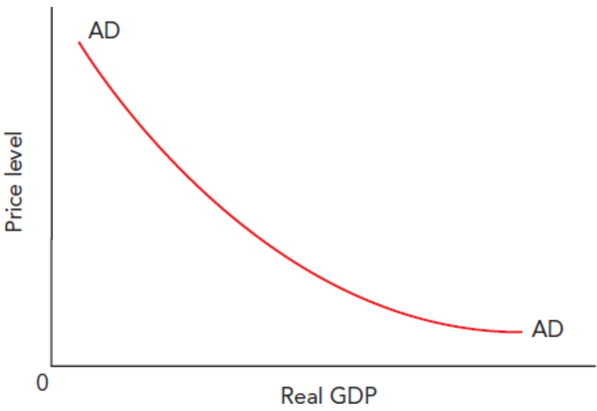


Figure 17.3: The aggregate demand curve

The relationship between aggregate demand and the price level might seem similar to the relationship shown in the demand curve for an individual product. There is, however, a significant difference. A demand curve for a product shows the relationship between a change in the relative price of a product and the quantity demanded. The price of the product is changing but it is assumed that the prices of other products have not changed. More of the product is purchased when the price falls, in part because people change from rival products. In contrast, in the case of the AD curve, the prices of most products are changing in the same direction.

So why does aggregate demand fall when the price level rises and rise when the price level falls? There are three reasons:

1. The wealth effect: A rise in the price level will reduce the amount of goods and services that people's wealth can buy. The purchasing power of savings held in the form of bank accounts and other financial assets will fall.
2. The international effect: A rise in the price level will reduce demand for net exports as exports will become less price competitive while imports will become more price competitive.
3. The interest rate effect: A rise in the price level will increase demand for money to pay the higher prices. This, in turn, will increase the interest rate. A higher interest rate usually results in a reduction in consumption and investment.

Shifts in the aggregate demand curve

While a change in the price level causes a movement along the AD curve, if any non-price level influence causes aggregate demand to change, then the whole AD curve will shift. A shift to the left indicates a decrease in aggregate demand while a shift to the right shows an increase in aggregate demand, as shown in Figure 17.4.

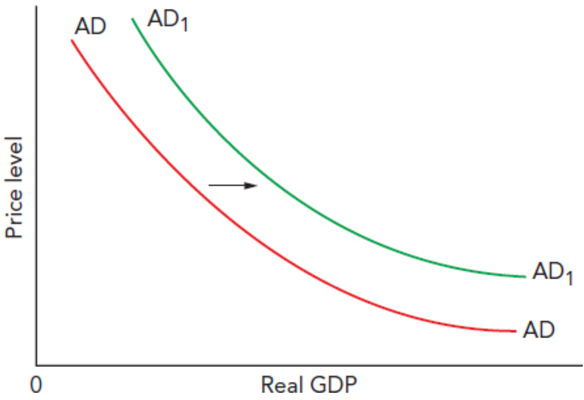


Figure 17.4: An increase in aggregate demand

A change in any non-price level influence on consumption, investment, government spending and net exports will shift the AD curve. Examples that would cause an increase in aggregate demand include:

- consumer expenditure – a rise in consumer confidence, a cut in income tax, an increase in wealth, a rise in the money supply, an increase in population
- investment – a rise in business confidence, a cut in corporate tax, advances in technology
- government spending – a desire to stimulate economic activity, a desire to win political support
- net exports – a fall in the exchange rate, a rise in the quality of domestically produced products, an increase in incomes abroad.

ACTIVITY 17.3

In pairs, produce a presentation on the causes of changes in aggregate demand, using a presentation app. Illustrate your presentation with AD diagrams. Your presentation slides should give the main reasons why, for example, investment may change.

17.4 Aggregate supply

Aggregate supply (AS) is the total planned supply of all the producers in the country. Economists sometimes differentiate between **short-run aggregate supply (SRAS)** and **long-run aggregate supply (LRAS)**.

Short-run aggregate supply is the output that will be supplied in a period of time when the prices of factors of production (inputs, resources) have not had time to adjust to changes in aggregate demand and the price level.

In contrast, long-run aggregate supply is the output that will be supplied in the time period when the prices of factors of production have fully adjusted to changes in aggregate demand and the price level.

The short-run aggregate supply curve

The short-run aggregate supply curve slopes up from left to right as shown in Figure 17.5.

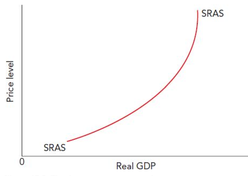


Figure 17.5: The short-run aggregate supply curve

As the price level rises, producers are willing and able to supply more goods and services. There are three possible reasons for this positive relationship:

1. The profit effect: As the price level (that is, the price of goods and services) increases, the prices of factors of production such as wages do not change. So as the price level rises, the gap between output and input prices widens and the amount of profit increases.
2. The cost effect: It is assumed that wage rates, raw material costs and other input prices remain unchanged along an individual SRAS curve. However, **average costs** may rise as output increases. This is because, for example, overtime payments may have to be paid and costs will be involved in recruiting more workers. To cover any extra costs that may be involved in producing a higher output, producers will require higher prices.
3. The misinterpretation effect: Producers may confuse changes in the price level with changes in relative prices. They may think that a rise in the price they receive for their products indicates that their own product is becoming more popular. As a result, they may be encouraged to produce more.

Shifts in the short-run aggregate supply curve

While a change in the price level will cause a movement along the short-run aggregate supply curve, there are four main causes of a shift in the SRAS curve:

1. A change in the price of factors of production: A rise in wage rates, not matched by an increase in labour productivity, and raw material costs will cause a decrease in SRAS, shifting the curve to the left as illustrated in Figure 17.6.
2. A change in taxes on firms: A reduction in corporation tax or indirect taxes will cause an increase in SRAS.
3. A change in factor productivity/quality of resources: A rise in labour productivity and/or capital productivity will cause an increase in aggregate supply both in the short and long run.
4. A change in the quantity of resources: In the short run the supply of inputs may be influenced by **supply-side shocks** including natural disasters. These shocks may not have a significant impact on productive potential in the long run.

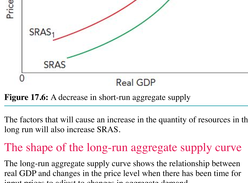


Figure 17.6: A decrease in short-run aggregate supply

The factors that will cause an increase in the quantity of resources in the long run will also increase SRAS.

The shape of the long-run aggregate supply curve

The long-run aggregate supply curve shows the relationship between real GDP and changes in the price level when there has been time for input prices to adjust to changes in aggregate demand.

A group of economists known as **Keynesians** often represent the LRAS curve as perfectly elastic at low rates of output, then upward sloping over a range of output and finally perfectly inelastic. This is to emphasise their view that, in the long run, an economy can operate at any level of output and not necessarily at full capacity. Figure 17.7 shows that from 0 to Y, output can be raised without increasing the price level.

When output and hence employment are low, firms can attract more resources without raising their prices. There is time for input prices to change but, due to the low level of aggregate demand, they do not. For example, when unemployment is high, the offer of a job may be sufficient to attract new workers.

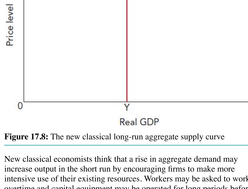


Figure 17.7: The Keynesian long-run aggregate supply curve

As output rises from Y to Y_1, firms begin to experience shortages of inputs and bid up wages, raw material prices and the price of capital equipment. When output reaches Y_1, the economy is producing the maximum output it can make with existing resources.

Another group of economists, called **new classical economists**, illustrate the LRAS curve as a vertical line. This is because they think that in the long run the economy will operate at full capacity. This version of the LRAS curve is shown in Figure 17.8.

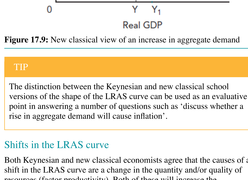


Figure 17.8: The new classical long-run aggregate supply curve

New classical economists think that a rise in aggregate demand may increase output in the short run by encouraging firms to make more intensive use of their existing resources. Workers may be asked to work overtime and capital equipment may be operated for long periods before undertaking routine maintenance. In the long run, however, this more intensive use of resources will raise costs of production. The economy will move onto a new SRAS curve and back to the LRAS curve. Output will return to the initial level but at a higher price level, as shown in Figure 17.9.

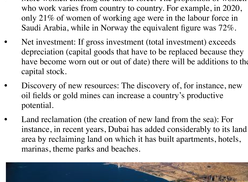


Figure 17.9: New classical view of an increase in aggregate demand

TIP

The distinction between the Keynesian and new classical school versions of the shape of the LRAS curve can be used as an evaluative point in answering a number of questions such as 'discuss whether a rise in aggregate demand will cause inflation'.

Shifts in the LRAS curve

Both Keynesian and new classical economists agree that the causes of a shift in the LRAS curve are a change in the quantity and/or quality of resources (factor productivity). Both of these will increase the productive potential of an economy.

The causes of an increase in the quantity of resources in the long run are:

- Net immigration: Net immigration will increase the size of the labour force if the immigrants are of working age.
- An increase in the retirement age: This will increase the size of the labour force. A number of countries have raised the age at which people can receive a state pension and some of these countries plan to raise it even further in the future as life expectancy increases.
- More women entering the labour force: The proportion of women who work varies from country to country. For example, in 2020, only 21% of women of working age were in the labour force in Saudi Arabia, while in Norway the equivalent figure was 72%.
- Net investment: If gross investment (total investment) exceeds depreciation (capital goods that have to be replaced because they have become worn out or out of date) there will be additions to the capital stock.
- Discovery of new resources: The discovery of, for instance, new oil fields or gold mines can increase a country's productive potential.
- Land reclamation (the creation of new land from the sea): For instance, in recent years, Dubai has added considerably to its land area by reclaiming land on which it has built apartments, hotels, marinas, theme parks and beaches.

Figure 17.10: Dubai's palm islands are land reclaimed from the sea

The two main causes of an increase in the quality of resources are:

1. improved education and training – this will increase the skills of workers and so raise labour productivity
2. advances in technology – these both reduce costs of production and increase productive capacity.

THINK LIKE AN ECONOMIST

Differences in investment

Investment forms a relatively similar percentage of GDP in Myanmar and Mauritius. There are, however, marked differences in the other components. For example, consumer expenditure equals nearly 80% of GDP in Mauritius and 60% in Myanmar. Exports are equivalent to 28% of GDP in Myanmar but 55% in Mauritius. It was predicted that investment would increase in both Myanmar and Mauritius in 2019.

1. What other information would you need to compare the composition of aggregate demand in the two countries?
2. How would you use AD/AS analysis to assess the effect of an increase in investment on an economy?

TIP

Be careful not to confuse aggregate demand and aggregate supply diagrams with demand and supply curves. Remember to include macro-labelling on AD/AS diagrams, that is price level (or general price level) rather than price and real GDP (national income and so on) rather than quantity.

ACTIVITY 17.4

In pairs, produce a worksheet for other learners on the causes of changes in long-run aggregate supply. Include examples of recent causes in your own country and other countries.

REFLECTION

How did you decide on what questions to include in the worksheet in Activity 17.4? How did the worksheet help other learners to reinforce their learning? What did you learn from doing this activity?

TIP

In assessing many questions on macroeconomics, it is useful to include AD/AS diagrams.

17.5 Macroequilibrium and disequilibrium

The equilibrium level of output and the price level are determined where aggregate demand is equal to aggregate supply. The **macroeconomic equilibrium** is illustrated by the point where the AD and AS curves intersect, as shown in Figure 17.11.

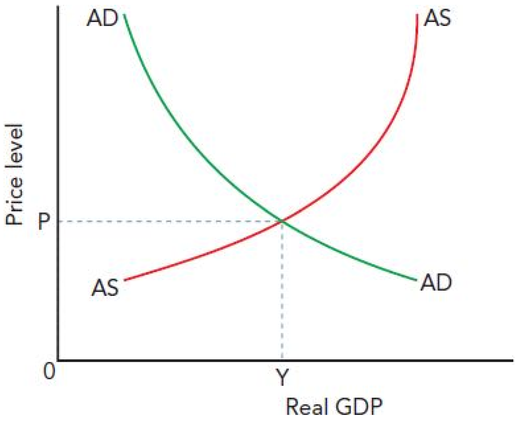


Figure 17.11: Macroeconomic equilibrium. The point of equilibrium is where AD and AS intersect

If the price level was initially below P, there would be macro disequilibrium. The excess demand would push the price level back up to the equilibrium level. If the price level was above P, some goods and services would not be sold and firms would have to cut their prices.

Changes in aggregate demand and aggregate supply will move the economy to a new macroeconomic position. Where that position will be depends on the direction of the change, the size of the change and the initial level of economic activity. For example, an economy may initially be operating below but close to its productive potential. In this case, an increase in aggregate demand may increase output, employment and the price level.

TIP

Remember that changes in some variables, including investment, net immigration and government spending on education may shift both the aggregate demand curve and the aggregate supply curve.

KEY CONCEPT LINK

Equilibrium and disequilibrium: Section 17.5 refers to macroeconomic equilibrium. Economists study what the current macroeconomic equilibrium is, why it has changed in recent times and what the desired level of macroeconomic equilibrium would be.

ACTIVITY 17.5

1 In a pair, identify the effects of the following on aggregate demand, aggregate supply, output and the price level:

   a a reduction in the rate of interest

   b an increase in government spending on healthcare

   c advances in information technology

   d net emigration

   e a cut in income tax

   f an increase in wealth.

   Then compare your decisions with the rest of the group.

TIP

To analyse macroeconomic issues, it is often useful to draw an aggregate supply curve in the shape shown in Figure 17.7. This enables you to make comments about the effect on output and the price level of changes in AD.

ACTIVITY 17.6

In 2010, Ireland got into serious financial difficulties and had to be helped out by the European Union. Irish workers experienced significant pay cuts and increases in income tax.

By 2013, Ireland's economic performance started to improve and continued to improve. Its unemployment rate fell from 14.7% to 12.5% in 2013 and 5.3% in 2019. Between 2010 and 2019, more than 120 000 jobs were created. Ireland's output, instead of falling, started to rise with both aggregate demand and aggregate supply increasing.

1 Using a Keynesian LRAS curve, explain at what point on the curve the Irish economy was operating in 2013 and 2019.

2 Explain what probably happened to consumer expenditure in Ireland in 2010.

3 Discuss your answers with another learner.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Why does the aggregate demand curve slope down from left to right?

A A fall in the price level increases the purchasing power of savings.

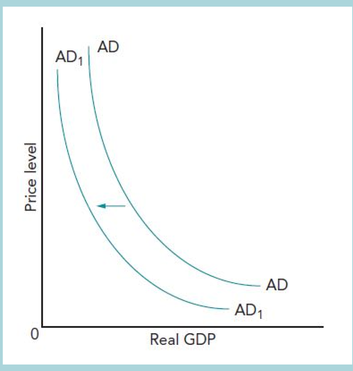
B A fall in the price level increases the rate of interest.

C A rise in the price level encourages foreigners to buy more exports.

D A rise in the price level encourages firms to sell more goods and services.

2 The diagram shows a change in a country's aggregate demand.

What would cause the shift of the AD curve from AD to AD_1?



A a decrease in government spending

B a decrease in imports

C an increase in investment

D an increase in wages

3 Which change is most likely to increase aggregate demand?

A a decrease in the price of imports

B a decrease in the quality of exports

C an increase in business optimism

D an increase in tax rates

4 What is likely to cause a shift of the AS curve to the left?

A a decrease in aggregate demand

B a decrease in the skills of workers

C an increase in investment

D an increase in the size of the labour force

5 Which of the following changes would cause the SRAS curve to shift to the left but would leave the LRAS curve unaffected?

A a decrease in the size of the labour force

B a decrease in labour productivity

C an increase in capital equipment

D an increase in wages

6 When is an economy in equilibrium?

A when consumer expenditure is not changing

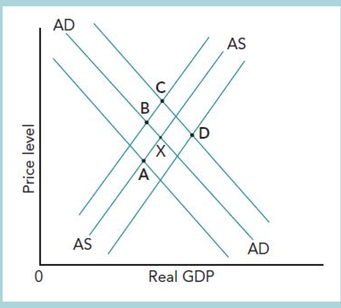
B when GDP is not changing

C when government spending equals investment

D when imports equal saving

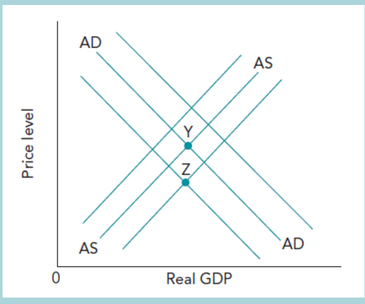
7 The diagram shows that an economy is initially in equilibrium at point X. There is then an increase in consumer expenditure and a rise in the price of raw materials.

What is the new equilibrium point?



8 The diagram shows an economy's equilibrium position moving from point Y to point Z.

Which combination of changes could cause this movement?



A a decrease in government spending and advances in technology

B a decrease in income tax and an increase in the quality of education

C an increase the costs of production and a decrease in saving

D an increase in net exports and an increase in investment

9 What would cause a shift in an economy's LRAS curve?

A a decrease in net exports

B advances in technology

C an increase in consumer expenditure

D an increase in the price level

10 Why may an increase in aggregate demand leave the price level unchanged?

A aggregate supply is decreasing by a greater amount

B the aggregate supply curve is vertical

C the economy is operating with a considerable amount of spare capacity

D the economy is operating close to full capacity

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain that aggregate demand (AD) consists of consumer expenditure (C), investment (I), government spending (G), net exports (X – M)			
Identify the determinants that influence the components of AD			
Understand that the AD curve slopes down from left to right and shows the different quantities of total demand for the economy's products at different prices			
Analyse the causes of a shift to the right in the AD curve			
Explain that aggregate supply (AS) is the total output that producers in a country are willing and able to supply at a given price level in a given time period			
Explain why the SRAS curve is upward sloping			
Analyse the causes of a shift in the SRAS curve			
Analyse the causes of a shift in the LRAS curve			
Differentiate between the reasons for a movement along the AD or AS curve and a shift in the AD or AS curve			
Explain how equilibrium is established in the AD/AS model when aggregate demand equals aggregate supply			
Analyse the effects of shifts in the AD curve and the AS curve on the level of real output, the price level and employment			

Chapter 18

Economic growth

LEARNING intentions

In this chapter you will learn how to:

- define the meaning of economic growth
- describe how economic growth is measured
- explain the difference between growth in nominal GDP and real GDP
- analyse the causes of economic growth
- discuss the consequences of economic growth.

ECONOMICS IN CONTEXT

China's economy rivals that of the USA

On one measure (nominal GDP), China had the second highest output in the world in 2018 with the USA having the highest output. On another measure, China's output came top with the USA second.

Figure 18.1: An electronics factory in China

China's output has increased significantly for the last forty years. It has grown at an average annual rate of 8%. In 1978, the country's output was $150 billion (2% of world output) but by 2018 this had increased to $13.4 trillion (15% of world output). This higher output has arisen because of a number of changes, including significant increases in investment.

The higher output has transformed Chinese lives. Over the period, more than 700 million people have been lifted out of poverty. Average income per head has increased from $155 in 1978 to $9627 in 2018. Life expectancy has risen from 65.9 years to 76.4 years. More than half a billion people have moved from rural to urban areas.

Discuss in a pair or a group:

- Can you think of advantages firms may gain from operating in the world's largest economy?
- Why is higher income per head usually accompanied by a rise in life expectancy?
- Do you think people will enjoy a better quality of life in a city or a village?

18.1 Economic growth

Economic growth is a key indicator of macroeconomic performance. Economic growth is an increase in an economy's output. The economic growth rate is the annual percentage change in output. For people to enjoy more goods and services, output has to increase by more than any growth in population. In such a case, GDP per head (*per capita*) would increase. For many years, it was assumed that poverty would be eradicated if countries managed to sustain economic growth. As a result, economic growth and economic development were seen as the same thing.

It was assumed that if economies grew they would also experience development. The increased availability of goods and services in an economy would lead to a 'trickle down' effect that would have an impact upon all, including the poor members of society, in terms of jobs and other economic benefits. In reality, however, economic growth does not result in a rise in the living standards and quality of life of everyone in an economy. It is also possible for a high proportion of people to achieve an improvement in their living standards and quality of life even if economic growth does not occur, for example, if there is a more equal distribution of income or a reduction in pollution. As a result, a wider definition of **economic development** is now accepted that is related to, but distinct from, economic growth. In other words, economic development is the process of improving people's economic well-being and quality of life.

KEY CONCEPT LINK

Progress and development: Economic growth is perhaps the key measure of progress in an economy. This can be assessed by examining economic data. To assess whether an economy is developing is a more normative judgement.

TIP

Be careful to avoid confusion between economic growth (growth of the economy) and growth of a firm.

ACTIVITY 18.1

Produce a graph comparing your country's economic growth rate with that of two other economies of your choice.

18.2 Measurement of economic growth

Economic growth is measured in terms of changes in real GDP, that is the country's output. The economic growth rate is the percentage change in real GDP from one time period to another, usually a year. Government statisticians first measure GDP in the prices operating at the time. They then take out the effects of changes in the price level to get real GDP.

18.3 Nominal GDP and real GDP

Nominal (or money) GDP is GDP measured in terms of the prices operating in the year in which output is produced. It is sometimes referred to as GDP at current prices and is a measure that has not been adjusted for changes in the price level.

Nominal GDP may give a misleading impression of how well a country is performing. This is because the value of nominal GDP may rise not because more goods and services are being produced but simply because prices have risen. For example, if 100 billion products are produced at an average price of $5, GDP will be $500 billion. If in the next year the same output of 100 billion products is produced but the average price rises to $6, nominal GDP will rise to $600 billion. So to get a truer picture of what is happening to output, economists convert nominal GDP into **real GDP**.

To calculate real GDP, economists measure GDP at **constant prices** (the prices operating in a selected year). This ensures the effect of inflation that distorts nominal GDP is removed. For example, in 2016, a country's GDP is $800 billion and the **price index** is 100. In 2017, nominal GDP is $900 billion and the price index is 120. Using the formula to calculate real GDP:

$$\text{Real GDP} = \text{nominal GDP} \times \frac{\text{price index in base year}}{\text{price index in current year}}$$

$$\$900 \text{ billion} \times \frac{100}{120} = \$750 \text{ billion}$$

The price index used to convert nominal into real GDP is called the **GDP deflator**, which measures the prices of products produced, rather than consumed, in a country. So it includes the prices of capital goods as well as consumer products and includes the price of exports but excludes the price of imports.

ACTIVITY 18.2

1 In 2020, a country's GDP is $1000 bn. In 2021, nominal GDP rises to $1092 bn and the price index increases by 4%. Calculate:

a real GDP

b the percentage increase in real GDP.

TIP

If you think it would be useful to include a numerical example of changing from nominal to real GDP in an answer, keep the figures simple. What is important to show is an understanding of the process and not an ability to deal with complex figures.

18.4 Causes and consequences of economic growth

If there is spare capacity, output can increase as a result of an increase in aggregate demand. For instance, greater consumer confidence may lead to higher consumer expenditure and so an increase in aggregate demand. Similarly, an increase in government spending and a cut in taxes and the rate of interest may result in more factors of production being employed and output rising. Making more use of existing resources can be shown on a production possibility curve diagram, as shown in Figure 18.2.

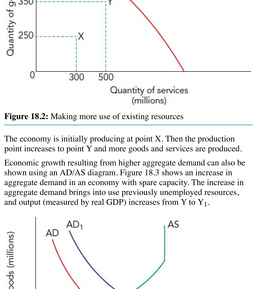


Figure 18.2: Making more use of existing resources

The economy is initially producing at point X. Then the production point increases to point Y and more goods and services are produced.

Economic growth resulting from higher aggregate demand can also be shown using an AD/AS diagram. Figure 18.3 shows an increase in aggregate demand in an economy with spare capacity. The increase in aggregate demand brings into use previously unemployed resources, and output (measured by real GDP) increases from Y to Y_1.

Figure 18.3: An increase in aggregate demand resulting in higher output

In order to achieve economic growth that can be sustained over time, it is necessary for productive capacity and aggregate supply to increase. There are two broad causes of such an increase: more resources or better quality resources.

Increase in the quantity of resources

The supply of labour and entrepreneurs could increase, after a period of time, as a result of a natural increase in population. More immediately, net immigration of people of working age is likely to lead to a greater availability of workers and entrepreneurs. The number of workers and entrepreneurs may also increase as a result of government policy measures. For example, a rise in the retirement age increases the supply of labour, and deregulation and privatisation may promote entrepreneurship.

The supply of capital goods will increase if there is net investment, with firms buying more capital goods than are needed to replace those capital goods that are taken out of use.

The quantity of land may increase by discoveries, for instance, of new oil fields and gold mines.

Increase in the quality of resources

Improvements in the quality of resources will increase the productivity of the factor inputs. The quality of labour and entrepreneurship can be improved through education and training and better healthcare. The quality of capital goods improves as technology advances. The use of fertilisers and irrigation and drainage schemes may improve the quality of land.

Figure 18.4 shows productive capacity increasing using both a production possibility curve and an AD/AS diagram. Both diagrams illustrate an increase in the maximum output the economy is capable of producing. The first diagram shows that the production possibility curve has shifted to the right. The ability of the economy to make both consumer goods and capital goods has increased. It is now possible to produce a higher maximum combination of the two types of good. The second diagram also shows an increase in the economy's productive capacity. This time it is illustrated by a shift of the LRAS curve to the right.

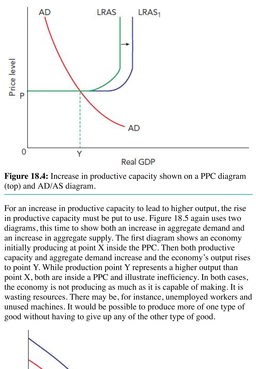


Figure 18.4: Increase in productive capacity shown on a PPC diagram (top) and AD/AS diagram.

For an increase in productive capacity to lead to higher output, the rise in productive capacity must be put to use. Figure 18.5 again uses two diagrams, this time to show both an increase in aggregate demand and an increase in aggregate supply. The first diagram shows an economy initially producing at point X inside the PPC. Then both productive capacity and aggregate demand increase and the economy's output rises to point Y. While production point Y represents a higher output than point X, both are inside a PPC and illustrate inefficiency. In both cases, the economy is not producing as much as it is capable of making. It is wasting resources. There may be, for instance, unemployed workers and unused machines. It would be possible to produce more of one type of good without having to give up any of the other type of good.

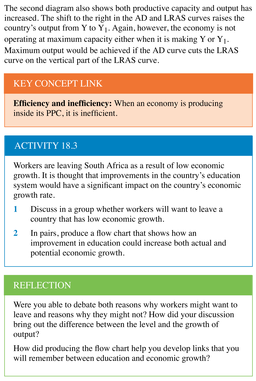


Figure 18.5: Economic growth resulting from a combination of higher aggregate demand and aggregate supply

The second diagram also shows both productive capacity and output has increased. The shift to the right in the AD and LRAS curves raises the country's output from Y to Y_1. Again, however, the economy is not operating at maximum capacity either when it is making Y or Y_1. Maximum output would be achieved if the AD curve cuts the LRAS curve on the vertical part of the LRAS curve.

KEY CONCEPT LINK

Efficiency and inefficiency: When an economy is producing inside its PPC, it is inefficient.

ACTIVITY 18.3

Workers are leaving South Africa as a result of low economic growth. It is thought that improvements in the country's education system would have a significant impact on the country's economic growth rate.

1. Discuss in a group whether workers will want to leave a country that has low economic growth.
2. In pairs, produce a flow chart that shows how an improvement in education could increase both actual and potential economic growth.

REFLECTION

Were you able to debate both reasons why workers might want to leave and reasons why they might not? How did your discussion bring out the difference between the level and the growth of output?

How did producing the flow chart help you develop links that you will remember between education and economic growth?

Economic growth can be negative as it is possible that a country's real GDP may fall. A decline in real GDP over two consecutive quarters (six months) or more is called a **recession**. A country's output may decline as a result of a decrease in aggregate demand or a decrease in aggregate supply.

ACTIVITY 18.4

Figure 18.6: The headquarters of the vehicle manufacturer BMW is in Munich, Germany

German economic growth declined in 2018. The country's output fell in the second quarter of 2019 and was predicted to decline further in the third quarter. The decline in economic growth and the fall in output occurred despite a rise in employment. Over the

same period, the Polish economy grew strongly. This was largely the result of an increase in exports of cars and an increase in consumer spending in Poland.

Decide as a group:

1 What would have determined whether Germany experienced a recession in 2019?

2 What is likely to have happened to labour productivity in Germany in the second quarter of 2019?

3 Why may an increase in consumer spending cause economic growth?

Economic growth in low-income countries

The main obstacle to increases in the quantity and quality of resources in some low-income countries is the opportunity cost of allocating resources away from their current use. For example, allocating more resources to education may mean that fewer resources can be allocated, for instance, to healthcare. Producing more capital goods may mean sacrificing consumer goods in the short run, which would lead to a decrease in living standards. Research and development that can result in advances in technology also use resources that have alternative uses.

ACTIVITY 18.5

1 In a pair, copy and complete the table below.

Select 'high' or 'low' to go before each influence, to get an influence that would promote economic growth. The first one has been done for you.

Influence that would promote economic growth
high expenditure on research and development
..... expenditure on training
..... flexibility of the labour force
..... inflation
..... investment
..... level of political instability
..... level of spare capacity
..... quality of transport links
..... skill levels

2 Decide on the *three* influences that you are think are the most important. Discuss your views with the wider group.

KEY CONCEPT LINK

Scarcity and choice: The choice between producing extra capital goods and fewer consumer goods or producing the same quantity of both types of goods arises because of scarcity.

Economic growth in China and India

China and India have witnessed particularly rapid economic growth.

China has become one of the two largest economies in the world. It accounted for 30% of global economic growth between 2012 and 2019. China's increase in output has been driven by increases in investment and exports. The high rates of saving in China have freed up some resources for investment and the relatively low value of the Chinese currency, the renminbi, has contributed to the rise in demand for Chinese exports.

India's economic growth rate has been boosted by an increase in the size of the labour force and advances in information technology. Between 2012 and 2019, India accounted for 16% of global economic growth.

The costs and benefits of economic growth

Costs

As explained above, if an economy is operating at full capacity, there will be an opportunity cost involved in achieving economic growth. To produce more capital goods, in order to increase the country's productive capacity, some resources will have to be moved from producing consumer goods to producing capital goods. The consequence is that the current consumption of goods and services will have to be reduced. However, this will only be a short-run cost since, in the long run, increased investment will increase the output of both capital goods and consumer goods and services.

Some other potential costs may exist in both the short run and the long run, including increased stress and anxiety. A growing economy is a dynamic (changing) economy that undergoes structural changes, with some industries expanding and some declining. Workers may have to learn new skills and may have to change their occupation and/or where they live. Some workers may find such changes difficult to cope with. Economic growth may also be accompanied by increased working hours and pressure to come up with new ideas and improvements. There is a major difference in the number of hours people work in different countries. In 2018, for instance, the average annual hours worked per person in Mexico was 2148 whereas it was only 1363 in Germany.

In addition, economic growth may be accompanied by the depletion of natural resources and damage to the environment. Higher output may, for example, involve firms using more oil, depleting fish stocks, building on areas of natural beauty and creating more pollution.

Benefits

The main benefit of economic growth is the increase in goods and services that become available for the country's citizens to enjoy. This can raise people's living standards. Economic growth makes it easier to help the poor. Higher incomes and more spending increase tax revenue and some of this extra revenue may be given to the poor in the form of higher benefits, better housing, better education and better healthcare. Without any increase in output and income, a government may have to raise the tax rates on higher income groups, and so reduce their living standards, in order to help the poor.

Economic growth may also be accompanied by a rise in employment. A rise in real GDP caused by higher aggregate demand is likely to create extra jobs. An increase in aggregate supply may make a country's products more internationally competitive and so may generate more jobs.

A stable rate of economic growth tends to increase business and consumer confidence, which encourages investment. Economic growth in itself can help encourage further economic growth. In addition, economic growth may increase a country's international prestige and power. For example, China's rapid economic growth since the early 1990s has increased its status as an economic and political power.

Some economists in high-income countries debate whether the benefits of economic growth outweigh the costs. For those in low-income countries, however, economic growth is seen as essential to bring people out of poverty.

ACTIVITY 18.6

In 2019, 25% of Ethiopia's population lived in poverty. The country had one of the lowest levels of income inequality in the world and one of the highest rates of economic growth.

In a group, discuss how a high rate of economic growth is likely to affect the percentage of the population living in poverty and income inequality.

THINK LIKE AN ECONOMIST

High rates of economic growth in Côte D'Ivoire

Côte D'Ivoire, also known as Ivory Coast, is a West African country which enjoyed some of the highest rates of economic growth in the world between 2010 and 2019. The country has a population of 28 million people and a labour force of 9 million. It has a large agricultural sector and is the world's largest producer and exporter of cocoa beans.

Figure 18.7: Farmers harvest cocoa beans in Côte D'Ivoire

1 Research the causes of Côte D'Ivoire's high economic growth rate.

2 Then consider whether the country is likely to continue to experience high rates of economic growth.

3 What sources of information did you use?

4 What assumptions did you make when making your prediction for the country's future economic growth rate?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 How is economic growth measured?

A changes in consumer expenditure

B changes in living standards

C changes in population size

D changes in real GDP

2 A country experiences a 4% rise in real GDP and a 4% rise in nominal GDP. What would explain this combination of changes?

	Price level	Output
A	fallen by 4%	risen by 4%
B	risen by 4%	fallen by 4%
C	fallen by 4%	unchanged
D	unchanged	risen by 4%

3 How would economic growth caused by an increase in aggregate demand and economic growth caused by an increase in productive capacity be shown on a production possibility curve diagram?

	Economic growth caused by an increase in aggregate demand	Economic growth caused by an increase in productive capacity
A	movement from a point inside the PPC towards the curve	shift to the right of the PPC
B	movement from a point outside the PPC to a point on the curve	shift to the left of the PPC
C	shift to the left of the PPC	movement from a point inside the PPC towards the curve
D	shift to the right of the PPC	movement from a point outside the PPC to a point on the curve

4 What may reduce economic growth in the short run but increase it in the long run?

A a decrease in government spending on healthcare

B a decrease in the size of the labour force

C an increase in the inflation rate

D an increase in the savings ratio

5 What is most likely to cause a recession?

A a decrease in business optimism

B a decrease in unemployment

C an increase in government spending

D an increase in net exports

6 What cause of a fall in the price level is unlikely to result in a recession?

A advances in technology

B collapse of the banking system

C expectations of a fall in the price level

D reduction in international competitiveness

7 A country's economy grows by 2%. The size of its labour force remains unchanged. What would explain a rise in unemployment in these circumstances?

A a decrease in the capital-intensiveness of firms

B a decrease in the average hours people work

C an increase in labour productivity

D an increase in the ability of workers to change jobs

8 What must have increased as a result of a rise in real GDP?

A income inequality

B inflation

C output

D population

9 What is *not* a possible benefit of economic growth?

A lower levels of poverty

B lower levels of unemployment

C higher government spending on education without any opportunity cost

D higher tax revenue without having to raise tax rates

10 Why may a government switch from aiming for a 5% growth rate to a 0% economic growth rate?

A to avoid anyone being without a job

B to conserve non-renewable resources

C to maintain real GDP per head

D to reduce living standards

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe economic growth as a key indicator of macroeconomic performance			
Explain how economic growth is measured by changes of GDP			
Understand that nominal GDP has not been adjusted for inflation; real GDP has been adjusted for inflation			
Analyse how economic growth may be caused by increases in aggregate demand and/or increases in the quantity and quality of resources.			
Discuss the advantages and disadvantages of economic growth			

Chapter 19

Unemployment

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of unemployment
- explain the difference between the economically active and the economically inactive population
- explain the difference between the level of unemployment and the rate of unemployment
- calculate the rate of unemployment
- explain how unemployment is measured
- consider the difficulties of measuring unemployment
- analyse the causes and types of unemployment: frictional, structural, cyclical, seasonal and technological
- discuss the consequences of unemployment.

ECONOMICS IN CONTEXT

Unemployment in South Africa

In every country, some people would like to enjoy more education and better healthcare. A number would also like to have better housing and most would welcome more high-tech gadgets such as the latest smartphone. At the same time, in many countries there are unemployed workers.

Figure 19.1: Unemployed people in South Africa looking for work

In 2019, **unemployment** was particularly high in South Africa. More than one in four people in the country who wanted and were able to work did not have a job; this compared with a global average of only one in twenty workers being without a job. Youth unemployment was especially serious in South Africa. More than half of those between the ages of 15 and 24 who wanted to work were unemployed.

There are a number of reasons why some South Africans were unemployed. These included that they lacked the skills and qualifications to do the jobs on offer, that they lived too far from where the jobs were and that there were just not enough job vacancies.

The unemployed did not contribute to South Africa's output and they, and their families, may have experienced poverty. Their children were also likely to have more than an average chance of experiencing unemployment when they grew up.

Due to the high costs of unemployment, governments usually seek to keep unemployment as low as possible. To do this, governments have to be able to measure the extent of unemployment and to understand its causes.

Discuss in a pair or a group:

- At a time when people would like more goods and services, why are some of the people who could make the goods not working?
- Why are the children of the unemployed likely to have a relatively high chance of being unemployed?

19.1 Unemployment

Unemployment occurs when people who are willing and able to work cannot find a job. This does not mean that all people who are not working are unemployed, for example, children are too young to work and some adults are retired. Also, a number of adults of working age are not seeking jobs, including people who are at university, those who have retired early, **homemakers** and those not well enough to work. People who are not working and trying to find employment are said to be **economically inactive**. They are not part of the **labour force**.

The unemployed are, in contrast, part of the labour force. They are an economic resource that is not currently being used. Anyone in the labour force is said to be **economically active**.

TIP

Be careful to avoid confusing the economically inactive and the unemployed. The economically inactive are not part of the labour force whereas the unemployed are.

19.2 The labour force

The labour force in an economy is defined as the total number of workers who are available for work. It therefore refers to all people who can contribute to the production of goods and services. As well as those actually in employment, it also includes those who are unemployed and who are seeking employment. The size of a country's labour force depends upon a wide range of demographic, economic social and cultural factors, such as:

- the school leaving age
- the number of people who remain in full-time education above the school leaving age
- the retirement age
- the proportion of women who join the labour force.

A country with a higher number of people of working age is likely to have a larger labour force than one with a smaller number of people of working age. This, however, is not always the case. This is because the size of the labour force is also influenced by the **labour force participation rate**. The labour force participation rate refers to the percentage of the total population of working age who are actually classified as being part of the labour force. For most economies, the rate is usually between 50% and 70%. There are a number of reasons why the labour force participation rate may be relatively low in some countries. These include a higher participation rate in higher education and a relatively large proportion of workers deciding to take early retirement. There are also some countries where the contribution of women in the labour force is constrained by social and cultural factors.

ACTIVITY 19.1

Figure 19.2: A scientist in the UAE

More women in the United Arab Emirates (UAE) are entering the labour force. In 2000, 34% of women in the UAE of working age were in work or seeking work. By 2018, this had increased to 51%. One reason why more women are economically active in the UAE is the increase in women's educational qualifications. More than 70% of university graduates in the UAE are female – this is the highest percentage in the world.

In pairs discuss:

1. Why is an increase in educational qualifications likely to increase the proportion of women who are economically active?
2. What factors, other than educational qualifications, may influence an adult's decision on whether to join the labour force?

Then write the points you have discussed on a flip chart and share them with the rest of the group.

REFLECTION

How did you find that having to explain the points to the rest of the group made you think more carefully about those points? What new ideas did you pick up from the rest of the group?

19.3 Level of unemployment and rate of unemployment

The **level of unemployment** refers to the total number of workers who are unemployed. In contrast, the **unemployment rate** is the number of unemployed people as a percentage of the labour force. For example, using the formula for the unemployment rate, in an economy with a labour force of 50 million workers, 4.3 million of whom are unemployed, the rate of unemployment is 8.6%:

$$\text{Unemployment rate} = \frac{\text{Number of people unemployed}}{\text{Number of people in the labour force}} \times 100$$

The level and rate of unemployment may move in the same direction. This, however, is not always the case. If the labour force increases by a greater percentage than the level of unemployment, the unemployment rate will fall. For instance, if the labour force is initially 40 million with 2 million unemployed, the unemployment rate would be 5%. If the labour force rises to 44 million and the level of unemployment increases to 2.1 million, the unemployment rate would fall to 4.8%.

As well as measuring the unemployment rate, governments also measure the **employment rate** and the labour force participation rate.

The employment rate and the unemployment rate do not add up to 100%. This is because the employment rate is the proportion of the working age population who are in work and not the proportion of the labour force in work.

ACTIVITY 19.2

1. Using the CIA World Factbook (economy and people and society sections), compare the unemployment rate, the number of people unemployed and the labour force participation rate in your country and another country. Note that you will have to calculate the number of people unemployed and the labour force participation rate from figures in the sections mentioned.
2. Produce a poster to show your figures. You could present the figures in a number of ways, for example in bar charts and pictograms. A pictogram uses simplified pictures or symbols to show statistical data. In this case, a drawing of a genderless figure could be used to represent, for example, 1 million unemployed. You could also include other features such as flags of the two countries.

REFLECTION

Why is it useful to compare unemployment data in your country with that in another country? How did producing the poster help you understand the differences in unemployment data?

19.4 The stock and flow of unemployment

A stock is measured at a particular time period whereas a flow is measured over time. The level of unemployment and the unemployment rate show unemployment at a particular time period. They are a snapshot of unemployment at a certain point in time. They do not show the exact situation as people move into and out of unemployment.

The number of people unemployed may stay the same over a period of months. This does not necessarily mean that it is the same people, because some workers will have become unemployed over the time period while others will have found jobs or will have left the labour force. One reason why some people leave the labour force is because they become **discouraged workers**, giving up on the chances of finding a job.

The main reasons why people may enter and why they may leave the state of unemployment are shown in Figure 19.3.

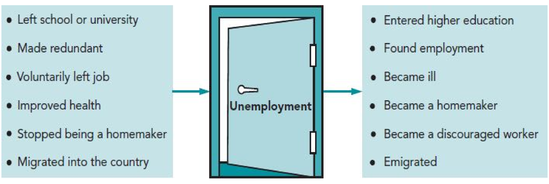


Figure 19.3: The main reasons why people may enter or leave unemployment

TIP

Do not assume that because there are, for example 1 million fewer unemployed workers, that there are 1 million more people in work. As you have seen, there are a number of reasons why unemployed workers may stop being unemployed.

ACTIVITY 19.3

Figure 19.4: A car manufacturing plant in Pakistan

Pakistan's unemployment rate fell from 5.9% in 2015 to 5.8%. The relatively small reduction was despite the economy increasing its output. It is possible that higher output is not accompanied by a rise in employment if the growth occurs when more resources are shifted from labour intensive to capital intensive industries.

Pakistan's labour force participation rate has also fallen in recent years, partly because of an increase in the number of discouraged workers and partly because of more people entering higher education.

Write answers to the following questions and then share your answers with another learner.

1. Why may a rise in a country's output be accompanied by a rise in employment?
2. Will a reduction in the labour force participation rate always have a harmful effect on an economy?
3. If two economic quantities move in the same direction, is it always possible to conclude that one has caused the change in the other?

ACTIVITY 19.4

Figure 19.5 shows Nigeria's unemployment rate in different age groups in 2018. The curve showing the unemployment rate is U-shaped.

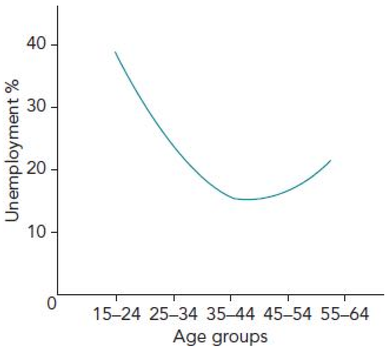


Figure 19.5: Nigeria's unemployment in different age groups, 2018

Using Figure 19.5:

1. Why do you think the curve is U-shaped?
2. In a group, discuss whether you think other countries will show a similar pattern. What factors will influence your decision?

19.5 Measures of unemployment

Governments use two main methods of measuring unemployment:

- The **claimant count measure** counts as unemployed those who register as unemployed in order to claim unemployment benefits.
- The **labour force survey measure** involves conducting a survey asking people if they are employed, unemployed or economically inactive.

Claimant count measure

The claimant count measure is relatively cheap and quick to calculate as it is based on information that the government collects as it pays out benefits. However, the figure obtained may not be entirely accurate. It may overstate or understate the true figure. It may include some people who are not really unemployed and may omit some people who are genuinely unemployed. Some of those receiving unemployment benefits may not be actively seeking employment and some may be working and claiming benefits illegally. On the other hand, there may be a number of groups who are actively seeking employment but who do not appear in the official figures. These groups may include those who are too young or too old to claim unemployment benefits, those who choose not to claim benefits they are entitled to, those who are full-time students looking for work and those whose non-employment income is too high.

ACTIVITY 19.5

The amount of unemployment benefit paid tends to be higher in high-income countries. Where there is a well-developed and generous system of unemployment benefit, workers who lose their jobs are likely to register as unemployed. In contrast, in countries where unemployment benefit is low or non-existent, unemployed workers may see little point in registering. Such workers may decide to help on their families' farms or may be forced to take very low-paid jobs. People who may be prepared to register are more likely to be rich individuals who can afford to wait for suitable and desirable jobs.

In 2017, the government of Laos decided to exclude subsistence farmers from its measure of the size of its labour force.

Discuss the following questions in a group of three. Appoint a chairperson to run the discussion, a person to note down the agreed answers and a spokesperson to report back in a discussion with the whole class.

1. Why may the unemployment figures of low-income countries, based on a claimant count measure, understate the full extent of unemployment?
2. What effect would the decision of the government of Laos in 2017 have on the country's unemployment rate?
3. Does a decrease in a country's unemployment rate always indicate that fewer people are without jobs?

Labour force survey measure

The labour force survey measure is more widely used than the claimant count measure. The measure involves conducting a survey, usually using the International Labour Organisation (ILO) definition of unemployment. The definition includes as unemployed all people of working age who, in a specified period, are without work, but who are available for work in the next two weeks and who are seeking paid employment.

ACTIVITY 19.6

The Chinese government has, for some time, measured unemployment on the basis of those registered as jobless with their home labour office. Not many of the unemployed register.

In 2018, the Chinese government started to publish a labour force survey measure. The measure is based on the International Labour Organisation standards. It surveys people living in more than 31 Chinese cities.

1. Why is a labour survey measure likely to record a higher unemployment figure than the claimant count?
2. Why would an increase in geographical labour mobility be likely to increase the difference between unemployment measured by the claimant count and the labour force survey in China?
3. In a pair, discuss why the labour force (ILO) measure is the main one used to make international comparisons.

The labour force measure picks up some of the groups not included in the claimant count. It also has the advantage that it is based on internationally agreed concepts and definitions, so makes international comparisons easier. More information is found on, for example, the qualifications job seekers have. However, the data are more expensive and time-consuming to collect than the claimant count measure. Also, as the data are based on a sample survey, they are subject to **sampling error** and to the practical problems of data collection.

19.6 The causes of unemployment

Unemployment can be divided into three main types: frictional, structural and cyclical, as shown in Figure 19.6. Each of these types has different causes.

Frictional unemployment

Frictional unemployment is unemployment that arises when workers are between jobs. One form of frictional unemployment is **voluntary unemployment**. This occurs when workers are not willing to accept jobs at the current wage rate and working conditions. This form of frictional unemployment may be influenced by how the level of unemployment benefits compares to low wages. If the amount workers can earn in employment is less than they can receive in benefits, some workers may decide to stay unemployed. In most countries, the amount of unemployment benefit workers receives falls after a period of time.

Another related form of frictional unemployment is **search unemployment**. This arises when workers do not accept the first job or jobs on offer, but spend some time looking for a better-paid job. The provision of more and better-quality information may reduce search unemployment,

There are two other forms of frictional employment.

Casual unemployment refers to workers who are out of work between periods of employment including, for example, actors, supply teachers and construction workers.

In the case of **seasonal unemployment**, demand for workers fluctuates according to the time of the year. During periods of the year, people working in, for example, the tourism, hospitality, building and farming industries may be out of work.

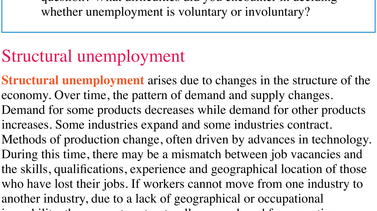


Figure 19.6: The main types of unemployment

ACTIVITY 19.7

1 In a group, discuss:
   - whether workers who are voluntarily unemployed should be counted as unemployed
   - how you would assess whether unemployment is voluntary or involuntary.

2 Did you find it easy to come to agreement on the first question? What difficulties did you encounter in deciding whether unemployment is voluntary or involuntary?

Structural unemployment

Structural unemployment arises due to changes in the structure of the economy. Over time, the pattern of demand and supply changes. Demand for some products decreases while demand for other products increases. Some industries expand and some industries contract. Methods of production change, often driven by advances in technology. During this time, there may be a mismatch between job vacancies and the skills, qualifications, experience and geographical location of those who have lost their jobs. If workers cannot move from one industry to another industry, due to a lack of geographical or occupational immobility, they may stay structurally unemployed for some time.

Structural unemployment can take a number of forms:

- **Regional unemployment**. Declining industries may be concentrated in a particular area or areas of the country. For instance, a decrease in demand for gold could result in a decline in the South African gold mining industry and cause workers in the gold mining areas, including Witwatersrand, to lose their jobs.
- **Technological unemployment**. In this case, people are out of work due to the introduction of labour-saving techniques. For example, the development of drones and robots delivering shopping is resulting in some delivery drivers losing their jobs.
- **International unemployment** occurs when workers lose their jobs because demand switches from domestic industries to more competitive foreign industries. For instance, the number of steel workers in the UK has fallen significantly over the past 40 years as the UK steel industry has declined. In contrast, during this period, the Chinese steel industry has expanded, creating more jobs.

ACTIVITY 19.8

More jobs were created in financial services in the US in 2019, while jobs were lost in mining. The American unemployment rate fell from 8.5% in 2012 to 3.7% in 2019. However, a higher proportion of the unemployed have become long-term unemployed.

Some economists blame long-term unemployment on globalisation for shifting low-skilled jobs overseas or on advances in technology replacing them. Other economists suggest that it is unemployment itself that is causing the problem. The economists who think that unemployment causes unemployment argue that when people are out of work for a long time they become 'scarred' and find it difficult to be rehired and tend to lose their skills and the work habit. These people may drop out of the labour force.

In pairs:

1 a Explain why unemployed miners may not have filled job vacancies in financial services.
   b What type of unemployment would arise if unemployed miners cannot gain jobs in another industry?

2 Why may some people become discouraged workers?

3 What do you think may be a link between the type of unemployment you have identified and discouraged workers?

TIP

Keep up to date with which industries are declining and which are expanding. This will enable you to give examples of workers experiencing structural unemployment. It may also help you to analyse why some people may stay unemployed for some time.

Cyclical unemployment

Frictional and structural unemployment arise largely due to problems on the supply side of the economy. The third main type of unemployment, **cyclical unemployment** or demand-deficient unemployment, arises due to a lack of aggregate demand. Cyclical unemployment affects the whole economy, with job losses occurring across a range of industries. Figure 19.7 shows the labour market initially in equilibrium at a wage rate of W. Then as a result of a fall in aggregate demand, firms reduce output and aggregate demand for labour shifts to ADL_1. If workers resist wage cuts, demand-deficient unemployment XQ will exist.

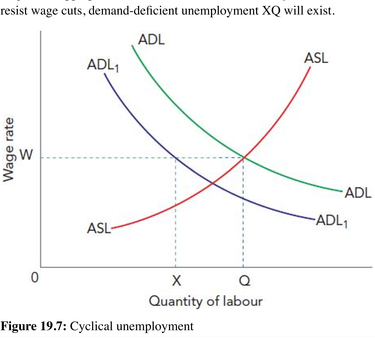


Figure 19.7: Cyclical unemployment

Even if wage rates fall, this type of unemployment may persist. This is because a cut in wages would reduce demand for goods and services as people would have less money to spend, which would cause firms to reduce both their output further and make more workers redundant (lose their jobs).

TIP

In explaining the different types of structural unemployment it is useful to give examples based either in your own country or a country that you know.

19.7 The consequences of unemployment

Unemployment has consequences for the unemployed themselves, firms and the economy as a whole.

Workers who lose their jobs are likely to experience a fall in income. Unemployed people are likely to find it more difficult to get another job the longer they have been out of work. This is because they will miss out on training, will become out of touch with advances in technology and may lose confidence. They may also experience a decline in their physical and mental well-being. For a small number of people, there is a chance that a period of frictional or structural unemployment may give them the opportunity to search for a job they may enjoy more and which may be better paid.

Firms wanting to expand may have a greater choice of potential workers. Frictional unemployment allows the economy to respond quicker to changes in demand and supply conditions, with workers moving from declining to expanding industries. Firms may also benefit from workers not requesting wage rises for fear of losing their jobs. Firms may, however, suffer from lower demand for their goods and services.

The economy will experience an opportunity cost. Output will be below its potential level. If the unemployed were still working, more goods and services would be produced and living standards would be higher. The tax revenue received by the government will be lower than with a higher level of employment. If state benefits are paid by the government, there will be an increase in government spending on the benefits which could have been put to other purposes.

THINK LIKE AN ECONOMIST

Unemployment in Greece

Unemployment in Greece has been high in recent years. In 2012, its unemployment rate was 21%. This rose to 28%, a record high for the country, in 2013. The increase in the unemployment rate was largely due to cuts in government spending and increases in tax rates. These government policy tools were designed to reduce the gap between government spending and tax revenue. In the short run, they also reduced aggregate demand. By 2016, the Greek unemployment rate had fallen to 24% and by 2019, it had declined further to 16%.

1. In a pair, draw up a list of eight economic concepts that could be used in analysing the causes and consequences of unemployment in a country. Share your list with the rest of the class.
2. Discuss as a class why the consequences of being unemployed may be more serious in one country than another country.

Figure 19.8: Demonstrations against unemployment in Greece

19.8 How significant is unemployment?

The effects of unemployment depend significantly on its rate, duration and type. A high rate of unemployment means that the economy is producing well inside its production possibility curve, forgoing a large quantity of output.

Unemployment is also more significant the longer the workers are employed. The income of the long-term unemployed will be low. They may suffer poor mental health because of the stress of being out of work.

The chances of workers gaining employment tends to fall the longer they are out of work. This is for a number of reasons. The skills of the unemployed may become outdated, they may lose confidence and some may become discouraged workers. Employers may also be reluctant to employ those who have been out of work for a relatively long time.

Frictional unemployment is considered the least serious type of unemployment. Indeed, some level of frictional unemployment is unavoidable in a changing economy. In contrast, cyclical unemployment can cause serious problems. Cyclical unemployment may be of a high rate and last a long period of time.

Governments usually consider that the harmful effects of unemployment outweigh any beneficial effects. This is why they seek to keep employment as low as possible. This does not mean zero unemployment, because a certain level of unemployment will always exist. The demand and supply of labour is always changing, with some workers having a time gap between leaving one job and taking up another job. What governments want to achieve is to avoid structural and cyclical unemployment and to keep frictional unemployment as low as possible.

Low unemployment is not always a sign of a strong economy. Some workers may be in low-paid and insecure jobs. Other workers may be experiencing **underemployment**. They may be in part-time jobs when they want full-time jobs or they may be in jobs that do not fully match their talents.

The reasons for a fall in a country's unemployment rate must also be closely examined. If the fall results from previously unemployed workers gaining good quality jobs, it is likely to be beneficial. However, this is unlikely to be the case if the reduction in the rate has been caused by the unemployed giving up on trying to find work.

Unemployment is not usually equally spread. Unemployment rates can vary between genders, age groups, ethnic background, regions and skills.

ACTIVITY 19.9

Qatar regularly has the lowest unemployment rate in the world and one of the world's highest average incomes. In 2019, the unemployment rate was 0.4% and has recently been as low as 0.1%. People who are not citizens of the country and who lose their job have to leave the country.

In a pair, answer the following questions and then give a presentation to the class on the benefits of low unemployment.

1. What would a zero rate of unemployment mean?
2. Why might the unemployment rate be low in a country with high incomes?
3. Why might a loss of jobs in Qatar result in a rise in the unemployment rate of other countries?

THINK LIKE AN ECONOMIST

Long-term unemployment

Figure 19.9: Unemployed people queue outside a job centre

Most global organisations, including the ILO and OECD and most governments classify workers as being in long-term unemployment if they have been without a job for more than a year. The US Bureau of Labour Statistics, however, defines long-term unemployment as unemployment that has lasted for more than 27 weeks.

Why is it important to compare different countries' unemployment data from one source?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What must result from an increase in a country's unemployment rate?

A a decrease in labour mobility

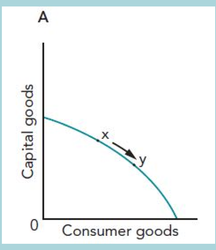
B a decrease in the number of people who are economically inactive

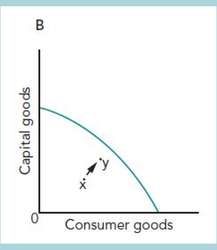
C an increase in the number of people unable to find jobs

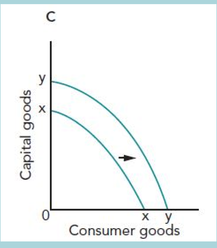
D an increase in the proportion of the labour force without jobs

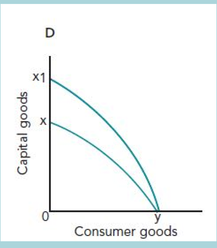
2 Lithuania's unemployment rate fell from 11.7% in 2013 to 6.8% in 2019.

Which diagram illustrates this change?









3 What could explain a country experiencing a rise in the number of employed workers and unemployed workers?

A a reduction in the retirement age

B a reduction in gender discrimination in labour markets

C a rise in net emigration

D a rise in the school leaving age

4 Which group of workers would be classified as frictionally unemployed?

A bus drivers losing their jobs as more people switch from bus to car travel

B farm workers being unemployed due to a lack of awareness of job vacancies in the industry

C shop workers made redundant due to the introduction of self-scanning checkouts in supermarkets

D steel workers being made redundant due to a global recession

5 A group of textile workers lose their jobs as a result of a fall in aggregate demand. What type of unemployment are they experiencing?

A cyclical

B frictional

C seasonal

D structural

6 Which type of unemployment is caused by imperfect information in the labour market?

A cyclical

B demand-deficient

C frictional

D structural

7 Which type of unemployment is caused by the skills and qualifications of the unemployed not matching the requirements of the jobs on offer?

A cyclical

B frictional

C search

D structural

8 What is the opportunity cost of unemployment?

A government spending on training schemes for the unemployed

B government spending on unemployment benefits

C leisure

D output

9 What is a possible benefit of unemployment?

A an increase in tax revenue

B an increase in workers' wages

C the opportunity to achieve a better match between workers' skills and available jobs

D the opportunity to reduce the number of discouraged workers

10 Which change is most likely to cause a decrease in the rate of frictional unemployment?

A a decrease in government spending on unemployment benefits

B a decrease in the quality of labour market information

C an increase in the rate of income tax

D an increase in trade union membership

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that unemployment occurs when people who are willing and able to find work cannot find a job			
Explain the difference between people who are economically active and economically inactive			
Explain the difference between the level of employment and the rate of employment			
Calculate the rate of unemployment			
Explain the two main methods governments use to measure unemployment: claimant count measure, labour force survey measure			
Explain the advantages and disadvantages of the claimant count measure and the labour force measure.			
Explore the three main types of unemployment: frictional, structural, cyclical			
Discuss the negative and positive consequences of unemployment			

Chapter 20

Price stability

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of inflation, deflation and disinflation
- calculate the rate of inflation
- explain how changes in the price level are measured by the consumer price index
- consider the difficulties of measuring changes in the price level
- explain the difference between money values and real data
- analyse the causes and types of inflation: cost-push and demand-pull inflation
- analyse the consequences of inflation.

ECONOMICS IN CONTEXT

Food queues lengthen in Venezuela

At the end of 2018, many prices were doubling every nineteen days in Venezuela. Each Venezuelan bolivar, the country's currency, could buy noticeably less than a day before. In 2016, the price of a cup of coffee was 450 bolivars. By the end of 2018, it had risen to one million bolivars.

Figure 20.1: A queue for food outside a supermarket in Venezuela

Over the same period, the time a teacher had to work to afford to buy a chicken to eat rose from two hours to twenty days. In many cities, including the capital city, Caracas, long queues formed at supermarkets and, on a number of occasions, the supermarkets ran out of food. Outside Caracas, some people were engaging in **barter**. For example, in the markets of Cumana, some people were swapping fish for cooking oil.

Venezuela's annual living conditions survey found that six out of ten people said they went to bed hungry as they could not afford to buy enough food. With wages rising by a much smaller percentage than prices and unemployment rising, emigration from the country increased. Two and a half million people, a seventh of the population, left the country between 2014 and 2018.

Discuss in a pair or a group:

- Why is it useful to consider how long it takes to earn the money to buy a product in assessing the impact of price rises?
- Why do you think high price rises often result in long queues?
- Why may people leave countries that are experiencing high price rises?

20.1 What is price stability?

Price stability occurs when prices rise by only a small percentage and there is an avoidance of fluctuations in the price level. A low and stable **inflation rate** can bring a number of advantages. This is why governments want their countries to experience price stability. This objective is not always achieved. Some countries experience a high inflation rate with their price level rising by a significant percentage. Others experience large fluctuations in their price level. For example, their price level may have risen by 25% in one year, 40% in the next year and then 12% in the third year. At certain times, some countries experience a fall in their price level.

KEY CONCEPT LINK

Progress and development: Price stability can encourage firms to expand. Higher national output can create employment, as well as increasing the goods and services available for governments to spend on education and healthcare.

20.2 Inflation, deflation and disinflation

Inflation does not mean that every price is rising or that they are rising at the same rate. What inflation actually means is that, on average, prices are rising at a particular rate. For instance, an inflation rate of 6% would mean that, on average, prices are 6% higher than in the previous period. Some prices may rise by more and some may fall. When the **price level** (also known as the general price level) increases, the value of money falls and its purchasing power declines. Each unit of the currency, e.g. each dollar note, will buy less.

Degrees of inflation

A low and stable inflation rate, of for instance 2%, is not generally regarded as a problem for an economy. A low and steady rise in prices may even encourage firms to produce more. Such a rate of inflation is sometimes known as **creeping inflation**.

In contrast to a low rate of inflation is **hyperinflation**. Hyperinflation is generally considered to be an inflation rate that exceeds 50% a month, but the rate of inflation can go much higher. Hyperinflation occurs when inflation gets out of control and sometimes results in people resorting to barter, exchanging goods and services for other goods and services rather than using money to buy and sell products. In such cases, the currency usually has to be replaced by a new currency unit. At the start of the 21st century, Zimbabwe experienced an inflation rate so high that economists had difficulty measuring it. It has been estimated that in 2008 inflation in Zimbabwe reached between 200 million per cent and 89 sextrillion per cent (Figure 20.2).

Figure 20.2: A ten-billion-dollar banknote from Zimbabwe

ACTIVITY 20.1

In a group, prepare:

- A wall chart showing your country's inflation rate and another two nearby countries' inflation rate over the last five years.
- Another wall chart showing your predictions for your country's inflation rate over the next six months. Each month plot the actual rate against your prediction. (Note: a number of international organisations, including the IMF and World Bank, central banks and media organisations make inflation rate predictions).

Deflation and disinflation

Deflation generally refers to a sustained fall in the price level. It results in a rise in the value of money, with each currency unit having greater purchasing power. Deflation involves a negative inflation rate, for example, –3%.

In contrast, **disinflation** occurs when the inflation rate falls but is still positive. For instance, the inflation rate may decline from 8% to 6%. In this case, the price level is still rising but at a slower rate.

ACTIVITY 20.2

Figure 20.3 shows the inflation rates of Indonesia, Japan, Malaysia, the Philippines and Thailand between 2016 and 2019.

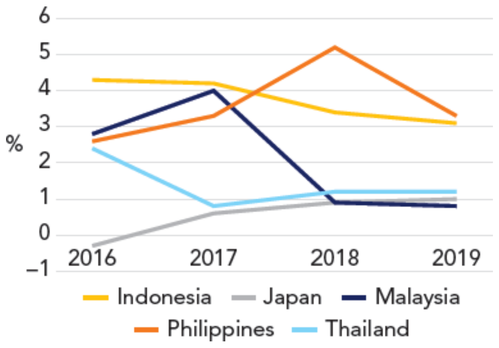


Figure 20.3: Percentage change in consumer price index in selected countries, 2016–2019

In pairs, using Figure 20.3, discuss:

1. What happened to the price level in Thailand between 2018 and 2019?
2. Which countries experienced disinflation between 2016 and 2017?
3. Is it possible to determine from the graph whether prices were higher in the Philippines than in Japan in 2019? Explain your answer.

Then check whether your answers agree with the rest of the group.

20.3 Calculating the inflation rate

The inflation rate is the percentage change in the price level from one period to another. The percentage change can be the change in average prices from one month to the next month, or from one quarter to the next quarter of the year.

The two comparisons most used by economists are the annual average method and the year-on-year method.

- The **annual average method** compares the average level of prices during a twelve-month period, for example 2021 with the average level in the previous twelve months, 2020.
- The **year-on-year method** is calculated as the percentage change in the price level for a given month with that of the same month of the previous year. For instance, if the price level rose from 120 in June 2021 to 126 in June 2022, the inflation rate would be:

$$\frac{6}{120} \times 100 = 5\,\%$$

ACTIVITY 20.3

Table 20.1 shows the consumer price index for Bangladesh from 2012–2018.

Year	CPI
2012	118
2013	127
2014	136
2015	145
2016	153
2017	161
2018	170

Table 20.1: Bangladesh consumer price index, 2012–18

Using Table 20.1:

1. Calculate Bangladesh's inflation rate for each year from 2013 to 2018.
2. In which year was the inflation rate highest?
3. In which year was the price level highest?

Compare your answers with another learner.

20.4 Measurement of inflation and deflation

A country's price level indicates how much it costs to live in that country. A rise in the price level means that the cost of living has increased. To assess changes in the cost of living, governments construct a **consumer price index (CPI)**. There are a number of stages in constructing a CPI, as shown in Figure 20.4.

Table 20.2 shows an adaptation of how the consumer price index for Mauritius for August 2019 was calculated. From August 2018 to August 2019 the Mauritian price level rose by 1.8%.

1. Select a base year.

This is usually a year in which nothing unusual has occurred. The base year is given a value of 100. The base year is changed regularly.

→

2. Carry out a survey to find people's spending patterns.

A sample of households in the population are asked to keep a record of what they buy. The products purchased are placed into categories such as food and clothing and footwear.

→

3. Attach weights to the different categories.

Weights are based on the proportion of total expenditure spent on the different categories. For instance, if on average households spend $500 of their total expenditure of $2000 on food, the category will be given a weight of ¼ or 25%.

→

4. Find out price changes.

Prices in a range of retail outlets and from a number of other sources such as gas companies and train companies are recorded.

→

5. Multiply weights by price changes.

The total will give the change in the **consumer price index**.

Figure 20.4: How governments construct a consumer price index

Category	Weight	% price change	Weighted price change
Food and beverages	$\frac{24.8}{100}$	5.8	1.44
Tobacco	$\frac{11}{100}$	1.6	0.18
Clothing and footwear	$\frac{4.6}{100}$	3.4	0.16
Housing, water, electricity, gas and other fuels	$\frac{11.2}{100}$	–0.5	–0.06
Furnishings, household equipment and routine household maintenance	$\frac{5.9}{100}$	2.2	0.13
Health	$\frac{3.8}{100}$	2.1	0.08
Transport	$\frac{14.7}{100}$	–1.2	–0.18
Communications	$\frac{4.4}{100}$	–1.0	–0.05
Recreation and culture	$\frac{4.2}{100}$	–4.0	–0.17
Education	$\frac{5}{100}$	1.0	0.05
Restaurants and hotels	$\frac{5.4}{100}$	3.0	0.16
Miscellaneous goods and services	$\frac{5}{100}$	1.2	0.06
All items	100		1.80

Table 20.2: Consumer price index August 2019 (year-on-year), Mauritius

ACTIVITY 20.4

In a group, assume that you have been given $200. You have to spend all of this money. Decide what proportion you would spend on food, on clothing, on entertainment and on other items (miscellaneous). On the basis of your decisions, attach weights to the four categories. Then, assuming that the price of food has risen by 10%, the price of clothing has risen by 20%, the price of entertainment has fallen by 5% and the price of other items has risen by 2.5%, calculate the inflation rate you would experience.

20.5 The difficulties of measuring changes in the price level

Difficulties can arise at most of the stages of calculating the consumer price index.

The base year

In some cases, it can be difficult to select a base year. For instance, if a year is selected in which it is later found that inflation was unusually high, it may give the impression that subsequent percentage changes in the price level were unusually low.

The survey

There are a number of problems involved carrying out a survey of people's spending patterns. The two key problems are whether the people selected to keep details of their expenditure are representative of the whole population and whether they complete the survey accurately. For instance, there may be a higher proportion of vegetarians who complete the survey than in the whole population. In this case, the weight given to vegetables will be disproportionately high. Of course, even if the survey is representative, it does not mean that the inflation rate represents the price changes that each person experiences. Different groups have different spending patterns and so effectively different inflation rates. For instance, elderly people may spend more than most on heating fuels and so would be affected more than the young by a rise in their price.

The people who complete the survey may make mistakes in recording their spending or may deliberately leave items out. One item thought to be often under-recorded is spending on chocolate. This may be because people do not want other members of their family to know how much they are spending on a non-essential product or because they are claiming that they are trying to lose weight.

The basket of goods and services

There are also problems involved with the basket of goods and services, and so the weights, becoming out of date. Most governments update the content of the basket regularly in an attempt to ensure that the weights remain representative of current household expenditure patterns. However, within the period before the updating, the basket remains fixed. Consumers may react during this time to changes in relative prices by altering their purchases. For instance, if green tea rises in price by more than black tea, consumers may switch from buying green tea towards buying black tea.

Most governments now assume in their measurement some substitution from one relatively expensive brand or type of product to another less expensive brand or type. However, governments do not allow for substitution between different types of products, for example, car travel and bus travel. As a result, the CPI does not fully reflect how consumers react to changes in relative prices.

The basket takes time to include new products and to remove old products that are becoming less popular. Each year, only a small number of new products are included and old ones eliminated. For example, in 2019, the UK government added a relatively new electronic device, the smart speaker, to the basket, but it was also the first year that the well-established electric toothbrush was included.

There is also a risk that the basket may have what is called a quality bias. A washing machine may rise in price by 4%, for instance, but it may have improved in quality, with additional features and a longer life. In such a case, it could be argued that consumers are getting better value for money.

It is also possible that while prices may not change, the quality and size of products may decline. For example, the price of a flight may stay the same but the quality of the meals served may decline, or the price of a bar of chocolate may not change but it could become smaller (sometimes called shrinkflation). Some governments seek to overcome the potential quality issue by putting a monetary value on the quality changes in products. If a product has improved or it has additional features, the value of the changes is removed from the price of the product. On the other hand, if a product has a diminished or removed feature, the value is added to the price. In practice, it can be difficult to estimate the value of quality changes.

So, the accuracy of a country's CPI is influenced by whether there are sampling errors, how often the basket of goods and services is updated and the extent to which its government statisticians can avoid substitution and quality bias.

ACTIVITY 20.5

1. Using a reliable government web page, such as the Australia Bureau of Statistics CPI Frequently Asked Questions or the US Bureau of Labour Statistics CPI Frequently Asked Questions, find:
   - **a** two limitations of a CPI
   - **b** two ways government statisticians try to reduce problems of measurement.
2. Share your findings with another learner. Produce a leaflet that you can keep and refer to for your coursework and for revision.

20.6 The difference between money values and real data

Money values, or nominal values, are the values of the prices operating at the time. In contrast, **real data** is data in real terms. Real data has been adjusted for inflation. To convert money values into real data, the figures are multiplied by the price index in the base year and divided by the price index in the current year. For example, a worker's wages may rise from \$5 000 in 2015 to \$6 000 in 2016. The worker may think they have received a 20% pay rise. The worker will have in money terms but not in real terms if inflation has occurred. If the consumer price index was 100 in 2015 and 125 in 2016, the worker's wages in real terms would have changed to:

$$\$6\,000 \times \frac{100}{125} = \$4\,800$$

So, in real terms, the worker's income has fallen by 4%. With an inflation rate of 25%, a 20% pay rise will mean that the worker will be able to buy fewer goods and services.

Changes in real data can be estimated by deducting the change in the inflation rate from the change in the money value. For instance, if the money interest rate (sometimes known as the nominal interest rate) is 5% and the inflation rate is 6%, the real rate of interest is –1%.

ACTIVITY 20.6

Calculate the change in real wages for the countries shown in Table 20.3.

Country	Change in money wages (%)	Inflation rate (%)
Belarus	13.5	4.9
Estonia	7.4	3.5
Russia	3.0	2.9
Serbia	9.0	2.0
Ukraine	17.4	9.9

Table 20.3: Change in money wages 2018

Compare your results with another learner.

20.7 The causes of inflation

There are two main causes of inflation: cost-push inflation and demand-pull inflation.

Cost-push inflation

Cost-push inflation occurs when prices are pushed up by increases in the cost of production. Figure 20.5 shows that a decrease in aggregate supply caused by higher costs of production pushes up the price level, causes a contraction in aggregate demand and reduces real GDP.

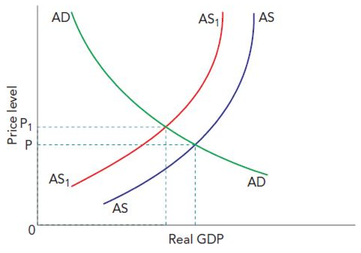


Figure 20.5: Cost-push inflation

There are a number of costs that may rise. For instance, wages may increase more than labour productivity and so result in a rise in labour costs. Higher wages can cause a **wage–price spiral**. Workers gain a wage rise, which causes prices to increase, then workers seek higher wages to restore their real value and so on. Increases in raw material costs and fuel can also push up prices. In some cases, these increases may be caused by a fall in the exchange rate. For example, if the value of the Indian rupee falls, the price of oil imported into the country will rise. This, in turn, will result in higher transport and production costs, which will lead to higher prices. An increase in firms' profit margins will also increase costs of production. In addition, costs may be pushed up by damage to or depletion of resources. For example, a period of bad weather may reduce the fertility of land and supplies of oil may be reduced.

Demand-pull inflation

Demand-pull inflation occurs when prices are 'pulled up' by increases in aggregate demand that are not matched by equivalent increases in aggregate supply. Any of the components of aggregate demand may increase. So demand-pull inflation may result from a rise in consumer expenditure, government spending, investment or a rise in net exports. Figure 20.6 shows that an increase in aggregate demand has caused a rise in the price level from P to P_1.

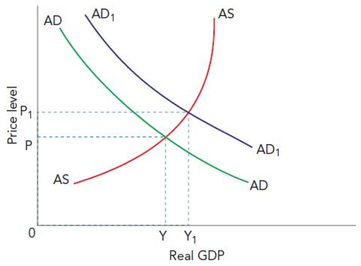


Figure 20.6: Demand-pull inflation

A rise in aggregate demand will have a greater impact on the price level the closer the economy comes to full capacity. An increase in some forms of government spending and investment may not be inflationary in the long run. This is because, for example, government spending on education may raise labour productivity and so increase productive capacity.

Increases in aggregate demand may result from, for instance, a consumer boom, a rise in government spending, higher business confidence resulting in an increase in investment or an increase in net exports.

Monetarists argue that the key cause of higher aggregate demand is increases in the money supply. They suggest that if the money supply grows more rapidly than output, the greater supply of money will drive up the price level. Some economists view 'monetary inflation' as a specific cause of inflation.

While all economists accept that there is a clear link between changes in the money supply and changes in the price level, there is a debate as to which causes which. Keynesians argue that it is inflation that causes an increase in the money supply and not the other way around. If costs rise, firms may borrow more from banks. This will cause an increase in the quantity of money.

The link between demand-pull inflation and cost push inflation

Some changes will both increase aggregate demand and increase costs of production. For example, a fall in a country's foreign exchange rate may both raise the price of imported raw materials (cost-push inflation) and increase export revenue (demand-pull inflation).

Also, once inflation occurs, there is a risk that an inflationary spiral may occur. Demand-pull and cost-push factors may interact and reinforce each other and an inflationary spiral may develop. Higher government spending on state pensions, for instance, may increase aggregate demand. The resulting higher prices may encourage workers to call for higher wages. If they do gain higher wages, costs of production may increase, causing aggregate supply to decrease. The higher wages may increase consumer expenditure and so the upward pressure on prices would continue.

TIP

In explaining the difference between cost-push and demand-pull inflation, it is useful to include AD/AS diagrams. These can clearly show that cost-push inflation is linked to decreases in aggregate supply whereas demand-pull inflation is linked to increases in aggregate demand.

ACTIVITY 20.7

Figure 20.7: The central bank of Argentina

Argentina's inflation rate reached 47.6% in 2018, its highest rate since 1991, when the inflation rate was 84%. The value of its currency, the peso, fell by 50% against the dollar and the country's output fell by 1%. In August 2018, the country's central bank raised the rate of interest to 60%, one of the highest interest rates in the world.

In a group, decide:

1. whether Argentina was more likely to have experienced cost-push or demand-pull inflation in 2018
2. whether Argentinian consumers would have been likely to have spent more or less in 2018.
3. What other information might have been useful in helping you decide?

TIP

Remember that once there is evidence of inflation, it is difficult to determine its cause. For instance, wages and consumer expenditure may be increasing but it may be difficult to know which occurred first and so whether inflation is the result of demand-pull or cost-push factors.

KEY CONCEPT LINK

Equilibrium and disequilibrium: If increases in AS can keep pace with increases in AD, the economy can move to new macroeconomic equilibriums without any inflationary pressure.

20.8 The consequences of inflation

Inflation has both possible costs and potential benefits.

The possible costs of inflation

- A reduction in net exports: Inflation may reduce the international competitiveness of a country's products and so increase import expenditure and lower export revenue. This may result in balance of payments problems.
- An unplanned redistribution of income: Some people may gain and some people may lose as a result of inflation. For instance, if the rate of interest does not rise in line with inflation, borrowers will gain and lenders will lose. This is because borrowers will pay back less in real terms and lenders will receive less. Savers will also lose out as the real value of their savings will fall.
- **Menu costs** are the costs involved in changing prices. Menu costs affect firms, for example catalogues, price tags, bar codes and advertisements have to be changed. Changing prices involves staff time and is unpopular with customers.
- **Shoe leather costs** are the costs involved in moving money from one financial institution to another in search of the highest rate of interest.
- **Fiscal drag** (also known as 'bracket creep') occurs when the income levels corresponding to different tax rates are not adjusted in line with inflation. As a result, people and firms are 'dragged' (pulled) into higher tax brackets. However, it can be argued that this is a cost of an inefficient tax system rather than a cost of inflation.
- Discouragement of investment: Unanticipated inflation can create uncertainty and so make it more difficult for firms to plan ahead. This may dissuade firms from investing, which will have an adverse effect on economic growth.
- **Inflationary noise** (also called 'money illusion') arises when inflation causes consumers and firms to confuse price signals. Inflation can make it difficult to assess what is happening to relative prices. A rise in the price of a product may not mean that it has become more expensive relative to other products; the product may have risen in price by less than inflation and so may have become cheaper in real terms. Inflationary noise can result in consumers and firms making the wrong decisions. For example, firms seeing the price of their products rising may increase output when the higher price is the result of inflation rather than increased demand for their products. This may result in a misallocation of resources.
- Inflation causing inflation: Inflation may generate further inflation as consumers, workers and firms will come to expect prices to rise. As a result, consumers, workers and firms may act in a way that will cause inflation. For example, workers may call for higher wages, firms may raise prices to cover expected higher costs and consumers may seek to purchase products now before prices rise further. Inflationary expectations can be powerful and it can be difficult for a government to change such expectations.

The potential benefits of inflation

- Stimulates output: A low and stable inflation rate caused by increasing demand may make firms feel optimistic about the future. In addition, if prices rise by more than costs, profits will increase, which will provide funds for investment. Investment may also be encouraged as the real rate of interest may fall and consumer expenditure may rise as higher money incomes will make people feel better off even if, in real terms, they are not.
- Reduces the burden of debt: Real interest rates may fall due to inflation or may even become negative. This is because money interest rates do not tend to rise in line with inflation. As a result, debt burdens may fall. For example, those who have borrowed money to buy a house may experience a fall in their mortgage payments in real terms. A reduction in the debt burden may stimulate consumer expenditure which, in turn, could lead to higher output and employment.
- Prevents some unemployment: Firms in difficulties may have to reduce their costs to survive. For many firms, wages form a significant proportion of their **total costs**. With zero inflation, firms may have to cut their labour force. However, inflation would enable them to reduce the real costs of labour by either keeping money wages constant or by not raising them in line with inflation. During inflation, workers with strong bargaining power are more likely to be able to resist cuts in their real wages than workers who lack bargaining power.

ACTIVITY 20.8

In a group, research the causes and consequences of inflation in a country other than your own. Produce and give a presentation of your findings to the class. You may like to use a presentation app.

Factors affecting the consequences of inflation

The effects of inflation depend on:

- The cause of inflation. Demand-pull inflation is likely to be less harmful than cost-push inflation. This is because demand-pull inflation is associated with rising output whereas cost-push inflation is associated with falling output.
- The rate of inflation. A high rate of inflation is likely to cause more damage than a low rate especially if the high rate develops into hyperinflation. Indeed, hyperinflation can lead to households and firms losing faith in the currency and may bring down a government.
- Whether the rate of inflation is accelerating or stable. An accelerating inflation rate, and even a fluctuating (constantly changing) inflation rate, will cause uncertainty and may discourage firms from investing. The need to devote more time and effort to estimating future inflation rates will increase costs.
- Whether the inflation rate is the one that has been expected. Unanticipated inflation, which occurs when the inflation rate was different from that expected, can also create uncertainty and so can discourage some consumer expenditure and investment. In contrast, if households, firms and the government have correctly anticipated inflation, they can take measures to adapt to it and so avoid some of its potentially harmful effects. For instance, firms may have adjusted their prices, money interest rates may have been changed to maintain real interest rates and the government may have adjusted tax brackets, raised pensions and public sector wages in line with inflation.
- How the inflation rate compares with the rate of other countries. It is possible for a country to have a relatively high rate of inflation, but if it is below that of competing countries its products may become more internationally competitive.

Recent reductions in global inflation

In most, but not all countries, the rate of inflation has been relatively low in recent years. There are thought to be a number of reasons for this. One is advances in technology.

These keep costs down and enable higher aggregate demand to be met by higher aggregate supply. Another reason is increased international competition. Textile producers in India, for instance, may be reluctant to raise the price of their product because of increased competition from Vietnamese producers.

There have also been changes in the labour market in a number of countries, including the US. Trade union membership has fallen while there has been a growth in casual employment. These changes have reduced the ability of workers to call for wage rises.

THINK LIKE AN ECONOMIST

The effects of hyperinflation

Figure 20.8: High denomination banknotes that were issued in 2008 due to extreme hyperinflation in Zimbabwe

Research a country that has experienced hyperinflation. Produce a report on why such a high rate of inflation is likely to be very harmful.

What sources did you use for the basis of your report? Did you provide examples from the country's experience to illustrate your points?

TIP

Remember that inflation does not always reduce the purchasing power of households. It does, *ceteris paribus* or other things equal, but if wages rise by more than prices, households will be able to purchase more goods and services.

20.9 Extension: The causes and consequences of deflation

Deflation will increase the burden of debt, may increase the real rate of interest and may result in menu costs. However, the effects of deflation are largely influenced by the cause of deflation. Economists refer to good deflation and bad deflation.

Good deflation occurs as a result of an increase in aggregate supply. Figure 20.9 shows an increase in aggregate supply resulting in a fall in the price level and a rise in real GDP.

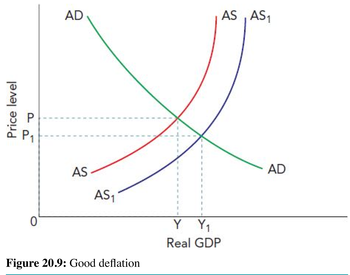


Figure 20.9: Good deflation

Advances in technology, for instance, may create new methods of production and lower costs of production. As well as an increase in output, employment may rise and the international competitiveness of the country's products may increase.

In contrast, bad deflation takes place when the price level is driven down by a fall in aggregate demand as shown in Figure 20.10. In this case, output falls, which may result in higher unemployment. Bad deflation runs the risk of developing into a deflationary spiral. Consumers may delay their purchases, expecting prices to fall further in the future. Firms, seeing lower demand, may not invest and may reduce the number of workers they employ. Some **debtors** may get into difficulty and this may cause banks, in turn, to get into difficulty with the risk of some going out of business, losing their customers' money. These effects will reduce demand further and economic activity will decline again.

TIP

Remember that whereas inflation caused by decreases in AS tends to be more harmful than inflation caused by increases in AD, it is the change in AD (decrease) that is more harmful in the case of deflation.

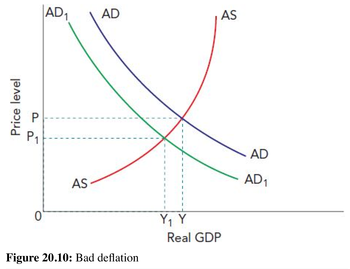


Figure 20.10: Bad deflation

ACTIVITY 20.9

Figure 20.11: The Federal Reserve in Washington DC

1 In mid-2019, the US central bank, the Federal Reserve, was worried that the inflation rate was too low. It was concerned that the US might experience deflation. Reasons for likely deflation included advances in technology, increased international competition, the fall in house prices and, in some cases, casual employment replacing permanent employment.

   In groups of four:

   a On cards, write the four possible reasons why deflation may have occurred in the US in 2019. Each member of the group selects one card. They should then explain to the rest of the group why the reason selected could lead to a fall in the price level.

   b Find out your country's inflation rate. Then produce a wallchart with four products that have risen in price by more than the inflation rate, four that have risen by less than inflation and four that have fallen in price. Include pictures of the products and, in each case, a possible reason why the price rise is above the inflation rate, below the inflation rate or why the price has fallen.

REFLECTION

How did you find that explaining a reason helped you to understand it? How confident were you in answering any questions the rest of the group asked? How did producing the wallchart help you understand the nature of inflation?

ACTIVITY 20.10

Mexico's central bank aims for an inflation rate of 3%. Towards the end of the second decade of the 21st century, Mexico's inflation rate fell. This was largely because of a slowdown in the rise of the price of food and energy. However, it was expected that the inflation rate might be higher in 2020 because of the increase in the national minimum wage in 2019 and the expected fall in the exchange rate.

Over the period shown, Chile's central bank also had a 3% inflation rate target while Brazil's central bank target was 4.25%.

Table 20.4 shows the inflation rates in Chile, Brazil and Mexico between 2013 and 2019.

	% change in consumer price index		
Year	Brazil	Chile	Mexico
2013	6.2	1.8	3.8
2014	6.3	4.7	4.0
2015	9.0	4.4	2.7
2016	8.7	3.8	2.8
2017	3.5	2.2	6.0
2018	3.7	2.3	4.9
2019	3.6	2.3	3.8

Table 20.4: Inflation rates in Chile, Brazil and Mexico, 2013–19

1 Explain why a slowdown in the rise of the price of food and energy may reduce a country's inflation rate.

2 Explain why the change in Mexico's foreign exchange rate may have caused inflation in 2019.

3 Using Table 20.4, explain why investment may have been higher in Chile between 2017 and 2019 than in Brazil and in Mexico.

4 Using Table 20.4, compare how successful the countries' central banks were in meeting their targets.

5 Ask another learner to assess your answers while you assess your partner's answers. Did you both make similar points? Did your partner make additional points? Did you learn from each other?

Inflation versus deflation

Most governments aim for a low and stable rate of inflation rather than a fall in the price level. This is for two key reasons. Firstly, there is the belief that a low rate of demand-pull inflation may promote economic growth. Secondly, measures of inflation tend to overstate the inflation rate because they tend to take full account of quality improvements and the effect of consumers switching to lower-priced products.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What must occur during a period of deflation?

A a fall in the exchange rate

B a fall in unemployment

C a rise in the price level

D a rise in the value of money

2 A group of workers agreed to a 2% pay cut in a year when the economy experienced a deflation of 5%.

What happened to the money value and real value of their wages?

	Money value	Real value
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

3 The table shows the share of household income spent on four types of products and the percentage change in the price of those products over the period of a year.

Product	Percentage of total expenditure spent on product	Percentage change in price
Clothing	10	20
Entertainment	20	–5
Food	50	10
Fuel	20	30

What was the country's inflation rate?

A 0.5%

B 4%

C 12%

D 50%

4 What do the weights in a consumer price index show?

A the proportion of their total expenditure that people spend on the different product groups

B the proportion of the population who purchase the different product groups

C the price of each product

D the rate at which each product group changes in price

5 What could cause cost-push inflation?

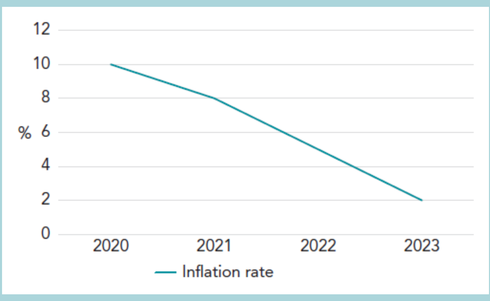
A a decrease in trade union power

B a depreciation of the foreign exchange rate

C an increase in consumer expenditure

D an increase in labour productivity

6 What can be concluded from the diagram below, which shows a country's inflation between 2020 and 2023?



A the price level rose over the period

B the price level was lowest in 2023

C the value of money rose over the period

D the value of money was highest in 2023

7 What may cause demand-pull inflation?

A a decrease in the money supply

B a decrease in trade union power

C an increase in a deficit on the current account of the balance of payments

D an increase in a deficit on a government's budget balance

8 In which circumstance will a reduction in unemployment *not* result in a rise in inflation?

A a high proportion of the rise in income being spent on imports

B foreign firms becoming more price competitive

C the government redistributing income from the rich to the poor

D the newly employed being paid the same as existing workers but being less productive

9 What must be increasing if a country is experiencing inflation?

A the cost of living

B the purchasing power of money

C the real disposable income of exporters

D the standard of living

10 Which group is most likely to benefit from inflation?

A exporters

B lenders

C people on fixed incomes

D the government

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that price stability occurs when prices rise by only a small percentage and there is an avoidance of fluctuations in the price level			
Distinguish between inflation as a rise in the price level, deflation as a fall in the price level and disinflation as a fall in the inflation rate			
Calculate the inflation rate using the annual average method and the year-on-year method			
Explain how governments assess changes in the cost of living by constructing a consumer price index			
Consider the difficulties of measuring changes in the price level			
Explain the difference between money values and real data			
Analyse the main causes of inflation: increases in aggregate demand (demand-pull inflation) or decreases in aggregate supply (cost-push inflation)			
Discuss the benefits and disadvantages of inflation.			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 The challenges facing Japan

In the last three months of 2019, Japan's real output fell by 6.3%. There were a number of reasons for this. There was a decline in Japanese exports. Japanese consumer expenditure fell due to a rise in the country's sales tax from 8% to 10%. Japan was also hit by a strong typhoon.

Japan has recently experienced a low economic growth rate as shown in Figure 1.

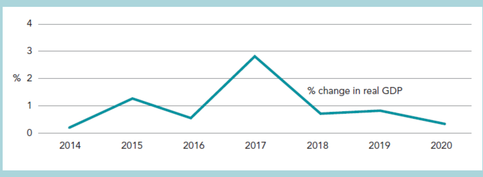


Figure 1: Japan's economic growth rate, 2014–2019

Note: *2019 forecast*

Despite the recent poor economic growth performance, Japanese GDP per head and GNI per head are high. This is because Japan had rapid economic growth for most of the twentieth century. The country had high levels of total investment both at home and abroad. Past investment in other countries continues to provide the country with high levels of net property income from abroad. Japanese investment at home continues to rise. This, combined with Japanese children spending a relatively high number of years in school (see Figure 2), results in high labour productivity in the country.

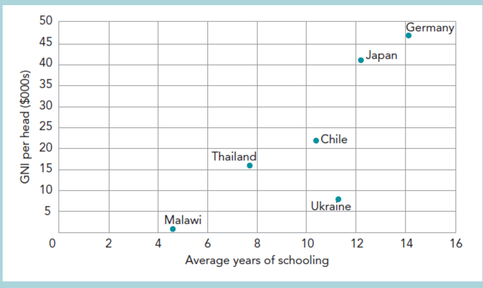


Figure 2: The relationship between average years of schooling and GNI per head ($000s)

Source: *United Nations Human Development Report 2019*

The good quality of education is one reason why Japan has a low unemployment rate. A high proportion of Japanese workers are skilled workers with high levels of productivity and mobility. The size of the country's population and labour force, however, have declined and is forecast to decline further. The decline in the labour force has reduced the country's productive capacity.

As well as Japan's recent economic growth performance being disappointing, so has its inflation performance. The government aims for an inflation rate of 2% but its average inflation rate between 2014 and 2019 was 1%, with the country experiencing deflation of 0.1% in 2016. Japan's future inflation rate is uncertain. Japanese productivity is forecast to continue to rise but Japanese firms are likely to face increased foreign competition.

a Identify *one* difference and *one* similarity between GNI and GDP referred to in the information above. **[2]**

b i Using the data in Figure 2, compare the relationship between years of schooling and GNI per head. **[2]**

ii Consider the extent to which the relationship shown in Figure 2 is the expected relationship. **[2]**

c Explain how a decrease in exports may affect a country's price level. **[2]**

d Assess the reasons why skilled workers are likely to experience shorter periods of unemployment than unskilled workers. **[6]**

e Discuss whether Japan is likely to experience very low inflation in the future. **[6]**

Essays

2 a Explain the main influences on the components of aggregate demand **and** consider which component is likely to change the most from one year to another year. **[8]**

b Discuss whether an increase in consumer expenditure will increase a country's output. **[12]**

3 a With the help of a diagram, explain the circular flow of income **and** consider whether all countries have similar leakages and injections. **[8]**

b Discuss whether a country with an unemployment rate of 3% has a better macroeconomic performance than one with an unemployment rate of 8%. **[12]**

Unit 5

Government macroeconomic intervention (AS Level)

UNIT INTRODUCTION

In the previous unit you looked at how an economy operates. In this unit you will focus on how governments try to improve their economy's performance. First, you will examine some of the possible objectives governments may have for their economies. Then you will explore the three main policies governments can use to achieve their objectives. One policy seeks to influence the total demand in an economy by changing government spending and taxation. The second policy tries to influence total demand by changing the rate of interest and the money supply. The third policy aims to increase the country's total supply of goods and services.

Chapter 21

Government macroeconomic policy objectives

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain a government's macroeconomic policy objective of price stability
- explain a government's macroeconomic policy objective of low unemployment
- explain a government's macroeconomic policy objective of economic growth.

ECONOMICS IN CONTEXT

Oman transformed

In the last fifty years, the lives of the people of Oman have been transformed. People are living 27 years longer. The adult literacy rate has increased to 97%. Oman only had three schools in 1970, but there were 1600 by 2020. Poverty has been greatly reduced. Economic growth has helped improve education, healthcare and infrastructure. In turn, a better educated and healthier labour force and better infrastructure have contributed to economic growth.

Figure 21.1: A school in Oman

The economy's price level has been relatively stable between 2000 and 2019. The inflation rate has averaged 3% over this period. There was one exception year, 2008, when the inflation rate reached 13% due to higher rents and food prices.

Between 2000 and 2019, the country's unemployment rate averaged 3.5% but its youth unemployment rate was more than double that figure.

Oman currently relies heavily on oil and gas production. The government is trying to diversify the economy, concerned that Oman's resources of oil and gas will run out; it also wants to create more jobs for its young workers. Oman is developing its tourism, shipping, logistics and aquaculture industries. To promote these industries, it is building more airports, roads and ports.

Discuss in a pair or a group:

- How does economic growth increase a government's ability to spend more on education and healthcare?
- How can a country increase its output even if unemployment rises?
- What effect may more airports have on the quality of people's lives?

21.1 Price stability

Governments seek to achieve price stability. This means a low and stable inflation rate. A government would not aim for a zero inflation rate. This is for three connected reasons:

- Any measure of inflation tends to overstate any rise in prices.
- To aim for zero inflation may result in deflation.
- A low and stable rise in prices caused by higher spending is likely to encourage firms to increase their output.

An increasing number of governments are setting an **inflation target** for their central banks to achieve. Some governments set a target range, for instance 3%–6%. Others set a central target with a margin either side, for example 2% with a margin of 1 percentage point above and 1 percentage point below.

An inflation target makes a central bank more accountable. It may also reduce inflationary expectations. If firms, workers and households have confidence in a central bank's ability to meet its target, they may act in a way that does not push up prices. For instance, if workers think there will be price stability, they may not call for high wage rises.

ACTIVITY 21.1

In a pair, select two countries from the following list. Find out what each country's targets are, whether the targets have been achieved in the last five years and, if not, why not. Then present your findings to the rest of the group.

Countries with an inflation target:

Albania	New Zealand
Armenia	Norway
Australia	Pakistan
Brazil	Peru
Canada	Philippines
Chile	Poland
Colombia	Romania
Czech Republic	Russia
Ghana	Serbia
Guatemala	South Africa
Hungary	South Korea
Iceland	Sweden
India	Thailand
Indonesia	Turkey
Israel	UK
Mexico	

TIP

Find out if your government has a target not only for the country's inflation rate but also for the economic growth rate and unemployment rate. For instance, in 2019, the American president set a 3% economic growth rate.

21.2 Low unemployment

Having a low proportion of the labour force unemployed has number of advantages including high output, high tax revenue and low expenditure on unemployment benefit.

Governments also try to ensure that any unemployment that is experienced is short term so that workers do not lose their skills and work habits. Governments seek to achieve this by promoting labour mobility through, for instance, training schemes.

A government may be concerned not just with the quantity of employment but also the quality of employment. This is because the effect of low unemployment on the economy and the workers themselves may not be very beneficial if the jobs are unskilled, insecure and low-paid.

Figure 21.2: Apprentice chefs on a training scheme in Bulgaria

21.3 Economic growth

Governments do not want their economies to grow too slowly and they certainly do not want to experience negative economic growth. If a country's output is falling, unemployment may increase and, with fewer goods and services, living standards may decline.

Governments also want to avoid too high a rate of economic growth. This is because an economy could overheat, with aggregate demand increasing faster than aggregate supply. Pressure could be put on resources and inflationary pressure may build up. Entrepreneurs may become over-optimistic and may set up firms that do not have a long-term future. Households may expect their incomes to continue to increase at a high rate. This may encourage them to take out loans that they will struggle to repay if their expectations are wrong.

In determining what would be a good growth rate for its economy, a government will take into account a number of factors. These include changes in the size of the labour force, changes in productivity and advances in technology.

KEY CONCEPT LINK

Equilibrium and disequilibrium: Equilibrium and disequilibrium are important when assessing an economy's initial macroeconomic position. If an economy is in macroeconomic equilibrium below full capacity, it is not being productively efficient.

ACTIVITY 21.2

Table 21.1 shows macroeconomic data on four Latin American countries in 2019.

Country	Economic growth rate (%)	Inflation rate (%)	Unemployment rate (%)
Argentina	–1.7	53.0	9.7
Brazil	1.2	3.6	11.2
Chile	3.3	2.3	6.9
Peru	3.0	2.0	6.3

Table 21.1: Macroeconomic data on four Latin American countries, 2019

Using Table 21.1:

1. Explain which country appears to have had the best macroeconomic performance and which country seems to have had the worst macroeconomic performance.
2. Explain *two* other pieces of information that would be useful to assess a country's macroeconomic performance.

REFLECTION

What did you learn from Activity 21.2 about how to assess a country's macroeconomic performance? How would your answers have been strengthened by discussing your answers with another learner?

THINK LIKE AN ECONOMIST

Why might a government make no attempt to reduce unemployment?

There may be circumstances when an economy is experiencing unemployment and a government does not try to reduce it. This may be because of advice given to them by the economic advisers they employ.

Identify three reasons why economists may advise a government not to try to reduce unemployment. Share your ideas with the rest of the group.

TIP

Keep up to date with trends in your country's economic growth rate, inflation rate and unemployment rate. This will influence what you think should be your country's main policy objective.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which government macroeconomic policy objectives are most likely to benefit from an increase in aggregate demand?

	Economic growth	Low unemployment	Price stability
A	✓	✗	✗
B	✓	✓	✗
C	✓	✓	✓
D	✗	✓	✓

2 A country is experiencing a high rate of inflation. How may an increase in saving help the government achieve its macroeconomic objective of price stability in the short run and long run?

	Short run	Long run
A	Decrease consumer expenditure and so reduce aggregate demand.	Provide funds for investment and so increase aggregate supply.
B	Decrease exports and so reduce aggregate demand.	Increase imports of capital goods and so increase aggregate supply.
C	Increase consumer expenditure and so increase aggregate demand.	Decrease funds for investment and so decrease aggregate supply.
D	Increase exports and so increase aggregate demand.	Decrease imports of capital goods and so decrease aggregate supply.

3 What is a motive for a government to aim for low unemployment?

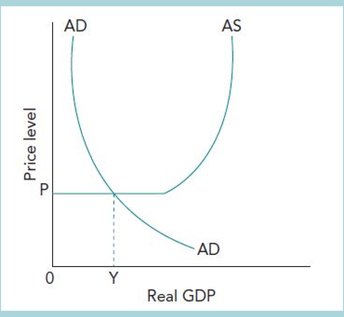
A to avoid a decline in human capital

B to ensure output does not change

C to maintain price stability

D to reduce upward pressure on wages

4 The diagram shows an economy is producing at an output of Y.



Which is *least* likely to be its government's main macroeconomic policy objective?

A economic growth

B higher national income

C low unemployment

D price stability

5 Why may price stability increase a country's economic growth rate?

A It may cause leakages from the circular flow to exceed injections.

B It may make planning easier and so encourage investment.

C It may result in deflation and so encourage higher consumer expenditure.

D It may stimulate a rise in imports.

6 A country is experiencing cost-push inflation, structural unemployment and falling output. Which macroeconomic policy objective(s) would be likely to be achieved if the skills of workers increase?

	Economic growth	Low unemployment	Price stability
A	no	no	yes
B	no	yes	yes
C	yes	yes	yes
D	yes	no	no

7 Country Y experiences a lower economic growth rate than country Z.

Why might Country Y's government be happier with its economic performance than Country Z's government?

A Country Y has adopted more advanced methods of production.

B Country Y has spent more on training its workers than Country Z.

C Country Z's economic growth rate has fluctuated less than Country Y's rate over the last ten years.

D Country Z's labour force has grown more than Country Y's labour force.

8 After a period of high inflation, why might a recession help a country achieve price stability in the future?

A It may cause aggregate demand to increase by more than aggregate supply.

B It may discourage some students from going to university.

C It may decrease inflationary expectations.

D It may decrease investment.

9 Country Y has a lower unemployment rate than Country Z.

What must this mean?

A Country Y has fewer unemployed people than Country Z.

B Country Y has more people employed than Country Z.

C Country Z has a higher proportion of economically inactive people.

D Country Z has a higher proportion of its labour force unemployed.

10 When is an increase in productive capacity most likely to be important in promoting the macroeconomic policy objectives of economic growth and price stability?

A Aggregate demand is decreasing.

B Consumer expenditure is the largest component of aggregate demand.

C Productivity is increasing more rapidly than wages.

D The economy is operating at full capacity.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain why governments use price stability as a macroeconomic policy objective			
Explain why governments use low unemployment as a macroeconomic policy objective			
Explain why governments use economic growth as a macroeconomic policy objective			

Chapter 22

Fiscal policy

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of fiscal policy
- define the meaning of a government's budget
- explain the difference between a government budget deficit and a government budget surplus
- explain the meaning and significance of the national debt
- explain the difference between indirect and direct taxes
- explain the difference between progressive, regressive and proportional taxes
- explain rates of tax: marginal and average rates of taxation (mrt, art)
- analyse the reasons for taxation
- explain the difference between current and capital government spending
- analyse the reasons for government spending
- explain the difference between expansionary and contractionary fiscal policy
- discuss, using AD/AS analysis, the impact of expansionary and contractionary fiscal policy on equilibrium level of national income, the level of real output, the price level and employment.

ECONOMICS IN CONTEXT

A change in Mexico's fiscal policy

In 2019, the Mexican government announced its main objective was to ensure that its country increased its output and avoided a recession. Some economists doubted whether the policy would be successful. The economists thought that the government's plans, to move from a position where it spent more than it raised in taxes to one where its tax revenue would be greater than its spending, would reduce aggregate demand.

Figure 22.1: Mexico City

The government said it would spend more on university education but planned to cut overall spending. One way the government hoped to achieve this was by lowering the pay of public sector workers. It predicted that its tax revenue would increase but there was some uncertainty about this. For instance, the government's tax on high-sugar drinks has raised a large amount of revenue. However, the success of the tax in discouraging people from buying high-sugar drinks means that the tax revenue it raises will fall.

Discuss in a pair or a group:

- Why would a government want to avoid a recession?
- How might spending on university education raise tax revenue in the long run?
- Can government spending and tax decisions have a significant effect on an economy?
- What do you think should be your government's main macroeconomic aim?

22.1 Fiscal policy and the budget

Fiscal policy is the use of taxation and government spending to manage aggregate demand in order to achieve the government's macroeconomic aims. The government's annual **budget** is a statement of its fiscal policy. The budget often receives much media attention as it is an indicator of both fiscal policy intentions and economic performance. In the budget statement, the finance minister outlines the government's spending and taxation plans for the year ahead. A **budget surplus** arises when tax revenue exceeds government spending. In contrast, a **budget deficit** occurs when government spending exceeds tax revenue and a **balanced budget** is when government spending matches tax revenue.

Most governments seek to achieve a balanced budget over time. In the short term, a government may aim for, or welcome, a budget deficit if there is a low level of economic activity. A budget deficit may occur in this situation as a result of both deliberate government action and of **automatic stabilisers**. If there is a decline in economic growth and a rise in unemployment, a government may decide to cut tax rates and increase government spending. It may also allow government spending on unemployment benefits to rise and tax revenue to fall as an automatic result of a slowdown in the economy. A budget deficit that occurs due to a fall in economic activity is known as a **cyclical deficit**. A government is unlikely to be concerned about a cyclical deficit as it will move towards a balance as economic activity increases.

However, a government will be concerned about a **structural deficit**. A structural deficit arises when a government is committed to too much spending relative to its tax revenue. In this case, the deficit will not disappear when GDP increases. In practice, a budget deficit may contain both cyclical and structural elements. Figure 22.2 shows the difference between a government's cyclical and budget deficit. XX shows a situation where there would be no structural deficit. This is because at the full employment level of real GDP, Yfe, there is no budget deficit. However, if the budget situation is shown by ZZ there would be a budget deficit at the full employment level. At an income of Y_1 the budget deficit is 0b. Of this, 0a is the cyclical deficit and ab is the structural deficit.

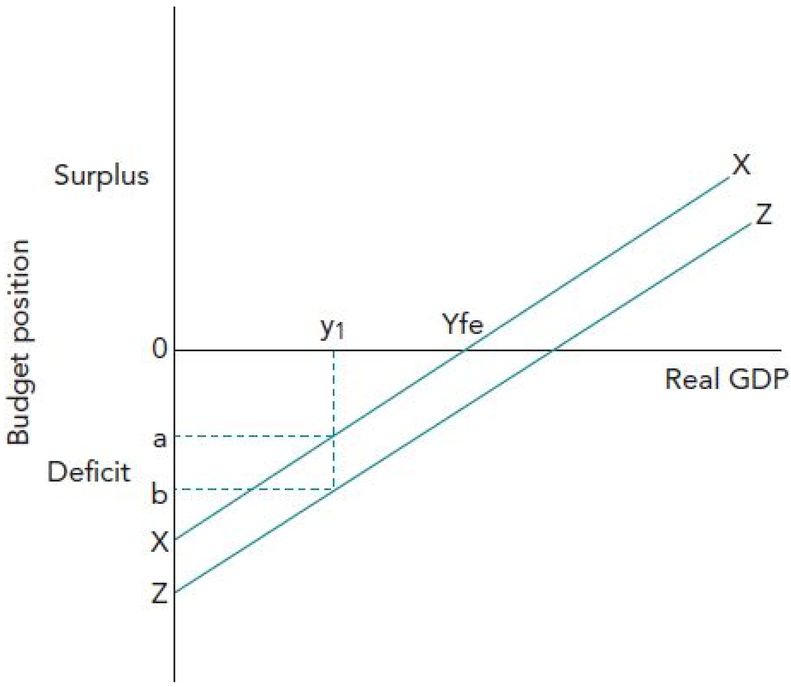


Figure 22.2: The difference between a cyclical and a structural budget deficit

A budget deficit will decline, at least in the short run, if there is a rise in tax revenue and/or a fall in government expenditure. However, there is the possibility that a rise in government spending and/or a cut in tax rates or the **tax base** could reduce a budget deficit. This is because such a change/changes could increase economic activity. If, for instance, increased government expenditure on training made workers more skilled, they may earn higher wages and so pay more taxes.

TIP

Be careful to avoid confusing a budget deficit and a current account deficit. This is a common mistake made in answers.

22.2 The national debt

The **national debt** is often expressed as a percentage of GDP. Government or public sector debt is the total debt a central government, or the whole public sector, has built up over time. It is connected to budget deficits and budget surpluses. If a government has a budget deficit in one year it will add to the country's national debt. In contrast, the extra revenue earned from a budget surplus can be used to pay off part of the national debt.

The national debt tends to increase during economic downturns as this is when government expenditure tends to rise at a more rapid rate than tax revenue. There may also be a tendency for a government to spend more than its revenue even during economic booms (a structural deficit). In addition, military conflicts can result in significant increases to the national debt.

There are disadvantages in having a large and increasing national debt. There is the opportunity cost of interest payments on the national debt. The government revenue used to service the debt might have been used to finance, for instance, the building of new hospitals. A large national debt may make financial institutions, firms, individuals and foreign governments reluctant to lend. This is because it may cause them to have doubts about the government's ability to pay interest on the debt and to repay the sum borrowed. Borrowing a large amount may also push up the rate of interest that has to be paid.

National debt is not the same as external debt as some of the debt will be owed to citizens of the country. For example, some households may have purchased government saving certificates and some domestic banks may have bought government bonds. However, payments to foreign lenders by the government will involve an outflow of money from the country.

The national debt to GDP ratio will be reduced if there is either some repayment of the debt or if GDP rises.

TIP

Be careful to avoid confusing national debt with a budget deficit. National debt is built up over time whereas the budget deficit occurs over the course of one year.

ACTIVITY 22.1

Table 22.1 shows different countries' national debt as a percentage of GDP in 2018.

Country	%	Country	%
Japan	234	Mauritius	67
Greece	189	South Africa	58
USA	107	Thailand	42
UK	86	Bangladesh	35
Pakistan	77	New Zealand	28
Argentina	76	Russia	14
India	69	Brunei	3

Table 22.1: National debt as a percentage of GDP, 2018

Japan had a national debt of $9 trillion in 2018. Its national debt was so high because, in the past, the government has provided financial help to its banking sector and has cut taxes and raised government spending to stimulate economic activity. In contrast to Japan, Russia had a relatively low national debt. There are a number of reasons for Russia's relatively low national debt. One is the comparatively small size of its government sector and another is the reluctance, in the past, of financial institutions, governments and international organisations to lend to it.

1. How might Japan's national debt affect its spending?
2. Will an increase in government spending increase the national debt?
3. The International Monetary Fund suggests that a sensible limit on the national debt to GDP ratio for a high-income country such as the USA should be 60%. Do you think the US government should have been worried about its national debt in 2018?
4. Why might Russia's national debt increase in the future?

22.3 Taxation

Taxes can be grouped in a number of ways. One of the main ways is between indirect taxes and direct taxes.

Indirect taxes

Indirect taxes are taxes on the sale of goods and services. They are called indirect taxes as they are largely paid by consumers, but are collected by firms that supply the products. It is the firms that are legally responsible for paying the taxes to the government. Firms will try to pass on as much of the tax as possible to consumers in the form of higher prices. For instance, a tax of $0.50 on a can of a soft drink may result in the supplier raising the price by $0.40. How much of the tax will be passed on to consumers will depend on the price elasticity of demand. The more inelastic the demand, the higher the proportion of the tax that is likely to be passed on to the consumers.

The two most common indirect taxes are VAT (value added tax) and GST (general sales tax). Both of these taxes are *ad valorem* taxes. This means they are taxes based on the percentage of the price of a product. For example, the standard rate of VAT in France in 2019 was 20% and the standard rate of GST in Pakistan was 17%.

There are also **specific indirect taxes**. These have a set amount of tax, for example $1 being placed on the sale of a product. In 2019, the US government imposed a tax of $0.84 on a gallon (5.5 litres) of petrol (gasoline) and each state added an extra tax of differing amounts. Indirect taxes on particular products are sometimes known as excise duties. Some excise duties are sometimes referred to as **sin taxes**. Sin taxes are imposed to discourage people from buying products that are not good for their health. For example, a number of countries, including Denmark, France and Mexico, have imposed taxes on high-fat foods.

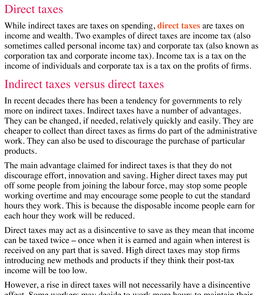


Figure 22.3: Argentina's government reduced VAT on a range of essential food products from 21% to 0% in 2019

Direct taxes

While indirect taxes are taxes on spending, **direct taxes** are taxes on income and wealth. Two examples of direct taxes are income tax (also sometimes called personal income tax) and corporate tax (also known as corporation tax and corporate income tax). Income tax is a tax on the income of individuals and corporate tax is a tax on the profits of firms.

Indirect taxes versus direct taxes

In recent decades there has been a tendency for governments to rely more on indirect taxes. Indirect taxes have a number of advantages. They can be changed, if needed, relatively quickly and easily. They are cheaper to collect than direct taxes as firms do part of the administrative work. They can also be used to discourage the purchase of particular products.

The main advantage claimed for indirect taxes is that they do not discourage effort, innovation and saving. Higher direct taxes may put off some people from joining the labour force, or may stop some people working overtime and may encourage some people to cut the standard hours they work. This is because the disposable income people earn for each hour they work will be reduced.

Direct taxes may act as a disincentive to save as they mean that income can be taxed twice – once when it is earned and again when interest is received on any part that is saved. High direct taxes may stop firms introducing new methods and products if they think their post-tax income will be too low.

However, a rise in direct taxes will not necessarily have a disincentive effect. Some workers may decide to work more hours to maintain their level of disposable income. High direct taxes may encourage **tax avoidance** and **tax evasion**.

Greater reliance on indirect taxes may make income less evenly distributed. This is because indirect taxes are regressive taxes. Paying a tax of, for example, $2 on a product will take up a larger percentage of the income of a person on a low income than that of a rich person. Indirect taxes can also be inflationary, pushing up the price level.

ACTIVITY 22.2

Table 22.2 shows GDP, government spending and tax revenue for South Africa for the financial year 2019/20. Figure 22.4 shows the percentage allocation of spending. Figure 22.5 identifies the sources of the government's tax revenue.

Financial year 2019/20	South African rand (R)
GDP	5414 billion
Government spending	1827 billion
Tax revenue	1584 billion

Table 22.2: South Africa, financial year 2019/20

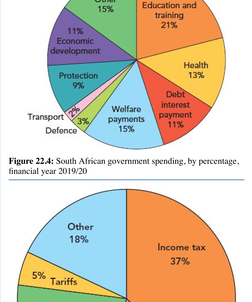


Figure 22.4: South African government spending, by percentage, financial year 2019/20

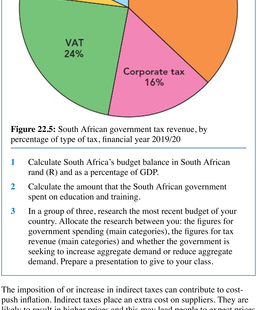


Figure 22.5: South African government tax revenue, by percentage of type of tax, financial year 2019/20

1. Calculate South Africa's budget balance in South African rand (R) and as a percentage of GDP.
2. Calculate the amount that the South African government spent on education and training.
3. In a group of three, research the most recent budget of your country. Allocate the research between you: the figures for government spending (main categories), the figures for tax revenue (main categories) and whether the government is seeking to increase aggregate demand or reduce aggregate demand. Prepare a presentation to give to your class.

The imposition of or increase in indirect taxes can contribute to cost-push inflation. Indirect taxes place an extra cost on suppliers. They are likely to result in higher prices and this may lead people to expect prices to continue to rise. High rates of indirect taxes may also encourage people to try to avoid paying them. For instance, people may smuggle products into the country to avoid paying import tariffs.

Progressive, regressive and proportional taxes

While indirect taxes are regressive, direct taxes are usually progressive. A progressive tax is one that takes a higher percentage of a person or firm's income as that income rises. Table 22.3 gives an example of a progressive tax.

Income range ($)	Tax rate (%)	Tax paid ($)
0 – 8 000	0	0
8 001 – 20 000	25	3 000
20 001 – 50 000	40	11 000
50 001 +	50	

Table 22.3: Example of a progressive income tax

In this system, people earning $20 000 pay $3000 in tax (25% of $12 000). This is 15% of their income. People earning $40 000 pay $11 000 ($3000 + 40% of $20 000 = $8000). This is 27.5% of their income. Those who earn $80 000 pay 32.5% of their income ($3000 + $8000 + $15 000 (50% of $30 000) = $26 000). So as income rises, a higher percentage is paid in tax.

In contrast, in the case of a **regressive tax**, a smaller percentage of income is taken as income rises. This means that such a tax takes a higher percentage of the income of people on low incomes.

A **proportional tax** is a fixed percentage tax, for example a 20% income tax. The tax rate does not change as income changes. In recent years, a number of countries, including Estonia and Russia, have introduced a flat rate tax system. A 'pure' version of this system would be one tax rate, for example an income tax rate of 15%, a corporate tax rate of 15% and a sales tax rate of 15%. Such a tax system is simple to understand and administer, but is regressive.

Marginal and average rates of taxation

The **marginal rate of taxation (mrt)** is the proportion of extra income taken in tax. For example, if a person earns an extra £100 and £30 is taken in tax, the marginal tax rate is £30/£100 = 0.3. This can also be expressed as 30%. In contrast, the **average rate of taxation (art)** is the proportion of a person's total income that is taken in tax. If a person earns £50 000 and pays £10 000 in tax, the average tax rate is 0.2 or 20%.

In the case of a progressive tax, the marginal tax rate is higher than the average tax rate. The proportion of tax people would pay on extra income would be greater than the proportion they pay on the total amount they earn. In the example, given above on a progressive tax, people earning $80 000 have a marginal tax rate of 50% but an average tax rate of 32.5%.

In contrast, in the case of a regressive tax, the marginal tax rate is lower than the average tax rate. The relationship is also different in the case of a proportional tax. In this case, the marginal tax rate equals the average tax rate.

The reasons for taxation

Taxes are imposed for a number of reasons. One is to raise revenue to finance government spending on merit goods, such as education, and public goods, such as defence. The government also imposes taxes to influence aggregate demand. If the government wants to reduce aggregate demand it will raise tax rates and/or increase the tax base. If it wants to reduce aggregate demand, it will do the reverse. The need to influence aggregate demand is probably the main reason for imposing taxes. A government could, in theory, finance its spending just by printing money. However, such an approach would be very inflationary. The government needs to reduce public sector demand to free up resources for use by the government.

A progressive income tax may be used to distribute income more evenly. Such a tax narrows the gap between the disposable income of rich people and people on low incomes. The gap could be further narrowed by the government using some of the tax taken from rich people to provide cash benefits to those on low incomes.

Taxes are imposed to discourage the consumption of certain products. These may be imports. A government may be concerned that the country is spending more on imports than it is earning from selling exports. Taxes may also be imposed on demerit goods in order to improve people's health and the environment.

22.4 Government spending

Government spending can be divided into spending on transfer payments (not counted in measures of national income), current spending and capital spending, as shown in Figure 22.7.

Government spending on transfer payments (welfare payments to certain groups of people) includes spending on unemployment benefits, state pensions and interest payments on the national debt.

ACTIVITY 22.3

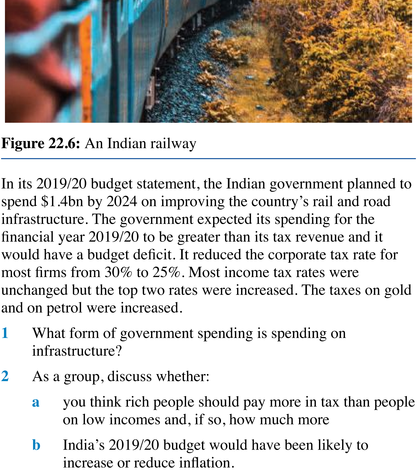


Figure 22.6: An Indian railway

In its 2019/20 budget statement, the Indian government planned to spend $1.4bn by 2024 on improving the country's rail and road infrastructure. The government expected its spending for the financial year 2019/20 to be greater than its tax revenue and it would have a budget deficit. It reduced the corporate tax rate for most firms from 30% to 25%. Most income tax rates were unchanged but the top two rates were increased. The taxes on gold and on petrol were increased.

1 What form of government spending is spending on infrastructure?

2 As a group, discuss whether:

   a you think rich people should pay more in tax than people on low incomes and, if so, how much more

   b India's 2019/20 budget would have been likely to increase or reduce inflation.

REFLECTION

What contributions did you make to the discussion? What did you learn from others in the group?

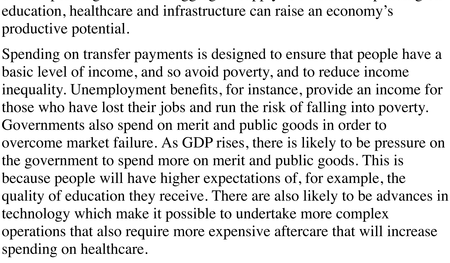


Figure 22.7: Types of government spending

Current government spending is spending on goods and services used to provide state-financed services. Current government spending covers the operating costs, for instance, the spending on the wages of teachers employed in state schools and the medicines used in state hospitals.

In contrast, **capital government spending** is spending on capital goods used in the public sector. Capital government spending includes, for instance, spending on building state schools and hospitals.

Government spending can also be divided into exhaustive and non-exhaustive spending. **Exhaustive government spending** covers current and capital spending. It is spending which uses resources and is counted in aggregate demand and GDP. **Non-exhaustive government spending** is spending on transfer payments. This spending does not involve the government deciding how resources are used. The people who receive the payments make the decision about how to use the resources.

Reasons for government spending

The reasons for government spending are linked to the reasons for taxation. Governments spend in order to influence aggregate demand and so the level of economic activity. If private sector spending is thought to be too low, a government may decide to inject more spending into the economy. It will aim for a budget deficit, spending more than it raises in taxation.

As well as seeking to influence aggregate demand, a government may use its spending to increase aggregate supply. Government spending on education, healthcare and infrastructure can raise an economy's productive potential.

Spending on transfer payments is designed to ensure that people have a basic level of income, and so avoid poverty, and to reduce income inequality. Unemployment benefits, for instance, provide an income for those who have lost their jobs and run the risk of falling into poverty. Governments also spend on merit and public goods in order to overcome market failure. As GDP rises, there is likely to be pressure on the government to spend more on merit and public goods. This is because people will have higher expectations of, for example, the quality of education they receive. There are also likely to be advances in technology which make it possible to undertake more complex operations that also require more expensive aftercare that will increase spending on healthcare.

In practice, governments may also spend to win political popularity so that they can stay in power. Government spending in a number of countries regularly rises just before an election. Governments may also be influenced by pressure groups that encourage them to spend more on, for instance, the environment.

TIP

In considering the likely effects of a change in government spending on an economy, it is useful to examine not only the size of the change in spending, but also which items of government spending are being altered.

Figure 22.8: Governments may increase spending on healthcare

22.5 Expansionary and contractionary fiscal policy

Expansionary fiscal policy is designed to increase aggregate demand. This can be achieved by a government increasing its spending and/or cutting tax rates or the tax base. A government may decide to increase an existing budget deficit so as to make a larger net injection into the circular flow of income.

Contractionary fiscal policy is intended to lower the growth of aggregate demand. This time, the government will reduce its spending and/or increase taxes and may aim for a budget surplus.

Changes in government spending may be the result of changes in government policy or the result of changes in economic activity. Deliberate changes in government spending and taxation can be referred to as **discretionary fiscal policy**.

TIP

In answers to questions which ask you to consider the impacts of expansionary or contractionary fiscal policy measures, it is useful to take account of the initial level of economic activity.

Automatic stabilisers

A government can also allow automatic stabilisers to influence aggregate demand. Automatic stabilisers are forms of government spending and taxation that change, without any deliberate government action, to offset fluctuations (changes) in GDP. For example, during a recession, government spending on unemployment benefits automatically rises because there are more unemployed people. Tax revenue from corporate tax, income tax and indirect taxes will fall automatically as profits, incomes and expenditure decline. Figure 22.9 shows how tax revenue and government expenditure change automatically as GDP changes.

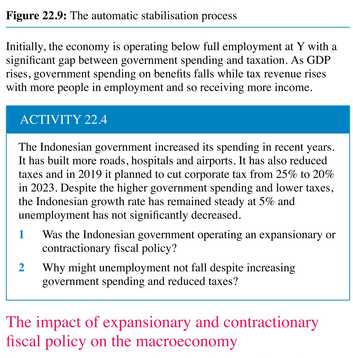


Figure 22.9: The automatic stabilisation process

Initially, the economy is operating below full employment at Y with a significant gap between government spending and taxation. As GDP rises, government spending on benefits falls while tax revenue rises with more people in employment and so receiving more income.

ACTIVITY 22.4

The Indonesian government increased its spending in recent years. It has built more roads, hospitals and airports. It has also reduced taxes and in 2019 it planned to cut corporate tax from 25% to 20% in 2023. Despite the higher government spending and lower taxes, the Indonesian growth rate has remained steady at 5% and unemployment has not significantly decreased.

1. Was the Indonesian government operating an expansionary or contractionary fiscal policy?
2. Why might unemployment not fall despite increasing government spending and reduced taxes?

The impact of expansionary and contractionary fiscal policy on the macroeconomy

Governments may use contractionary fiscal policy tools to reduce demand-pull inflation. Income tax rates may be increased, the threshold at which people start paying the tax may be reduced and the tax base may be widened. Governments may cut their own spending and this may be the more favoured option in countries such as Pakistan where only a relatively small proportion of the population pays income tax. Higher taxes and lower government spending may reduce aggregate demand, or at least, the growth of aggregate demand.

However, raising income tax to reduce demand-pull inflation may not go as planned. This is because workers may seek higher wages to maintain their disposable income. If their wage claims are granted, firms' costs of production may increase. Higher costs can generate cost-push inflation. Higher income tax rates may also, as noted earlier, create disincentive effects. Some workers may respond to a reduction in disposable income by leaving the labour force. Other workers may emigrate to countries with lower tax rates. This will reduce the economy's productive capacity and so reduce aggregate supply.

TIP

In deciding whether a government is seeking to use expansionary or contractionary fiscal policy, it is the intended effect on AD which should be examined.

Expansionary fiscal policy may be used to increase the country's output and to raise employment. If a country has high cyclical unemployment, the government is likely to try to increase aggregate demand. It might seek to achieve this by cutting direct and indirect tax rates to stimulate higher consumer expenditure and investment. It could also add to aggregate demand directly by increasing its own spending. Figure 22.10 shows higher aggregate demand raising the country's output from Y to Y_1.

Figure 22.10: The possible effect of expansionary fiscal policy

The success of expansionary fiscal policy tools in stimulating economic growth and reducing unemployment will depend on a number of factors. For instance, expansionary fiscal policy may not be very effective if households and firms are worried about the future. In this case, they may save most of any extra disposable income they receive as a result of lower taxes and higher government spending. There is also the risk that the government may inject too much spending into the economy, causing demand-pull inflation.

THINK LIKE AN ECONOMIST

What is a good tax?

A good tax is thought to be one which is understandable to the taxpayer, easy to pay and collect and fair on who bears the main burden. Do you think that the income tax system in your country has these features?

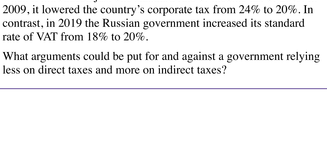


Figure 22.11: A protest against tax changes

A number of governments, in recent years, have reduced income tax rates while increasing the rate of sales tax. For example, Russia now receives most of its tax revenue from indirect taxes. The Russian government cut the top rate of income tax of 30% in 2001 when it introduced just one standard rate of income tax of 20%. In 2009, it lowered the country's corporate tax from 24% to 20%. In contrast, in 2019 the Russian government increased its standard rate of VAT from 18% to 20%.

What arguments could be put for and against a government relying less on direct taxes and more on indirect taxes?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which of the following is *not* a government macroeconomic objective?

A economic growth

B employment stability

C low inflation

D price stability

2 Which combination of changes is likely to increase a budget surplus?

	Employment	Retirement age
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

3 What is an advantage of a fall in the size of a country's national debt?

A an increase in the budget deficit

B an increase in the government's ability to borrow

C an increase in the rate of interest

D an increase in tax revenue

4 Which statement applies only to a progressive tax?

A It is a tax on products that harms those who consume them.

B It is a tax where the burden of payment is passed on to someone else.

C It is tax which takes a higher proportion of the income of the rich than of the poor.

D It is a tax which requires high-income earners to pay more tax than low-income earners.

5 A person earning $15 000 pays $5000 in income tax. Another person earning $40 000 pays $10 000 in income tax and a third person earning $100 000 pays £20 000 in income tax. Which type of tax is this?

A flat rate

B progressive

C proportional

D regressive

6 Which form of government spending is an example of capital spending?

A spending on food for soldiers

B spending on hospital medical image scanners

C spending on the wages of public sector workers

D spending on unemployment benefits

7 A country experiences a high rate of economic growth. What effect is this likely to have on government spending on transfer payments and on tax revenue?

	Transfer payments	Tax revenue
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

8 What is an example of a contractionary fiscal policy measure?

A a decrease in government spending on healthcare

B a decrease in the tax on imports

C an increase in the money supply

D an increase in a structural budget deficit

9 In which circumstances might a reduction in tax rates increase tax revenue?

	Hours worked	Tax base
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

10 If an economy is operating close to full capacity, what effect is an expansionary fiscal policy likely to have on the price level and unemployment?

	Price level	Unemployment
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that fiscal policy is the use of taxation and government spending to manage aggregate demand (AD) in order to achieve the government's macroeconomic objectives			
Understand that the government's annual budget is a statement of its fiscal policy			
Explain that a budget deficit arises when government spending is greater than tax revenue and a budget surplus arises when tax revenue exceeds government spending			
Understand that the national debt is total government debt built up over time			
Explain that indirect taxes are taxes on the sale of goods and services whereas direct taxes are taxes on income and wealth			
Explain that indirect taxes are regressive and direct taxes are progressive			
Understand that a proportional tax is a fixed percentage tax			
Explain the reasons for imposing taxes			
Explain that government spending can be divided into spending on transfer payments, current spending and capital spending			
Analyse the reasons for the different types of government spending: transfer payments, current spending, capital spending			
Differentiate between expansionary fiscal policy that seeks to increase AD and contractionary fiscal policy that seeks to reduce AD			
Use AD/AS analysis to consider the impact of expansionary and contractionary fiscal policy on national income, real output, the price level and employment			

Chapter 23

Monetary policy

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of monetary policy
- explain the main tools of monetary policy, including interest rates, the money supply, credit regulations
- explain the difference between expansionary and contractionary monetary policy
- discuss, using AD/AS analysis, the impact of expansionary and contractionary monetary policy on equilibrium level of national income, the real level of output, the price level and employment.

ECONOMICS IN CONTEXT

Will negative interest rates become the norm?

In 2019, the **central banks** of several countries were paying negative interest rates on the money that the **commercial banks** of their countries keep in accounts at their central banks. The central banks paying negative interest rates included Sveriges Riksbank, (Sweden), Danmarks Nationalbank (Denmark) and Bank of Japan. The idea behind negative interest rates is to encourage commercial banks to minimise the amount of money they hold at the central bank and lend it instead. Higher bank lending can stimulate economic activity and help reverse deflation.

Figure 23.1: The Bank of Japan

When the interest that commercial banks receives changes, they often pass on the change to their customers. If households and firms are charged for storing their money at a bank rather than being paid interest, they may decide to save less and instead spend and invest more. Higher consumer expenditure and higher investment would increase aggregate demand. An increase in aggregate demand may encourage firms to expand output and increase employment. The extra demand for resources may also push up the price level.

Discuss in a pair or a group:

- For what reasons might you keep some of your money in a bank if you were charged for doing so?
- What are the risks in encouraging banks to lend more?

23.1 What is monetary policy?

Monetary policy refers to any policy tools that affect the price or quantity of money. Monetary policy, like fiscal policy, is a demand-side policy as it seeks to influence aggregate demand. Monetary policy tools are usually applied by the central bank of the country or area.

23.2 The tools of monetary policy

The main tools of monetary policy are:

- **Interest rates**. In recent years, in a number of countries, changes in interest rates have been the main monetary policy tool that central banks have used to control inflation and to influence economic activity. The interest rate is, in effect, the price of money. Households and firms who want to borrow money have to pay interest. Households and firms who lend money are paid interest. The interest rate charged by the central bank may be called the bank, base, repo or often just the interest rate. Changes in the interest rate have been mainly used to achieve price stability. Since 2008, however, the governments of a number of countries have begun to prioritise the encouragement of economic growth. They include Japan, the USA and the UK.
- The **money supply**. A central bank may also target the money supply in the economy as changes in the quantity of money in the economy can influence aggregate demand. A central bank can electronically print money but the main cause of changes in the money supply is lending by commercial banks. It is for this reason that central banks often seek to influence lending by commercial banks.
- Exchange rate. Most economists also include the exchange rate as a monetary policy tool. Central banks may manipulate the exchange rate to raise or lower aggregate demand and so influence, for example, price stability. (The exchange rate is covered in more depth in Chapter 28).
- **Credit regulations**. Central banks may also impose credit regulations on commercial banks to help maintain financial stability and to influence bank lending. Most central banks require the country's commercial banks to hold a proportion of their assets in a form that can be quickly sold and so converted into cash. This is to ensure the commercial banks can meet their customers' likely demand for cash even during a financial crisis.

Figure 23.2: A press printing bank notes

KEY CONCEPT LINK

Regulation, equality and equity: Regulation of bank lending can be used to protect bank customers and to influence aggregate demand.

TIP

Remember that interest rate changes have a different effect on investment and saving. Investment tends to move in the opposite direction to a change in the interest rate while saving tends to move in the same direction.

The growth of Islamic finance

Some religions and cultures do not permit the charging or payment of interest. Financial institutions in more and more countries are offering Islamic finance. Among the most important centres in the Middle East are Iran, Kuwait, the UAE and Saudi Arabia. In Asia, Pakistan, Bangladesh, China, India and Indonesia are leading providers of Islamic finance. In Europe the main centre is in London in the UK.

Islamic finance is finance that complies with sharia, the religious law and moral code of Islam. Sharia bans the charging and payment of interest and excessive risk-taking. Instead, it encourages the sharing of risks between financial institutions and their customers. For instance, mortgages may be given on the basis that those seeking to buy a house pay rent for a period of time. Savings accounts may be paid a proportion of the bank's profits and firms that need finance may pay a proportion of their profits. Investment is permitted in shares in firms that do not produce any goods which are forbidden by Sharia guidelines.

23.3 The difference between expansionary and contractionary monetary policy

Expansionary monetary policy may be used to increase aggregate demand. A cut in the interest rate, an increase in the money supply and a reduction in any restrictions on bank lending can be used to achieve an increase.

To reduce aggregate demand or the growth of AD, contractionary monetary policy may be used. This might include a rise in the interest rate, a decrease in the money supply and restrictions on bank lending.

KEY CONCEPT LINK

Equilibrium and disequilibrium / Efficiency and inefficiency: Monetary policy can be used to move the economy from the current macroeconomic equilibrium to a more efficient equilibrium.

ACTIVITY 23.1

Figure 23.3 shows how the USA's base rate changed during 2019.

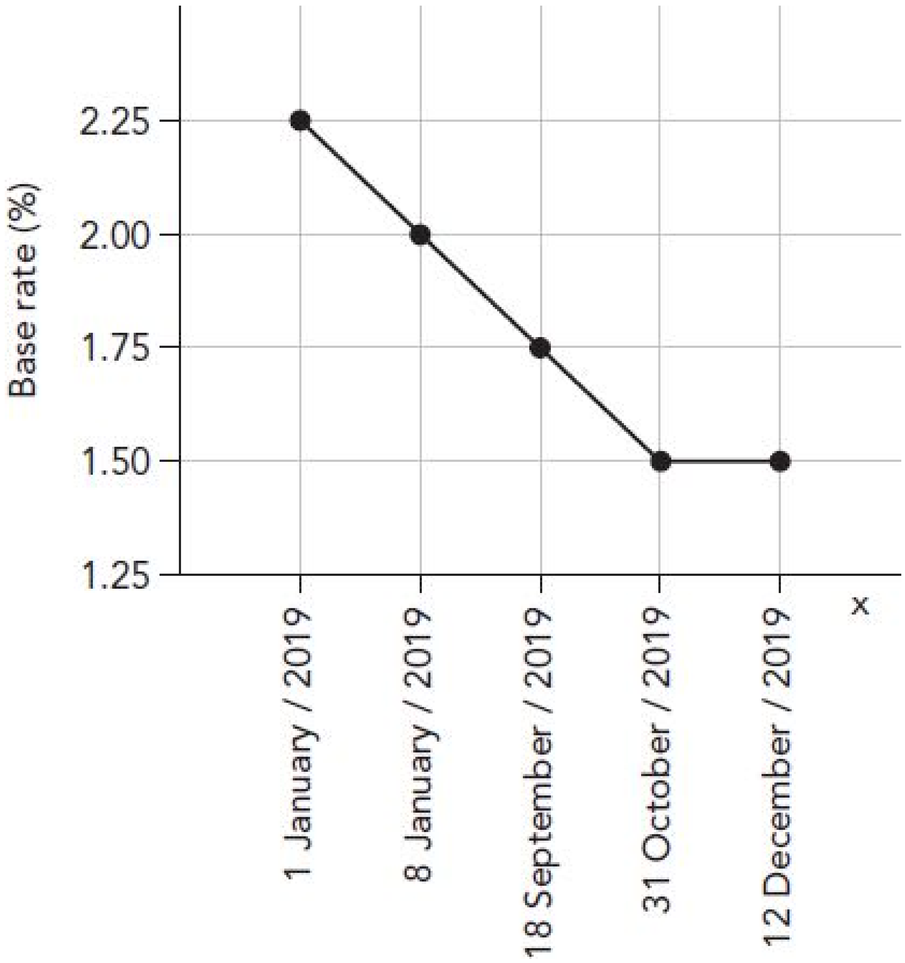


Figure 23.3: The change in the USA's base rate, 2019

In pairs:

1. Plot your country's central bank's base rate over the last year.
2. Decide whether the central bank was following an expansionary or contractionary monetary policy.
3. Produce a wall chart, combining the graph you have drawn and an explanation of the type of monetary policy followed.

23.4 The impact of expansionary and contractionary monetary policy

Monetary policy is mainly used to influence the price level.

TIP

In considering the impacts of expansionary or contractionary monetary policy tools, it is useful to take account of the initial level of economic activity, as this will help you decide the possible effects on the country's output, price level and employment.

Monetary policy and the price level

In many countries, the main policy used to reduce demand-pull inflation is monetary policy with the focus being on the interest rate. Many central banks are now given a **target rate for inflation** and instructed to use interest rate changes to achieve it. If the inflation rate is rising outside its target range, a central bank is likely to raise the rate of interest to reduce aggregate demand. This contractionary monetary policy measure may reduce demand-pull inflation for a number of reasons. The cost of borrowing is likely to rise which may discourage large-scale purchases including the purchase of houses and cars. Savings may be increased as the return from saving will rise. The opportunity cost of saving is, of course, spending.

Monetarists argue that the only way to reduce inflationary pressure is to lower the growth of the money supply. If increases in the money supply do not exceed increase in output, they suggest there will be no upward movement of the price level.

There are a number of reasons why a rise in the rate of interest may not discourage consumer expenditure. Commercial banks usually do keep their interest rates in line with the interest rates of the central bank as it is the rate they will have to pay if they need to borrow from the central bank. There is, however, no guarantee that they will always raise their interest rates when the central bank increases its rate. Even if consumers are faced with higher interest rates, they may not reduce their spending if they are optimistic about the future. (The same applies to a rise in income tax where households may cut their saving rather than their spending if they think their incomes will rise in the future.)

A rise in interest rates may have an adverse effect on investment. This is because it will increase the cost of borrowing funds to invest and will increase the opportunity cost of using profits to invest. The capital stock will decline if investment falls below depreciation. The resulting decrease in aggregate supply can push up the price level.

Some countries may face constraints on the monetary policy measures that they can use to correct inflation. Central banks may be worried that if they raise interest rates higher than in other countries, they may attract an inflow of money into their financial institutions from abroad. This may increase their exchange rates. Countries that are members of an economic union may operate the same interest rate and the same exchange rate as other members and the area's central bank may make the decisions on these areas of monetary policy.

ACTIVITY 23.2

Between 2009 and 2019 the UK's annual inflation rate, as measured by changes in the consumer price index, averaged 2.2%. Nominal pay increases averaged 2% over this period. The gap between nominal and real pay rises was greater at the start of this period. Between 2009 and 2013, prices rose at more than twice pay increases.

The central bank (the Bank of England) had kept its interest rate unchanged at a low of 0.5% between March 2009 and August 2016, despite rising economic growth and falling unemployment.

Discuss in a group:

1. What was happening to UK workers' purchasing power between 2009 and 2013?
2. Explain why a central bank may keep its interest rate unchanged despite 'rising economic growth and falling unemployment'.

A government will not seek to stop good deflation but it will try to correct bad deflation. A government may try to reverse a fall in aggregate demand by using expansionary monetary policy. However, a decrease in the rate of interest and/or an increase in the money supply may not work. This is because firms and households may be pessimistic during periods of deflation and so may not spend more even if there is more money in circulation and it becomes cheaper to borrow.

There are other reasons why monetary policy may not be very effective in increasing aggregate demand when the inflation rate is low or negative. For example, when interest rates are low it may not be possible to reduce them much further and any cuts may have little effect. For instance, a 2% interest rate is already low so that if firms and households are not borrowing, it suggests they are concerned about future economic prospects. So, if the interest rate is reduced to 1.5%, it is unlikely to stimulate increased borrowing and spending.

Central banks may increase the money supply, increasing the funds commercial banks have available to lend. The banks, however, may be reluctant to lend because they may think there is an absence of creditworthy borrowers.

ACTIVITY 23.3

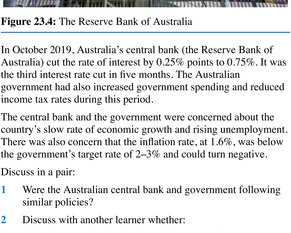


Figure 23.4: The Reserve Bank of Australia

In October 2019, Australia's central bank (the Reserve Bank of Australia) cut the rate of interest by 0.25% points to 0.75%. It was the third interest rate cut in five months. The Australian government had also increased government spending and reduced income tax rates during this period.

The central bank and the government were concerned about the country's slow rate of economic growth and rising unemployment. There was also concern that the inflation rate, at 1.6%, was below the government's target rate of 2–3% and could turn negative.

Discuss in a pair:

1. Were the Australian central bank and government following similar policies?
2. Discuss with another learner whether:
   - a a cut in the rate of interest from 1% to 0.75% would persuade households to buy more and firms to invest more?
   - b is it better for a country's inflation rate to be below or above its target rate?

Individually, write up your answers to the questions. When completed, ask a different learner to check your answers. Adjust your answers in the light of the comments they make.

Monetary policy and equilibrium national income, the real level of output and employment

If there is spare capacity in the economy, an expansionary monetary policy may result in higher national income. A cut in the rate of interest or an increase in the money supply may encourage more consumer expenditure and investment. The higher aggregate demand can increase real output, as shown in Figure 23.5.

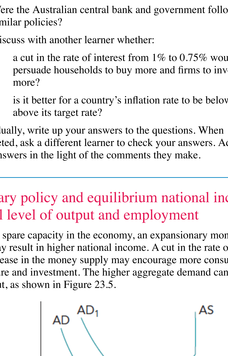


Figure 23.5: The effect of expansionary monetary policy

Higher output is likely to result in an increase in employment. Extra workers will be taken on to produce more goods and services.

There is a risk that contractionary monetary policy may reduce national income, output and employment. However, if it is used when the economy is operating with all resources employed, it may reduce the inflation rate. This is shown in Figure 23.6. Without the downward pressure on the growth of consumer expenditure and investment, the price level would rise to P_2 rather than P_1.

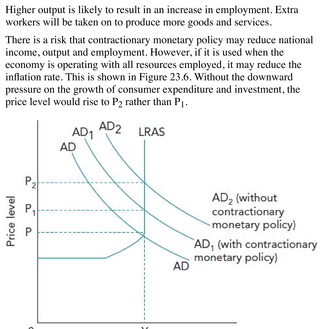


Figure 23.6: The effect of contractionary monetary policy

23.4 The effectiveness of monetary policy

In practice, it can be difficult to control the money supply. This is partly because commercial banks have a strong incentive to try to increase their lending and may seek to get round any limits a central bank seeks to place on the growth of their lending. Trying to control certain forms of money may lead to new forms of money being used.

Using interest rates is also not without problems. There is a time lag between changing interest rates and the full effect being transmitted to the macroeconomy. Some economists have estimated that it can take as long as 18 months for interest rate changes to have their full impact. This is, however, less time than in the case of some fiscal policy measures.

Interest rate changes may be a powerful policy measure but they are also a blunt and uncertain one. Some households and firms are more likely than others to cope with a change in the interest rate. For example, a rise in the rate of interest harms borrowers but benefits savers. A higher interest rate may also have an adverse effect on unemployment and economic growth, as with a deflationary fiscal policy measure.

With increasing mobility of financial investment, it can be difficult for a country to operate an interest rate that is significantly different from rival countries.

TIP

Keep up to date not only with changes in monetary policy in your own country but also with monetary policy in other major economies, so that you can use these examples in answers to questions on the use of monetary policy.

THINK LIKE AN ECONOMIST

What should your central bank do?

A country's economic growth rate, unemployment rate and inflation rate are often taken to be key indicators of a country's macroeconomic performance.

1. Research your country's economic growth rate, unemployment rate and inflation rate for the last five years and the predicted rates for the next two years.
2. Divide into groups of five. Write five different roles on cards: finance minister, head of a central bank, an entrepreneur owning a shop selling luxury scarves, a car worker and a retired person who has a high value of savings. Place the cards face down. Each member of the group selects a card.
3. Discuss, in your roles, whether your central bank should follow an expansionary or contractionary monetary policy. At the end of the discussion, vote on the type of policy to follow. Then see if the other groups came to the same conclusion.

REFLECTION

What did you learn from carrying out the role playing exercise? How did it help you to recognise that different groups can be affected in different ways by monetary policy tools?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What is the aim of monetary policy?

A to ensure a balanced budget in the long run

B to influence aggregate demand

C to influence aggregate supply

D to reduce price stability

2 Which of the following is a monetary policy tool?

A investment grants

B maximum price

C money spent on education

D restrictions on bank lending

3 What effect is an increase in the money supply likely to have?

A decrease inflation

B decrease government spending

C increase consumer expenditure

D increase unemployment

4 Which circumstance would reduce the effectiveness of expansionary monetary policy?

A domestic firms being reluctant to invest

B foreign firms being reluctant to sell products to domestic consumers

C households being reluctant to save

D the government being reluctant to raise taxes

5 Which problem would be most likely to cause a central bank to increase the money supply?

A budget surplus

B cyclical unemployment

C demand-pull inflation

D economic boom

6 What effect is an increase in the rate of interest likely to have on consumer expenditure and investment?

	Consumer expenditure	Investment
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

7 In which circumstance is an expansionary monetary policy most likely to reduce a country's economic performance?

A its aggregate demand is low

B its economic growth rate is negative

C its inflation rate is below its target rate

D its unemployment rate is close to zero

8 What would indicate that a central bank is using a contractionary monetary policy?

	Bank lending	Borrowing
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

9 Which combination of a fiscal policy tool and a monetary policy tool is a government most likely to use to reduce unemployment?

	Fiscal policy tool	Monetary policy tool
A	decrease income tax	decrease interest rate
B	decrease government spending	increase interest rate
C	increase a budget surplus	increase the exchange rate
D	increase corporate tax	decrease the money supply

10 Which policy tool is a contractionary monetary policy tool?

A a decrease in the exchange rate

B a decrease in the rate of interest

C a purchase of government bonds by the central bank

D a restriction on bank lending

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that monetary policy seeks to influence aggregate demand (AD) by affecting the price and quantity of money			
Explain the main tools of monetary policy: interest rates, money supply, credit regulations			
Differentiate between expansionary monetary policy that aims to increase AD and contractionary monetary policy that aims to reduce AD or the growth of AD			
Use AD/AS analysis to consider the impact of expansionary and contractionary monetary policy on equilibrium national income, real output, the price level and employment			

Chapter 24

Supply-side policy

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of supply-side policy in terms of its effects on LRAS curves
- explain the objectives of supply-side policy (to increase productivity and productive capacity)
- analyse the tools of supply-side policy, including training, infrastructure development and support for technological improvement
- discuss, using AD/AS analysis, the impact of supply-side policy on the equilibrium national income, the level of real output, the price level and employment.

ECONOMICS IN CONTEXT

Indonesian government announces major plans to improve the country's infrastructure

In 2019, the Indonesian government outlined a range of projects to improve the country's **infrastructure**. It proposed the building of new power plants, new airports, a reliable and clean water system to the country's second largest city, more ports and more roads. These projects are expected to cost more than $400 billion between 2020 and 2024. The government is expected to fund approximately 65% of the cost, with the remainder funded by the private sector.

Figure 24.1: Jakarta's first metro line

Citizens in the country's capital city, Jakarta, are keen to have an improved transport system. Jakarta is one of the world's most traffic congested city. Its residents spend the equivalent of over 22 days a year sitting in traffic. In 2019, Jakarta opened its first metro line. It is hoped that this may reduce some car travel in the city. Only 20% of the city's population use public transport for their daily commute.

Traffic congestion was estimated to have cost Indonesia £7bn in 2019. It makes people late for work, raises the cost to firms of transporting raw materials and goods, increases accidents and causes air pollution, which damages health.

Throughout Indonesia, more solar power plants are being built. The government has set the target for the country to provide 23% of its electricity from renewable energy sources by 2025.

Discuss in a pair or a group:

- Why do governments want to improve infrastructure?
- How may a reduction in congestion affect productivity and production?
- Which form of infrastructure do you think should be your government's priority?

24.1 Supply-side policy objectives

Governments use **supply-side policies** to increase aggregate supply by improving the workings of product and factor markets. Sometimes supply-side policy tools will reduce government intervention; at other times they result in increased government intervention.

Supply-side policy tools seek to increase productive capacity and so shift the economy's long-run aggregate supply (LRAS) curve to the right (see Section 17.5). The main way supply-side tools try to do this is by increasing productivity.

TIP

Remember when discussing supply-side policy that it always seeks to increase aggregate supply. No government will try to reduce aggregate supply.

24.2 Supply-side policy tools

The tools of supply-side policy include spending on education and training, promoting infrastructure development and support for technological improvement. Other tools include cuts in corporate tax, cuts in income tax, trade union reform, privatisation, deregulation and relaxation of immigration controls.

Education and training

Increasing spending on education and training may raise the quality of education and training. If this occurs, workers' skills and productivity may increase as well as their flexibility and mobility. A more efficient labour force is one of the key causes of an increase in a country's productive capacity. With the same sized labour force, more goods and services can be produced. A better educated and trained population can also increase the quality of entrepreneurship, which can increase innovation.

Promoting infrastructure development

Good quality infrastructure, including efficient transport, power, energy and telecommunication networks, keeps the costs of firms low and enables them to get their products to market quickly. For instance, reducing power outages will mean that production is interrupted less frequently. Improving the rail network will reduce the costs of moving products to and from firms and will reduce the chance of workers arriving late.

The government may finance and provide transport infrastructure itself or it may encourage the private sector to provide infrastructure such as a motorway which charges motorists a fee for using it.

Support for technological improvement

Technological improvement can enable capital equipment to produce a greater output at a lower cost. A government can subsidise both universities and private sector firms to encourage the development and introduction of new technology. Government subsidies are used widely throughout the world to encourage firms to increase output.

Other tools

- Cuts in corporate tax. Cutting corporate tax may encourage investment, as firms will have more funds to invest and they will know that they will be able to keep more of any profit earned. More investment will increase both aggregate demand and aggregate supply.
- Cuts in income tax. Cutting income tax may encourage workers to increase their working hours and accept promotion and greater responsibility. It may also persuade some workers to stay in the labour force for longer and persuade others to enter the labour force.
- Trade union reform may increase workers' flexibility and mobility and cut down on the number of days lost through strikes. A resulting fall in industrial action may, in addition, make multinational companies more willing to invest in the country. It is possible that the measure may increase both productivity and production.
- Privatisation and deregulation. In recent years, many countries have adopted privatisation programmes in the belief that firms operate more efficiently in the private sector. Some have also deregulated a number of markets by removing barriers to entry and laws and regulations that increase firms' costs of production.
- Encouragement of immigration. If a government encourages immigration of skilled workers, it can increase both the quantity and quality of labour in the country.

ACTIVITY 24.1

Figure 24.2 compares the three main types of macroeconomic policy: fiscal, monetary and supply-side.

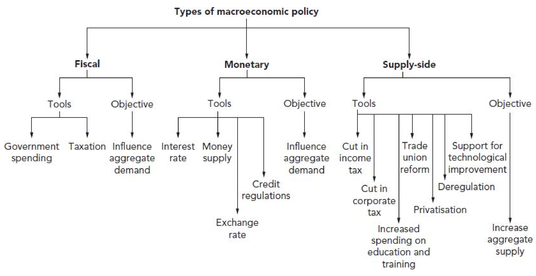


Figure 24.2: Main types of macroeconomic policy

Using Figure 24.2, decide whether the following are examples of fiscal, monetary or supply-side policy tools:

a an increase in unemployment benefit

b an increase in government spending on state pensions

c an increase in the rate of interest

d a reduction in restrictions on bank lending

e a reduction in legal restrictions on firms

f a reduction in the exchange rate.

TIP

In deciding whether a change in income tax, corporate tax or a cut in unemployment benefit is a fiscal or supply-side policy tool, think about what the government's objective is. If the government is trying to influence aggregate demand then it is a fiscal policy tool, whereas if the government is seeking to increase aggregate supply, it is a supply-side policy tool.

24.2 The impact of supply-side policy tools on the macroeconomy

Supply-side policy tools have the potential to benefit all of a government's policy objectives in the long term. They can raise economic growth, reduce inflationary pressure and lower unemployment.

The impact on national income and real output

By increasing the productivity of labour and capital resources, supply-side policy tools can increase a country's national income and real output. They can do this by increasing the quality and quantity of resources. For example, improved training should enable workers to produce more goods and services. Government spending on infrastructure will increase the quantity of resources that can be used in the production and transport of products. Technological improvement raises the quality and productivity of capital goods. For example, robots that pick fruit are being introduced into farming. These are increasing output and reducing the costs of production.

The impact on the price level

Over time, aggregate demand tends to increase. If increases in aggregate supply can keep pace with higher aggregate demand, a country can enjoy higher output (higher real GDP) without experiencing demand-pull inflation. This situation is shown in Figure 24.3.

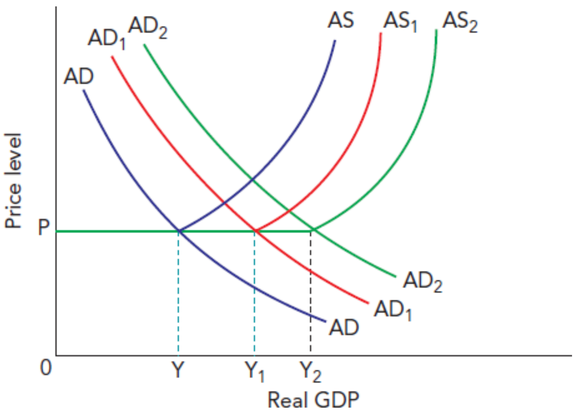


Figure 24.3: Non-inflationary economic growth

Governments may also employ supply-side policy measures to correct cost-push inflation. For example, increased spending on training can raise labour productivity and so reduce labour costs or at least reduce the upward pressure on labour costs.

The impact on employment

Supply-side policy tools can influence employment in a number of ways. Improved education and training will increase workers' skills and geographical and occupational mobility. This should reduce both frictional and structural unemployment. Technological improvement may result in some workers being replaced by capital equipment. However, it is possible that both technological improvement and infrastructure development may increase employment. This is because both lower costs of production, which may increase sales of goods and services at home and abroad. More workers may be taken on to produce the higher output.

ACTIVITY 24.2

Figure 24.4: Learners at a school in Brazil

The Brazilian government in 2015 was planning to increase its spending on education to 10% of its GDP by 2020, which would have been a world record. It already spent a higher proportion, 5.7%, of its GDP on education than most other countries. By 2020, its spending had not reached its target but had risen to 6.2%. However, many economists argue that the problem is not a lack of funding but the failure to get value for the money that the Brazilian government spends. A high proportion of children who leave school without continuing on to higher education have low levels of literacy and numeracy. Teachers are relatively well-paid and many retire in their early 50s on generous pensions.

1. Why is an increase in government spending on education considered to be a supply-side policy tool?
2. Analyse the effect on aggregate supply of increasing the age at which teachers retire.
3. Compare your answers with another learner. If appropriate, amend your answers.

24.3 The effectiveness of supply-side policies

Spending on education and training has the potential to be very effective in the long run. This is because such spending may directly increase the quality of labour and productive capacity. However, it may not be very effective in the short run, as it can take a long time to have an effect. In the short run, it may also contribute to inflation. This is because increased government spending on education and training may increase aggregate demand before it increases aggregate supply.

Providing more education and training may not be very effective if it is not of a high quality or it develops skills that will not be in demand in the longer term. In addition, increased spending on training may be successful in raising the skills of workers, but if their pay rises by more than their productivity, costs of production will still rise.

Infrastructure development can be expensive and can take considerable time to construct. For example, it may take several years to build a new rail link. By the time it is built, demand for rail transport may have changed. Transport infrastructure development may not always be well linked. New train stations may not be situated close to airports, for example. Infrastructure development may also have harmful effects on the environment.

The overall impact of technological improvement is often beneficial. However, its benefits are not always evenly spread and can be harmful to some. Technological improvement involves change. New products and new methods of production are created. New jobs appear while others are lost. Some people may have to change jobs and move to different areas, and not everyone will cope well with this.

Any supply-side policy tool which increases aggregate supply may not raise output if the economy is initially operating with spare capacity. This is because while it will increase productive potential, that potential will not be used if there is not enough aggregate demand. Firms may be capable of producing more, but they will not do so if they do not expect to sell any extra output.

TIP

Remember when answering questions that the impact of supply-side policy will be influenced by whether there is initially spare capacity in the economy.

KEY CONCEPT LINK

Efficiency and inefficiency: Efficiency is an important concept in assessing whether privatisation and deregulation have increased the performance of the firms that have been affected.

THINK LIKE AN ECONOMIST

Driverless cars

Figure 24.5: A driverless car

Technological improvements can increase the quantity and quality of goods and services an economy can produce. They can also have a number of other effects on an economy.

In a pair

1. Research the costs and benefits of a recent technological improvement such as the introduction of driverless cars.
2. Produce a wall chart to show these advantages and disadvantages.

REFLECTION

How did considering the advantages and disadvantages help you understand some of the possible effects of technological improvement? What ways did you use to indicate that it is the strength of the advantages and disadvantages that is important rather than their number?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What is an aim of supply-side policy?

A to increase the country's productive potential

B to increase the price level

C to reduce aggregate demand

D to reduce employment

2 In what circumstance may a supply-side policy measure actually cause a reduction in aggregate supply?

A government spending on education increases labour productivity

B infrastructure development increases competition and efficiency

C improvements in training result in some workers gaining jobs abroad

D technological improvement leads to an increase in investment

3 When is a supply-side policy likely to be *least* effective in increasing the quantity of goods and services the country produces?

A The economy is operating a mixed economic system.

B The economy is operating with considerable spare capacity.

C The government has a budget surplus.

D There is flexibility of resources.

4 Which policy measure may be regarded to be both a fiscal policy measure and a supply-side policy measure?

A a cut in bank lending

B a cut in the interest rate

C a reduction in government spending

D government spending on investment

5 What is a difference between infrastructure development and training as supply-side policy tools?

A Infrastructure development aims to decrease aggregate supply, whereas training aims to increase it.

B Infrastructure development first increases capital productivity, whereas training first increases labour productivity.

C Infrastructure development has no impact on the tax revenue a government receives, whereas training reduces it.

D Infrastructure development's main focus is to reduce competition, whereas training's main focus is to increase competition.

6 Is a supply-side policy tool designed to achieve a reduction in cost-push inflation and a reduction in structural unemployment?

	Reduction in cost-push inflation	Reduction in structural unemployment
A	no	no
B	no	yes
C	yes	yes
D	yes	no

7 What may reduce the need for a government to subsidise training by the private sector?

A a decrease in educational standards

B a decrease in labour turnover

C an increase in structural unemployment

D an increase in the speed of technological change

8 In which circumstance is technological improvement most likely to result in a rise in productivity?

A It is accompanied by a fall in wages.

B It is accompanied by a rise in working hours.

C It results in a decrease in long-run planning.

D It results in an increase in competition.

9 Which change is a supply-side policy *not* designed to achieve?

A a budget surplus to a budget deficit

B a recession to economic growth

C high inflation to price stability

D high unemployment to low unemployment

10 What is likely to reduce the effectiveness of supply-side policy?

A high mobility of factors of production

B high global aggregate demand

C the introduction of contractionary fiscal policy

D the removal of tariffs on imported raw materials

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Define the meaning of supply-side policy in terms of its effects on LRAS curves.			
Understand the objective of supply-side policies to increase aggregate supply by improving the workings of product and factor markets			
Explain that governments may use a range of supply-side policy tools: education and training, infrastructure development, support for technological improvement, cuts in corporate tax, cuts in income tax, trade union reform, privatisation and deregulation			
Use AD/AS analysis to consider the impact of supply-side tools on equilibrium national income, real output, the price level and employment			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Ethiopia's rapid economic growth rate

Ethiopia is a country with a rising labour force and improved healthcare standards. For a number of years, Ethiopia was the second fastest growing African economy after Nigeria. In more recent years, Ethiopia has achieved the highest economic growth rate in Africa. Figure 1 shows Ethiopia's economic growth rate over an eight-year period.

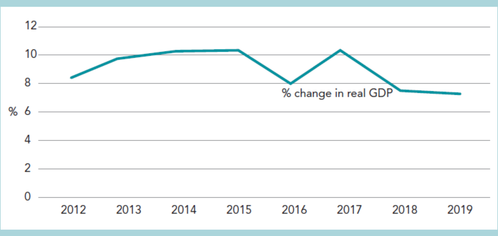


Figure 1: Ethiopia's economic growth rate, 2012–2019

Although most Ethiopians welcome the country's high economic growth rate, they are concerned about the country's high inflation rate. The National Bank of Ethiopia uses changes in the rate of interest to try to achieve price stability. Recognising that inflation has been high for some time, the government and central bank have been aiming for an inflation rate of 8% or less. Figure 2 shows the interest rate and inflation rate in Ethiopia in recent years.

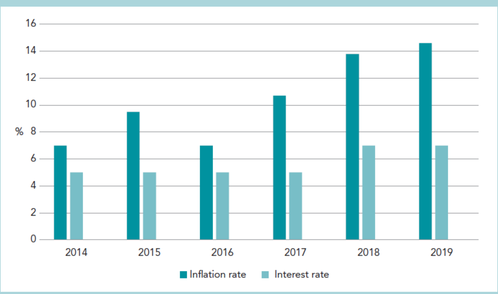


Figure 2: Ethiopian inflation rate and interest rate, 2014–2019

The Ethiopian government has been seeking to achieve an economic growth rate of 11%. It recognises that increases in the country's output can reduce unemployment and raise living standards.

To develop the country's manufacturing sector and promote economic growth, the government has increased its spending on infrastructure and encouraged the private sector to spend more on infrastructure. In September 2015, Ethiopia opened sub-Saharan Africa's first light rail system. Three years later, it opened a 750km railway connecting the country's capital to the Red Sea, cutting the journey time from 48 to 10 hours.

While Ethiopia has recently followed a contractionary monetary policy, it has followed an expansionary fiscal policy. Between 2017 and 2019, the government's budget deficit increased from 3.3% to 4% of GDP.

a Give *two* benefits of economic growth mentioned in the information. **[2]**

b **i** Using data in Figure 2, describe the relationship between Ethiopia's inflation rate and interest rate. **[2]**

ii Explain whether Figures 1 and 2 indicate that the Ethiopian government was successful in achieving its macroeconomic aims. **[2]**

c Explain *one* reason why Ethiopia has had a high economic growth rate in recent years. **[2]**

d Assess how Ethiopia's budget position may have affected the country's unemployment rate. **[6]**

e Discuss whether an increase in Ethiopian government spending on infrastructure will reduce inflation. **[6]**

Essays

2 a Explain why a government may experience a budget surplus **and** consider whether an increase in a budget surplus is likely to be harmful for an economy. **[8]**

b Assess whether fiscal policy can reduce demand-pull inflation. **[12]**

3 a Explain the main causes of an increase in an economy's productive capacity **and** consider whether it will always increase a country's real GDP. **[8]**

b Discuss whether an increase in government spending on training schemes will improve the country's macroeconomic performance. **[12]**

Unit 6

International economic issues (AS Level)

UNIT INTRODUCTION

Countries buy goods and services from other countries and sell goods and services to other countries. In this unit you will examine what determines the products countries produce and what products they trade. You will see the benefits that countries may gain from trading internationally. You will explore why governments often impose restrictions on what products can be bought from other countries. You will consider what appears in the account that shows details of a country's economic transactions with other countries. You will also examine the causes and consequences of changes in a country's exchange rate and the policies a government can use to influence the amount of money coming into and going out of the country.

Chapter 25

The reasons for international trade

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the difference between absolute and comparative advantage
- explain the benefits of specialisation and free trade (trade liberalisation), including the trading possibility curve
- explain how the terms of trade are measured
- analyse the causes and impact of changes in the terms of trade
- discuss the limitations of the theories of absolute and comparative advantage.

ECONOMICS IN CONTEXT

Zambia's strength lies in copper

The Zambian economy supplies a range of products, but copper accounts for more than 70% of the total export revenue the country earns. The country has a number of advantages in mining copper – an obvious one is the large supply of copper deposits in the country. Other advantages have built up over time. Mining equipment now uses the latest technology and the miners are experienced and well-trained.

Figure 25.1: Copper miners in Zambia

Zambia's main trading partners are South Africa, a country relatively close geographically, and Switzerland, at a distance of more than 7000 kilometres. Among the goods and services that Switzerland sells to Zambia are machinery and banking services. Switzerland has an international reputation for the provision of complex financial services.

Discuss in a pair or a group:

- Do you think Zambia will always be good at mining copper?
- Why do you think a country's main trading partners are usually geographically close to it?

25.1 Absolute and comparative advantage

Absolute advantage

International trade takes place because countries have different factor (resource) endowments. They differ in the supply and quality of labour, capital equipment, land and enterprise and the type of climate they have. The differences in **factor endowment** affect the types of products countries produce and the quality and quantity of the products, as well as their cost of production. It is usually easier to move goods and services between countries than factors of production, and so international trade occurs. There are some aspects of world trade that can be explained by **absolute advantage**. A country has an absolute advantage in producing a product if it can produce more of the product with the same quantity of resources than another country. For example, Indonesia has the absolute advantage in producing rice while Brazil has the absolute advantage in producing coffee. Figure 25.2 shows simplified production possibilities for the two countries. This is based on each country allocating half of its resources to each of the products.

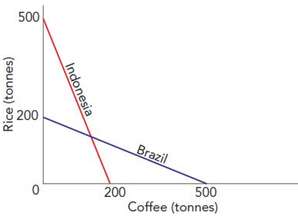


Figure 25.2: Two countries with absolute advantage

If each country specialises in the product in which it has an absolute advantage and then trades, based on **opportunity cost ratios**, total output will rise and both countries will be able to consume more products. Table 25.1 shows output before and after specialisation.

	Before specialisation		After specialisation	
	Rice (tonnes)	Coffee (tonnes)	Rice (tonnes)	Coffee (tonnes)
Indonesia	500	200	1000	
Brazil	200	500		1000
Total	700	700	1000	1000

Table 25.1: Absolute advantage: specialisation

In this case, the opportunity cost of producing 1 tonne of rice in Indonesia is 0.4 of a tonne of coffee, while in Brazil it is 2.5 tonnes of coffee. An exchange rate of 1 tonne of rice for 1.5 tonnes of coffee lies between the opportunity cost ratios and will benefit both countries. Table 25.2 shows the countries' positions after Indonesia has exchanged 300 tonnes of rice for 450 tonnes of coffee.

	Rice (tonnes)	Coffee (tonnes)
Indonesia	700	450
Brazil	300	550
Total	1000	1000

Table 25.2: Absolute advantage: specialisation and trade

Comparative advantage

Although absolute advantage explains a small proportion of international trade, more trade is based on **comparative advantage**. Some countries buy products from abroad when the country's own producers would be capable of producing those products with fewer resources. This allows the purchasing country's producers to concentrate on producing those products they are even better at producing. For example, the USA may be more efficient than Bangladesh at producing both coats and shirts.

Nevertheless, both countries can still benefit from specialising and trading. The USA could concentrate on producing the product it is more efficient at producing and Bangladesh could specialise in the one product out of coats and shirts that it is less inefficient in producing.

Table 25.3 shows that the USA has the comparative advantage in producing coats. It is assumed that the USA can make four times as many coats as Bangladesh, but only one and a quarter as many shirts. It can also be seen that the USA has the comparative advantage as its opportunity cost of producing coats (2½ shirts: 10 000/4000) is lower than Bangladesh's (eight shirts: 8000/1000).

Bangladesh has the comparative advantage in making shirts as it can make them at a lower opportunity cost. In Bangladesh, for every shirt produced, one-eighth of a coat has to be sacrificed. In contrast, in the USA, the opportunity cost of producing a shirt is two-fifths of a coat. Table 25.3 shows how specialisation increases output by 1000 units.

	Before specialisation		After specialisation	
	Coats	Shirts	Coats	Shirts
USA	4000	10 000	8000	
Bangladesh	1000	8000		16 000
Total	5000	18 000	8000	16 000

Table 25.3: Comparative advantage: the benefits of specialisation

TIP

If you include a numerical example to illustrate comparative advantage, keep the example brief and the figures straightforward (for example, 5000 rather than 5136). Make sure the figures accurately show comparative advantage. Remember to provide a written explanation as well. Do not rely only on an example.

ACTIVITY 25.1

Figure 25.3: Trawlers off the coast of Peru

Peru has a strong fishing industry. The country has a comparative advantage in producing fishmeal, which is used in food for chickens. There are fertile fishing grounds along Peru's coasts, which benefit from the Peru Current and the El Niño effect. Some of the fish caught is used as a raw material in the production of fishmeal.

Peru has a long tradition in producing fishmeal, with its workers well-skilled in the production process. The country is a major producer and exporter of the product. The industry's future prospects and its comparative advantage may be influenced by climate changes. The industry will also be affected by changes in the country's labour costs relative to those in other countries that produce fishmeal.

1 In groups of three:
   a Suggest reasons why Peru has a comparative advantage in producing fishmeal.
   b Discuss the difference between a comparative advantage in producing a product and a competitive advantage in producing that product.
2 Write your answers on a flipchart and share them with the rest of the class.

Comparative advantage can also be illustrated in terms of the factors of production needed to produce a given number of units of a product. Table 25.4 shows the number of resource hours needed to produce 20 pairs of shoes and 20 smartphones in two countries.

	Number of resource hours needed to produce 20 pairs of shoes	Number of resource hours needed to produce 20 smartphones
Russia	6	3
Vietnam	3	1

Table 25.4: Comparative advantage based on resource hours

In this case, Vietnam has the absolute advantage in producing both shoes and smartphones. It can produce both products more quickly. It has the comparative advantage in producing smartphones. It takes half the time to produce 20 pairs of shoes but only a third of the time to produce 20 smartphones.

25.2 The benefits of specialisation and free trade (trade liberalisation)

Free international trade is the exchange of goods and services across national borders without any government restrictions. When **free trade** exists, firms are free to export and import what they want in the quantities they want. No taxes or limits are imposed on exports and imports, no subsidies are given to create cost advantages and there is no unnecessary paperwork ('red tape') involved.

Free trade allows an efficient allocation of resources with countries being able to specialise on producing those products that they have a comparative advantage in. Allowing countries to specialise in those products where their production is most efficient should increase world output and employment and so should raise living standards.

Factor endowments (the availability and the quality of resources) differ between countries. Free trade allows countries that have, for instance, fertile land and the appropriate climate to specialise in growing oranges while allowing countries that have financial institutions and appropriately educated workers to specialise in banking.

The competition that may arise from free trade can put pressure on firms to keep their prices and costs down and raise the quality of their products. As a result, consumers may enjoy lower prices and better products than would have been the case in the absence of free trade. Firms may also be able to buy raw materials and capital goods at lower prices.

Firms might produce a higher output if they are selling to an international market. The higher output could enable firms to take greater advantage of economies of scale. Consumers may be able to buy a greater variety of products as they may have a wider choice of products. Firms may also have a wider source of raw materials and capital goods.

ACTIVITY 25.2

Write down the names of a number of major economies. In a pair, select two countries Research the two countries you have selected to find out what products they are specialising in. Start by examining the main products the countries export.

Write a report on your findings. Share your report with the rest of the class and be prepared to answer questions on your report.

Trading possibility curve

A **trading possibility curve** shows how an economy can benefit from specialising and trading. For example, Figure 25.4 shows a country that is able to produce a maximum of 50 million units of clothing or 100 million units of food. For every unit of clothing it produces it gives up the opportunity to produce two units of food. Engaging in international trade may enable the country to specialise in clothing production and import three units of food for every unit of clothing it exports.

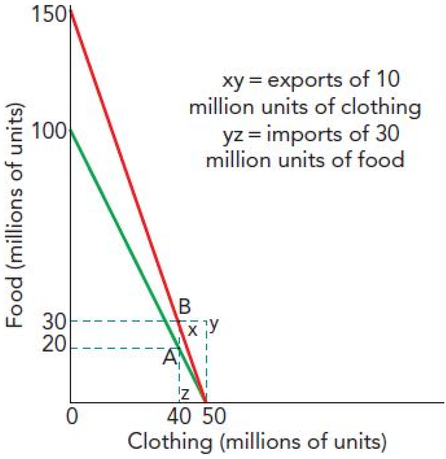


Figure 25.4: Trading possibility curve

In this case, trading will increase the total quantity of products the country can consume. If the country had initially produced 40 million units of clothing, the maximum output of food it could produce would be 20 million units. However, if it engages in international trade, it can specialise in clothing production, making 50 million units of clothing. It can export ten million units of clothing in exchange for 30 million units of imported food, enabling it to move from point A to point B and enjoy more products.

TIP

In answering questions on the benefits of international trade, you could use a trading possibility curve to illustrate that while a country cannot produce outside its PPC, international trade can allow it to consume outside its PPC. It is important not to confuse the terms of trade with the balance of trade.

ACTIVITY 25.3

In a group, prepare a podcast on a product that you think your country has a comparative advantage in. In your podcast, bring out the strengths you think your country has and the challenges it faces.

25.3 Exports, imports and the terms of trade

The benefits a country can gain from engaging in international trade are influenced by how many **imports** the country is able to purchase with the revenue it gains from the **exports** it sells. This, in turn, is influenced by the prices it receives for the exports it sells and the prices it pays for the imports it buys.

Measurement of the terms of trade

The **terms of trade** is a measure of the ratio of export prices and import prices.

The ratio is calculated from the average prices of many goods and services that are traded internationally. The prices are weighted by the relative importance of each product traded:

$$\text{Terms of trade index} = \frac{\text{index of export prices}}{\text{index of import prices}} \times 100$$

If the terms of trade index increases, this is described as a favourable movement or an improvement in the terms of trade. It means that fewer exports have to be sold to buy any given quantity of imports. An unfavourable movement or deterioration in the terms of trade means that the index number has fallen. Now more exports will have to be exchanged to gain the same quantity of imports.

THINK LIKE AN ECONOMIST

Terms of trade for the USA

The USA only exports approximately 13% of its output and only imports about 15% of the products it consumes. The USA is such a large economy, however, that the total value of its exports and imports is high. This means that changes in the price of US exports and imports can have a significant effect not only on the USA but also on other countries.

Use an internet search engine to find out the terms of trade for the USA over the last ten years. Then produce a wall chart:

- using a bar chart to illustrate the terms of trade in each year
- commenting on whether the terms of trade have become more favourable or less favourable over the time period.

Causes of changes in the terms of trade

A favourable movement in the terms of trade occurs when there is a rise in export prices relative to import prices. For instance, export prices may rise by more than import prices or import prices may fall while export prices remain unchanged. An unfavourable movement occurs when there is a fall in export prices relative to import prices. In this case, for example, import prices may fall by less than export prices or import prices may rise while export prices may fall.

The causes of changes in the terms of trade are changes in the demand for and supply of exports and imports, the price level and the exchange rate. An increase in the demand for exports would increase their price and so cause a favourable movement in the terms of trade. A rise in a country's relative inflation rate would also make its export prices higher relative to its import prices. A government reducing the exchange rate (see Section 28.3) is sometimes referred to as a deliberate deterioration of its terms of trade. This is because it is a deliberate attempt to reduce export prices and raise import prices in order to make the country's products more internationally competitive.

The Prebisch-Singer hypothesis suggests that the terms of trade tend to move against countries that produce primary products. This is based on the view that demand for manufactured goods and for services rises by more than demand for primary products when income increases. In recent years, the relative prices of some agricultural products have fallen but there has been more volatility (sudden changes) in commodity prices, with some years witnessing significant rises in the price of, for instance, oil and copper.

The impact of changes in the terms of trade

While a rise in the terms of trade is described as a favourable movement, the impact of a favourable movement may not always be beneficial. This is because the effects of the movement will depend on its cause. If the price of exports increases because of a rise in demand, then it is likely to be beneficial as more domestic products will be sold. However, if the cause is a rise in the costs of production, demand for the country's products will fall and export revenue may decline.

ACTIVITY 25.4

Figure 25.5 shows Australia's and Pakistan's terms of trade between 2000 (base year) and 2017.

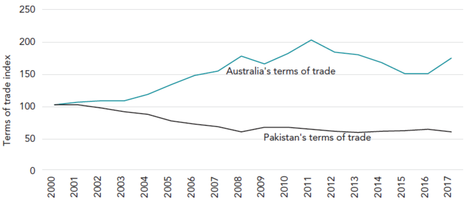


Figure 25.5: Australia's and Pakistan's terms of trade, 2000–2017 (base year 2000)

Using Figure 25.5:

1. Which country experienced an improvement in its terms of trade over this period?
2. Which country's terms of trade were more stable in the period 2008–2017?
3. Is it possible to determine what happened to the price of Australia's imports over the period?

Compare your answers with another learner. Amend your answer if appropriate.

An unfavourable movement in the terms of trade may actually reduce a deficit on the current account of the balance of payments (see Section 27.5). If demand for exports and imports is elastic, the fall in export prices relative to import prices should increase export revenue relative to import expenditure.

TIP

Remember, when answering questions that refer to the terms of trade, that the terms of trade is a measure of export and import prices and not export and import values. It is important not to confuse the terms of trade with the balance of trade.

25.4 Limitations of the theory of absolute and comparative advantage

Despite their importance, absolute and comparative advantage do not provide a full explanation of the pattern of international trade. There are a number of reasons for this:

- Some governments may want to avoid overspecialisation.
- High transport costs may offset the comparative advantage.
- The exchange rate may not lie between the opportunity cost ratios.
- Other governments may impose trade restrictions.

The theory of comparative advantage also assumes that resources are mobile and that there are constant returns. For example, if the USA decides to double its output of coats, there is no guarantee that workers and other resources will be able to switch from making shirts to making coats. If they cannot, structural unemployment will increase. Even if they are able to do so, it also does not necessarily mean that the extra resources will be as productive as those first employed and so using double the resources may not lead to double the output.

In addition, countries do not always adapt to changes in comparative advantage. For example, over time a country may continue to produce steel despite another country being relatively more efficient at producing it. In such a case, those involved in steel production in the country that has lost the comparative advantage may try to persuade the government to impose trade restrictions on steel imported from the country that has now gained the comparative advantage. In a world with many countries and a vast number of products, it may be difficult to determine where a country's comparative advantage lies.

TIP

It is useful to include examples of products that one or two countries specialise in when answering questions on absolute and comparative advantage.

KEY CONCEPT LINK

The margin and decision-making: Countries have a limited quantity of resources so they cannot produce all they would like to. The theory of comparative advantage can help them decide how to use their resources. It suggests they should concentrate on producing those products they are most efficient at producing.

ACTIVITY 25.5

Figure 25.6: The beautiful beaches of Mauritius attract tourists to the island

Mauritius's tourist industry has grown significantly since 1970. In that year, it attracted 18 000 visitors; by 2020, this had increased to 1.5 million. The country has a wide range of natural attractions, including a subtropical climate, beautiful beaches, calm seas and interesting plants and wildlife. More hotels have been built and their quality has been improved. Most hotels now provide access to the latest technology, well-equipped gyms, saunas and swimming pools.

In a pair, research tourism in Mauritius and then give a presentation to the rest of the class based on the following two questions:

1. Explain the advantages and the disadvantages of specialising in tourism.
2. Why may Mauritius lose its comparative advantage in tourism?

REFLECTION

How did your preparation for the presentation help you understand why countries do not always specialise?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What must exist for international trade to occur?

A an absence of taxes on imports

B an absence of transport costs

C equal opportunity cost ratios in all countries

D limited mobility of factors of production between countries

2 Trade occurs between two countries, Y and Z, in two products: pairs of shoes and smartphones. The table below shows the number of pairs of shoes and smartphones that each country can produce with three resource units.

	Pairs of shoes	Smartphones
Country Y	35	40
Country Z	50	35

Which change in productive capacity would result in the countries' absolute advantages changing?

A a decrease in Country Y's ability to produce shoes to 25 and a decrease in Country Z's ability to produce smartphones to 25

B a decrease in Country Y's ability to produce smartphones to 30 and a decrease in Country Z's ability to produce shoes to 30

C an increase in Country Y's ability to produce shoes to 38 and an increase in Country Z's ability to produce smartphones to 38

D an increase in Country Y's ability to produce smartphones to 50 and an increase in Country Z's ability to produce shoes to 60

3 The table below shows the quantities of two products, electric cars and refrigerators that countries X and Y can produce with the same quantity of resources.

	Country X	Country Y
Refrigerators	100	240
Electric cars	50	80

Which statement applies to this situation?

A Country X has the absolute advantage in producing both products.

B Country X will import electric cars from Country Y.

C Country Y has the comparative advantage in producing refrigerators.

D Country Y will not benefit from trading with Country X.

4 Two countries, R and S, both produce clothes and tractors. The table shows the countries' ability to produce the products with the same resources.

	Clothes	Tractors
Country R	192	10
Country S	24	2

What exchange rate would benefit both countries?

A 1 tractor for 6 clothes

B 1 tractor for 12 clothes

C 1 tractor for 14 clothes

D 1 tractor for 19.2 clothes

5 Why might Country X, which has a comparative advantage in producing rice, import rice?

A Demand for rice in Country X exceeds the maximum quantity of rice that Country X can produce.

B Other countries are imposing a tax on imports of rice from Country X.

C The supply of rice in Country X is of a higher quality than that produced in other countries.

D The cost of transporting rice is low.

6 What would be likely to cause an unfavourable movement in a country's terms of trade?

A a decrease in the price of exports relative to the price of its imports

B a decrease in the volume of exports relative to the volume of imports

C an increase in a surplus on the current account of the balance of payments

D an increase in a surplus on the government's budget

7 The table shows a country's index of export and import prices over the period 2019 to 2023.

Year	Index of export prices	Index of import prices
2019	95	104
2020	98	106
2021	102	112
2022	105	120
2023	100	110

When was there a favourable movement in the terms of trade?

A between 2019 and 2020 and between 2022 and 2023

B between 2020 and 2021

C between 2021 and 2022

D between the start and the end of the period

8 In which circumstance might an economy welcome a favourable movement in its terms of trade?

A Demand for its exports is price elastic.

B Demand for its imports is price inelastic.

C Supply of its exports is price inelastic.

D Supply of its imports is price elastic.

9 A government decides to encourage specialisation based on comparative advantage. Which condition is necessary for this policy decision to be beneficial?

A dissimilar tastes in other countries

B fixed exchange rates

C mobile factors of production within a country

D similar factor endowments as other countries

10 What is a potential disadvantage of an unfavourable movement in the terms of trade?

A Exports become less price competitive.

B Each export will be able to buy a smaller value of imports.

C The general price level will fall.

D The government budget balance will move into deficit.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain how a country may have absolute advantage when it can produce a product using fewer resources than another country			
Explain how a country has a comparative advantage when it can produce a product at a lower opportunity cost			
Discuss the benefits of specialisation and free trade: efficient use of resources based on comparative advantage, low prices, high quality, high output and choice			
Understand that the trading possibility curve shows how a country can consume more products as a result of specialising and trading			
Explain that the terms of trade is a measure of the ratio of export prices and import prices			
Explain why the effect of changes in the terms of trade depends on their cause			
Consider the limitations of absolute and comparative advantage			

Chapter 26

Protectionism

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of protectionism as it relates to international trade
- explain the different tools of protection: tariffs, import quotas, export subsidies, embargoes and excessive administrative burdens ('red tape')
- analyse the impact of the different tools of protection
- discuss the arguments for and against protectionism.

ECONOMICS IN CONTEXT

Trade wars break out

Despite the advantages of free trade, all countries impose some restrictions on the free movement of products coming in from other countries. In some cases, governments also impose restrictions on the products its producers can sell to other countries.

Figure 26.1: Container ships move vast quantities of goods around the world

Between 1990 and 2010, trade restrictions declined. However, in more recent years, there has been an increase in trade wars breaking out between countries and groups of countries. In 2019, for instance, the European Union (EU) imposed a tax of more than 20% on steel from Russia. Two years before, the USA had imposed an even larger tax on imports of Russian steel. The US government claimed, as did the EU, that Russian producers were selling the steel at artificially low prices. If foreign producers do sell at less than cost price, it can make it impossible for domestic firms to compete. The Russian government reacted to the US action in 2018 by imposing taxes on a range of US products including road construction equipment and optical fibre.

Discuss in a pair or a group:

- Why might firms sell their products at less than cost price in a foreign market?
- How may foreign firms be able to sell at less than cost price?
- Why do consumers tend to lose out in a price war?

26.1 Protectionism

Protectionism is when governments seek to protect domestic industries from foreign competition. Protectionism involves the restriction of free trade. The tools of protection often seek to increase the price competitiveness of domestic industries.

26.2 Tools of protection and their impact

Governments use a range of tools to protect their industries and restrict free trade. The main tools of protection are shown in Figure 26.2.

Figure 26.2: Examples of tools of protection used by governments to restrict free trade

Tariffs

Tariffs are the best-known tool of protection and are sometimes referred to as customs duties. Tariffs are taxes, usually on imports but they may also be imposed on exports. A tariff can be:

- specific: a fixed sum per unit
- *ad valorem*: a percentage of the price.

Import tariffs

There are two key reasons why governments impose import tariffs: one is to discourage consumption of imports; another is to raise tax revenue.

A tariff imposes an extra cost on the supplier which usually pushes up the price. Figure 26.3 shows that the imposition of a tariff will benefit domestic producers as their output rises from Q to Q_1. Domestic consumers lose out as they have to pay a higher price, P_1, and experience a reduction in their consumption from Q_3 to Q_2.

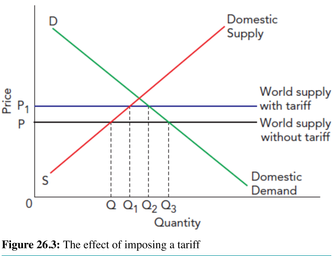


Figure 26.3: The effect of imposing a tariff

A tariff will be more effective in raising revenue if demand for imports is price inelastic whereas it will be more effective in protecting the domestic industry if demand for imports is price elastic.

There is the possibility that the imposition of a tariff may not make domestic products more price competitive. This would be the case if the price of the import plus the tariff is still below the domestic price or if firms selling the imports absorb the tariff and do not raise their prices.

Export tariffs

Some governments impose restrictions on what can be exported from the country. A government may put a tax on exports to raise revenue. If demand for the export is price inelastic, the imposition of an export tariff may not have much impact on demand. For instance, the tax the Belarus government places on the export of timber has not stopped the volume of timber exports increasing.

Governments may impose a tariff on a product to ensure an adequate supply of the product on the home market. For instance, India and Thailand have imposed tariffs on exporting when bad weather conditions and diseases have resulted in a significant decrease in the domestic output of food items. By discouraging the export of food, the availability of food is likely to be greater and the price lower on the home market. Such action can reduce the risk of **absolute poverty** increasing and, in extreme cases, malnutrition occurring.

Export tariffs can also act as a form of protectionism. This is because if they are placed on raw materials, they can protect the domestic industries that use those raw materials. For example, if Australia were to impose an export tariff on iron ore to Japan, it would increase the costs of Japan's steel producers and make them less internationally competitive.

Import quotas

Quotas are limits on imports. The limits are usually imposed on the quantity of imports. Restricting the supply of imports is likely to drive up their price. So, as with tariffs, quotas are likely to disadvantage consumers as they result in them paying higher prices and consuming fewer products.

Unlike tariffs, quotas usually do not raise revenue for the government. In this case, it is the sellers of the imports that will receive the extra amount per unit paid by consumers. However, in some cases licences are sold to foreign firms to sell some allocation of the quota. It is also possible to impose quotas on exports. As with export tariffs, the motive may to ensure an adequate supply on the home market or as a form of protectionism.

Export subsidies

Subsidies may be given to both exporters and to those domestic firms that compete with imports. In both cases domestic firms will, in effect, experience a fall in costs. This will encourage them to increase their output and lower their price. This may enable them to capture more of the markets at home and abroad.

The losers will be foreign firms and domestic taxpayers. Domestic producers will gain. Consumers will also benefit in the short run. However, in the long run, they may lose if more efficient foreign firms are driven out of business and subsidised domestic firms raise their prices.

TIP

Think carefully when interpreting a reduction in a quota. If a government reduces the size of a quota, it actually means that it is increasing trade protection. This is because it would be allowing fewer units of the good into the country.

Embargoes

An **embargo** is a complete ban either on the imports of a particular product or on trade with a particular country. A government may want to ban the import of a product that it regards as harmful, such as non-prescription drugs or weapons. A ban on trade with a particular country may arise from political disputes.

Voluntary export restraints

Voluntary export restraints are sometimes also called voluntary export restrictions. They are an agreement by an exporting country to restrict the amount of a product that it sells to the importing country. The exporting country may be pressured into signing such an agreement or it may agree in return for the importing country also agreeing to limit the exports it sells of another product.

ACTIVITY 26.1

Figure 26.4: A rice mill in Nigeria

In 2019, the Nigerian government wanted to reduce the import of food products. The Nigerian government had imposed restrictions on the import of rice four years before. Domestic rice production has increased but Nigerian farmers do not have much spare capacity. As a result, the price of rice has risen and there has been an increase in rice smuggling.

1. Why might the supply of Nigerian rice increase in the future?
2. Why might rice smuggling continue in the future even if the price of Nigerian rice falls?

Compare your answers with another learner.

KEY CONCEPT LINK

Progress and development: The arguments for and against protectionism relate to whether imposing trade restrictions will or will not help an economy to progress.

Excessive administrative burdens ('red tape')

A government may seek to discourage imports by requiring importers to fill out lengthy forms that are time-consuming to complete (excessive administrative burdens or 'red tape'). It may also set artificially high product standards to restrict foreign competition. Such measures restrict consumer choice.

Exchange control

Instead of limiting imports directly, a government may place limits on the amount of foreign exchange that can be purchased in order to buy imports, travel abroad or invest abroad. This is known as **exchange control**.

26.3 The arguments for protectionism

Despite the potential advantages of free trade, most countries impose import restrictions. There are a number of arguments for protectionism:

- to protect **infant industries**
- to protect declining industries
- to protect strategic industries
- to prevent **dumping**
- to improve the terms of trade
- to improve the balance of payments (see Section 27.1)
- to provide protection from cheap labour.

To protect infant industries

Firms in a new industry may find it difficult to survive when faced with competition from more established, larger foreign firms. This may be because the foreign firms are taking advantage of economies of scale and/or benefiting from their names being well-known.

A new infant industry may be protected to give the industry time to grow and so benefit from economies of scale and to gain an international reputation. If the infant (also called sunrise) industry has the potential to develop into an efficient industry in line with comparative advantage, then using trade restrictions may be justified. However, it is difficult to identify which new industries will develop and gain a comparative advantage. It is, for example, very difficult to estimate the long-run average cost curves of firms in the industry.

There is also the risk that an infant industry may become dependent on protection. Knowing that rival foreign products are being made artificially expensive, it may not feel any pressure to lower its costs.

To protect declining industries

If declining (also called sunset) industries that have lost their comparative advantage go out of business quickly, there may be a sudden and large rise in unemployment. If the industry is given protection and the protection is only gradually removed, unemployment might be avoided. As the industry reduces its output, some workers may retire and some leave for jobs in other industries.

Once again, there is a risk that the industry may resist reductions in the protection it receives. This can lead to considerable inefficiency. For example, a country's steel industry may have lost its comparative advantage while its car industry does have a comparative advantage. If the government imposes tariffs on steel, it will disadvantage its car industry, which will now have to buy more expensive steel from domestic producers. The tariffs on steel will raise the car industry's costs of production and this may result in the loss of sales at home and abroad.

TIP

Find examples of infant and declining industries from your own or another country so that you can use them in your answers.

To protect strategic industries

Some governments seek to protect industries that produce products regarded as strategic, such as weapons, fuel and food. Governments may not want to be dependent on foreign supplies of these products. For example, a government may be worried that firms and households in its country would be seriously disadvantaged if fuel was cut off due to a trade dispute or a military conflict. As a result, it may protect some home industries even if they are relatively inefficient.

To prevent dumping

There may be an economic justification for imposing trade restrictions in the case of dumping as this practice may be regarded as unfair competition. Dumping involves selling products at below their cost price. In the short run, home consumers will benefit from dumping as they will enjoy lower prices. However, in the long run, if foreign firms drive out domestic firms, they may gain a **monopoly** and then raise their prices. Foreign firms may engage in dumping with the specific objective of gaining control of a market in another country by destroying existing competition and preventing new domestic firms from becoming established.

Foreign firms may be able to engage in dumping by covering losses with previous profits, by charging high prices in their home markets or because they receive subsidies from their governments.

In practice, it can be difficult to determine if dumping is taking place or whether the foreign firms have gained a comparative advantage.

ACTIVITY 26.2

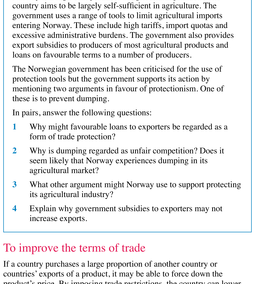


Figure 26.5: A dairy farm in Norway

Norway is a high-cost producer of agricultural products. The country aims to be largely self-sufficient in agriculture. The government uses a range of tools to limit agricultural imports entering Norway. These include high tariffs, import quotas and excessive administrative burdens. The government also provides export subsidies to producers of most agricultural products and loans on favourable terms to a number of producers.

The Norwegian government has been criticised for the use of protection tools but the government supports its action by mentioning two arguments in favour of protectionism. One of these is to prevent dumping.

In pairs, answer the following questions:

1. Why might favourable loans to exporters be regarded as a form of trade protection?
2. Why is dumping regarded as unfair competition? Does it seem likely that Norway experiences dumping in its agricultural market?
3. What other argument might Norway use to support protecting its agricultural industry?
4. Explain why government subsidies to exporters may not increase exports.

To improve the terms of trade

If a country purchases a large proportion of another country or countries' exports of a product, it may be able to force down the product's price. By imposing trade restrictions, the country can lower demand for the product and, as its demand is significant, this may lead to a lower price. This will improve the country's terms of trade and allow it to purchase more imports for the same quantity of exports.

Similarly, if a country accounts for a significant proportion of the world's supply of a product, quotas on its exports may improve its terms of trade. Restricting the supply of exports will drive up their price and so increase the purchasing power of exports.

Obviously, such action distorts trade and is likely to reduce global output. It may also result in retaliation.

To improve the balance of payments

A government may impose trade restrictions in order to improve its **current account** position. For instance, imposing tariffs may encourage consumers to switch from buying imports to buying domestic products.

However, this may lead to retaliation. If foreign governments retaliate by imposing their own trade restrictions then, while the country's imports may fall, so might its exports. International trade would decline and again global output would fall. In addition, if the country's products are not internationally competitive because of strategic problems, trade restrictions would only provide a short-term boost to the current account.

To provide protection from cheap labour

Some economists argue that trade restrictions should be imposed on products from countries where wages are very low. The view is that, in order to compete, wages and so living standards in the country would have to fall. This is not a very strong argument. Low wages do not always mean that a country will be able to produce products more cheaply as labour productivity may be low and so labour costs may actually be relatively high. If low wages are actually linked to low costs, it may indicate that the countries have a comparative advantage.

There may be moral arguments for imposing trade restrictions on products produced using slave or child labour. However, even here, other approaches may be more appropriate as trade restrictions may drive down wages even further in low-income countries.

Other reasons

There are a number of other reasons why a government may impose trade restrictions. Tariffs may be used to raise revenue. This will be successful if demand for imports is inelastic.

A government may impose trade restrictions to try to persuade another government to reduce its trade protection. For instance, retaliating against another government imposing a quota on imports from the country may persuade the other government to remove its quota. However, there is a risk that a trade war will develop.

A government may be concerned that certain imports do not meet health and safety standards. Governments may have different standards. For example, Zimbabwe banned the importation of genetically modified food between 2008 and 2020 whereas Canada did not.

In addition, a government may seek to protect a range of industries to avoid the risks attached to overspecialisation.

TIP

Remember when answering questions on protectionism and free trade that the arguments for free trade are, in effect, also the arguments against protectionism. Similarly, the arguments for protectionism are the arguments against free trade.

THINK LIKE AN ECONOMIST

Economic concepts and protectionism

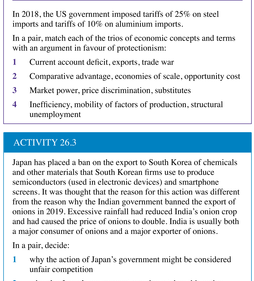


Figure 26.6: Aluminium ingots

In 2018, the US government imposed tariffs of 25% on steel imports and tariffs of 10% on aluminium imports.

In a pair, match each of the trios of economic concepts and terms with an argument in favour of protectionism:

1. Current account deficit, exports, trade war
2. Comparative advantage, economies of scale, opportunity cost
3. Market power, price discrimination, substitutes
4. Inefficiency, mobility of factors of production, structural unemployment

ACTIVITY 26.3

Japan has placed a ban on the export to South Korea of chemicals and other materials that South Korean firms use to produce semiconductors (used in electronic devices) and smartphone screens. It was thought that the reason for this action was different from the reason why the Indian government banned the export of onions in 2019. Excessive rainfall had reduced India's onion crop and had caused the price of onions to double. India is usually both a major consumer of onions and a major exporter of onions.

In a pair, decide:

1. why the action of Japan's government might be considered unfair competition
2. why else Japan's government may have taken this action
3. what are the reasons for the Indian government's action
4. what other information it would have been useful for you to have had in reaching your decisions about Japan's motivation
5. a product on which your government might want to place an export ban.

TIP

When asked to write about the arguments for protectionism, learners often devote too much attention to describing the tools of protectionism. Always consider very carefully what a question is asking.

26.4 The arguments against protectionism

Protectionism does not always work. For example, infant industries may not become more efficient. Protectionism also prevents countries from enjoying the benefits of free trade (see Section 25.2). So, protectionism may:

- prevent countries from specialising in the products in which they have a comparative advantage – this can lower global output and living standards
- reduce international competition and so increase prices and lower the quality of products
- reduce the choice of products available to consumers
- lower the size of firms' markets and so reduce their ability to take advantage of economies of scale
- reduce firms' choice of raw materials and capital goods which may increase costs of production
- result in a trade war, with tariffs pushing up prices.

ACTIVITY 26.4

Figure 26.7: The headquarters of the World Trade Organization in Geneva

The World Trade Organization (WTO) is a global organisation that promotes free trade. It encourages member countries to remove tariffs and other trade restrictions. It also settles trade disputes between member countries. The majority of countries are members of the WTO. Algeria is one of the few that do not currently belong.

In pairs:

1. Research what membership of the WTO involves.
2. Research the CIA World Factbook on the economy of Algeria.
3. Prepare and give a presentation to an invited group of family members on whether Algeria should join the WTO.

REFLECTION

How did preparing and giving a presentation to a group who may not understand economic terms differ from a presentation that you have given to your economics class? How did it make you think in depth about the arguments for and against protectionism?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What is *not* a reason for a government to impose an import tariff?

A to protect a strategic industry

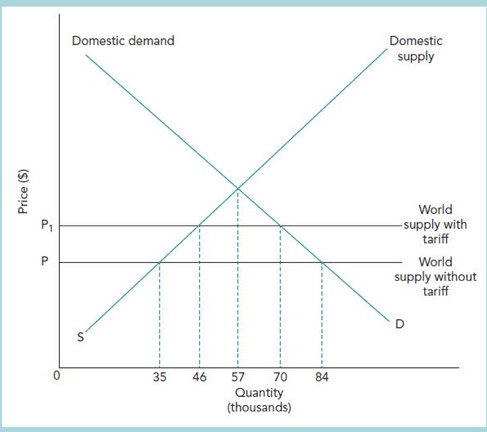
B to raise revenue

C to protect a declining industry

D to reduce inflation

2 A government places a tariff on a product. The diagram shows the effect of this on the home market.

What is the reduction in the volume of imports?



A 14 000

B 24 000

C 25 000

D 35 000

3 A government removes a tariff on imported food. What is most likely to increase in the short term?

A consumer surplus experienced by domestic consumers

B output of domestic food producers

C tariffs imposed by foreign governments on imports of food from the country

D the quantity foreign producers sell on their home markets

4 The Argentinian government imposes a quota on imports of cars from Japan. Which strategy would help a Japanese car firm to sell more cars to Argentinian consumers?

A cutting the price of the cars it exports to Argentina

B offering three years of free car insurance to Argentinian consumers

C producing a new improved model to sell to Argentina

D setting up a new car manufacturing factory in Argentina

5 What is an argument in favour of a government imposing import tariffs?

A It will create a greater variety of products available for domestic consumers.

B It will encourage foreign firms to reduce the prices of their exports.

C It will reduce the market power of domestic producers.

D It will stimulate an increase in the output of sunset industries.

6 Which tool of protection would be the *least* effective if demand for imports is price inelastic?

A embargo

B exchange control

C quota

D tariff

7 A government imposes an export tariff on food and an import tariff on cars. What are the likely effects in the short term on the price of food and the price of cars in the country?

	Price of food	Price of cars
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

8 What is a valid argument for the imposition of a quota on the import of a product from another country?

A The other country has lower health and safety standards.

B The other country has removed subsidies given to its producers of the product.

C The other country's producers have an absolute advantage in producing the product.

D The other country's producers are selling the product at above cost price.

9 Why may some firms oppose the imposition of import tariffs?

A They may decrease demand for their products.

B They may decrease the terms of trade.

C They may increase their costs of production.

D They may increase the tax revenue the country's government receives.

10 What is a possible disadvantage of protectionism?

A It can give time for infant industries to grow.

B It can prevent dumping.

C It can reduce competitive pressure on domestic firms.

D It can stop the importation of demerit goods.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that protectionism is when governments seek to protect domestic industries from foreign competition			
Explain the impact of the tools governments use to protect their industries and restrict trade: tariffs, import quotas, export subsidies, embargoes, excessive administrative burdens (‘red tape’)			
Analyse the impact of the different tools of protection			
Discuss the arguments for and against protectionism			

Chapter 27

Current account of the balance of payments

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the components of the current account of the balance of payments
- calculate the balance of trade in goods, in services and in goods and services and overall current account balance
- analyse the causes of imbalance in the current account of the balance of payments
- discuss the consequences of imbalance in the current account of the balance of payments for the domestic and external economy.

ECONOMICS IN CONTEXT

The international trade challenges of countries

All countries keep accounts of money flowing into the country from other countries and money flowing out to other countries. These accounts record a range of international transactions. These international transactions can provide countries with a number of challenges.

Figure 27.1: Some international currencies

For many years, Argentina has spent more on imports than it has earned from selling its exports. To reduce the deficit between its import expenditure and export revenue, the Argentinian government has used a number of policy tools designed to encourage the production of domestic substitutes for imports and to encourage an increase in exports.

South Africa, with its plentiful supply of gold, diamonds and other metals, usually earns more from its exports of goods than it spends on imports of goods. However, it often spends more on importing services than it earns on exporting services. More significantly, a large value of **dividend payments** and interest rate payments leaves South Africa each year which greatly exceed the dividend and interest rate payments that come into the country. A relatively high proportion of shares in firms based in South Africa are owned by foreigners and the country has borrowed a large amount from foreign banks.

Switzerland not only earns more from the sale of exports than it spends on imports; it also receives more investment income (profit, interest and dividends) from abroad than it sends out of the country. The extra money that comes into the country can put upward pressure on the country's **exchange rate**.

Discuss in a pair or a group:

- How can a country spend more on imports than it earns in export revenue?
- Do you think it is easy to keep an accurate record of all money flowing into and out of a country?
- Do you think all strong economies have higher export revenue than import expenditure?

27.1 What is a country's balance of payments?

A country's balance of payments is a record of all the economic transactions between residents of that country and residents in other countries. The **balance of payments account** consists of the current account, the **capital account** and the **financial account**.

Money coming into the country creates credit items, which have a positive sign. Money going out of the country gives rise to debit items and is recorded with a negative sign.

27.2 Components of the current account of the balance of payments

The current account of the balance of payments consists of:

- Trade in goods: refers to the exports and imports of goods such as cars, TVs and clothing. Exports give rise to credit items while imports give rise to debit items. The trade in goods balance is the revenue earned from exports of goods minus the expenditure on imports of goods. The trade in goods balance can also be called the visible balance and the merchandise balance. A trade in goods surplus arises when export revenue is greater than import expenditure.
- Trade in services: refers to the trade in exports and imports of services, which may be referred to as 'invisibles'. Services include shipping, tourism, banking and insurance. A trade in services deficit occurs when revenue from the export of services is less than the expenditure on services bought from other countries.
- Primary income: includes income in the form of profits, interest and dividends earned on direct investment abroad and foreign earnings on investment in the country. For example, dividends paid on foreign shares by residents in the country appear as credit items, while interest paid to foreigners on bank accounts they hold in the country are debit items. Primary income also includes 'employees' compensation'. Employees' compensation is wages earned by the country's residents working in other countries and paid for by residents of those countries.
- Secondary income: includes payments made and receipts received for which there is no corresponding exchange of an actual good or service. They include government transfers such as payments to and receipts from international organisations and foreign aid. Transfers by private individuals are also included in this part of the current account. One such transfer is workers' remittances. This is the transfer of money from people working in a foreign country, for a year or more, back to their relatives at home. In some countries, such as the Philippines, workers' remittances form a large credit item.

Current account balance

The current account balance is the overall balance of the trade in goods, trade in services, primary income and secondary income. A current account deficit means that the combined debit items on the four parts of the current account balance are greater than the combined credit items on the four parts. In contrast, a current account surplus occurs when the credit items on the four parts are greater than the combined debit items.

TIP

Remember when answering questions on the balance of payments that the credit items bring money into the country while debit items take money out of the country.

27.3 Balance and imbalances (deficit and surplus) in the current account of the balance of payments

There is usually an **imbalance** in the current accounts of individual countries. The value of **current account deficits** are matched by **current account surpluses**. This means that the world's current account is always in **balance**, with total credit items equal total debit items.

27.4 Current account balance calculations

The balance of trade of goods is calculated by subtracting the value of imports of goods from the value of exports of goods. For example, if a country exports $900m of goods and imports $1200m of good, it would have a trade in goods deficit of $300m.

The balance of trade in services also deducts the value of imports from the value of exports. This time it is imports of services and exports of services. If a country imports $100m of services and exports $160m of services, it would have a surplus on the balance of trade in services of $60m.

The balance of trade in goods and services (sometimes called the total trade balance) is calculated by adding the balance of trade in goods to the balance of trade in services. In the example given, the balance is – $300 m + $60 m = –$240 m.

To calculate the current account balance, the balance of the primary account and the balance of the secondary income are added to the balance of trade in goods and services. So, if the balance of primary income is $70m and the balance of secondary income is $45m, the current account balance is – $125 m (–$240 m + $70 m + $45 m).

ACTIVITY 27.1

Table 27.1 shows details of the current account balance of the USA.

	$ billion
Exports of goods	1670
Imports of goods	2620
Exports of services	828
Imports of services	558
Balance of primary income	245
Balance of secondary income	–119

Table 27.1: Details of the current account balance of the USA

Using the information in Table 27.1, calculate:

1. the US balance of trade in goods
2. the US balance of trade in services
3. the US balance of trade in goods and services
4. the US current account balance.

27.5 Causes of imbalances in the current account of the balance of payments

There will be imbalances in the current account of the balance of payments.

The causes of a current account deficit

Among the causes of a current deficit are:

- A growing domestic economy: When firms are increasing their output, they may buy more raw materials and capital goods from abroad. As well as import expenditure increasing, export revenue may decline as a result of exports being diverted from the foreign to the domestic market. This cause of a current account deficit is not likely to be considered a problem. It is also likely to be short-term and to be self-correcting. As the country's firms use the imported raw materials and capital goods to produce more products, they are likely to sell more products both abroad and at home. So, export revenue may rise to match the higher import expenditure.
- Declining economic activity in a country's trading partners: If the countries that buy this country's imports experience recessions or slowdowns in economic growth, their import expenditure may fall or rise more slowly. A current account deficit that arises from either change in the economic cycle of the domestic economy or the economies of trading partners is sometimes referred to as a cyclical deficit. It is not usually considered to be a problem as it is likely to be relatively short-term and self-correcting.
- Structural problems: A current account deficit that lasts over the long run is more of a concern. This is because it indicates that domestic firms are not internationally competitive and that the country may have to borrow to finance the surplus spending. There are a number of causes of a lack of international competitiveness – these include an overvalued exchange rate maintained by government intervention and a relatively high inflation rate. Low labour and capital productivity also result in a lack of international competitiveness. These, in turn, may result from poor quality education and training and a low level of investment and innovation. A structural deficit is a cause for concern as it will not be self-correcting.

TIP

Learners often write that a trade deficit arises when imports exceed exports. However, remember that a trade deficit arises not when the *quantity* of imports is greater than the *quantity* of exports, but rather when the *value* of imports (price × quantity) is greater than the *value* of imports.

The causes of a current account surplus

Among the causes of a current account surplus are:

- A declining domestic economy: If an economy is experiencing a recession, demand for imports is likely to decline. Consumers will buy fewer goods and services and firms will buy fewer raw materials and capital goods as output will fall. Such a cause of a current account surplus will not be beneficial.
- Increasing economic activity in the country's trading partners: If the countries' trading partners are doing well, they are likely to buy more of the country's exports. The country's people who are working in these countries may earn higher wages, some of which they can send back to their relatives at home.
- Structural advantages: A country's firms may be competitive for a number of reasons. These include good education and training and a high level of investment and innovation. Other reasons why a country may be successful in selling more goods and services to other countries than it buys from them include low inflation and a low exchange rate, These two factors may result in the country's products being price competitive.

TIP

The causes of a current account surplus are the reverse of the causes of a current account deficit. So, if you understand the causes of a deficit, you can work out the causes of a surplus.

ACTIVITY 27.2

The USA's current account deficit in 2005 reached 6.2% of GDP, which suggested the country was living significantly beyond its means. The deficit had declined partly due to a rising surplus in primary income. The main cause, however, was a reduction in the trade in goods deficit. Output and productivity had risen in the country. There had also been demographic changes, with a rise in the average age of the population. Older people tend to spend more on services, which are mostly produced at home, and less on goods.

1. Explain what would cause an increase in investment income.
2. Explain *two* reasons why the US's trade in goods balance improved.

27.6 Consequences of imbalances in the current account on the economy

A current account deficit allows the residents of a country to consume more products than the country produces. This is sometimes referred to as a country living beyond its means. However, the country will have to finance the deficit by attracting investment into the country or by borrowing. This will involve an outflow of money in the future in the form of investment income. An increase in a current account deficit may also reduce aggregate demand, which may slow down economic growth and may cause unemployment.

It might be thought that a current account surplus is always beneficial as it involves a country earning more than it is spending. However, it means that the country's residents are not enjoying as high a standard of living as possible. The high level of demand, combined with additions to the money supply, may generate inflationary pressure. Those countries experiencing current account deficits may also put pressure on the country to change its policies in order to reduce its surplus.

The significance of the size of a current account deficit or surplus can be assessed more effectively by considering it as a percentage of the country's gross domestic product (output) rather than seeing it in monetary terms. For example, in 2018, the UK had a current account deficit of $108 billion, the second largest in the world, whereas Albania's deficit was only $940 million. However, Albania's deficit might have been more of a concern as it accounted for 7.4% of the country's GDP whereas the UK's deficit accounted for only 4.2% of its GDP.

ACTIVITY 27.3

Table 27.2 shows Pakistan's current account in October 2019.

	Credit ($)	Debit ($)
Trade in goods	2062	4741
Trade in services	442	733
Primary income	85	594
Secondary income	2215	14

Table 27.2: Pakistan: Current account in $ millions (October 2019)

Workers' remittances make a significant contribution to Pakistan's current account position. Pakistanis working in other countries sent back $2060 million to their families in October 2019.

Using Table 27.2, calculate:

1. Pakistan's current account deficit
2. Pakistan's current account position in the absence of the workers' remittances received.

ACTIVITY 27.4

Table 27.3 provides information on a number of economies in 2019.

Country	Inflation %	Current account balance % of GDP	GDP % change on year
Argentina	55.0	–1.4	–3.3
Australia	1.6	0.1	1.6
Germany	1.3	6.6	0.5
Singapore	0.6	14.3	–0.3
Turkey	14.8	–0.2	–0.3
UK	1.8	–4.2	1.2

Table 27.3: Information on selected economies, 2019

1. In a pair, using Table 27.3, explain:
   a. how the inflation rate can influence the current account balance
   b. how the current account balance can influence economic growth.
2. At the beginning of the next lesson, explain your answers to the rest of the class.

REFLECTION

How much of the data in Table 27.3 did you include in providing explanations of your answers? How did you ensure that the class understood your answers?

THINK LIKE AN ECONOMIST

Canada's current account balance

Figure 27.2: A natural gas processing plant in Canada

Canada's main exports include petroleum, cars, electrical machinery, medicines, aircraft, timber and natural gas. Figure 27.3 shows Canada's current account balance over a period of five years.

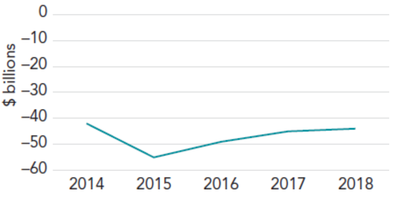


Figure 27.3: Canada's current account balance ($ billions), 2014–18

In pairs:

1. Explain how exports are linked to the following economic terms and concepts:
   - GDP
   - opportunity cost
   - the circular flow of income
   - trade in goods and services balance.
2. Plot your country's current account balance over the last ten years and find out reasons for the changes.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which of the following would appear as a credit item in primary income of a country's current account of the balance of payments?

A earnings of some of the country's residents who work for a few months in other countries

B interest paid on loans to foreign countries' banks

C payments made to foreign producers of raw materials used by the countries' most important industries

D revenue earned by one of the country's airlines for carrying foreign passengers

2 What is meant by a trade in goods surplus?

A the cost of exports of goods exceeds the cost of imports of goods

B the price of exports of goods exceeds the price of imports of goods

C the value of exports of goods exceeds the value of imports of goods

D the volume of exports of goods exceeds the volume of imports of goods

3 Which of the following would be included in the current account of the balance of payments of Mauritius?

A spending by French people on holiday in Mauritius

B receipt by the Mauritian government of tax revenue paid by Mauritians

C the purchase of shares in German firms by Mauritians

D the sale of sugar cane grown in Mauritius to Chinese-owned firms based in Mauritius

4 What might cause a reduction in the current account surplus of Botswana?

A a fall in the value of Nigerian oil sold to Botswana

B a fall in the amount people from Botswana spend on holidays in China

C a rise in the value of diamonds from Botswana purchased by South African firms

D a rise in the profits Indian multinational companies in Botswana send home to India

5 The table shows information on a country's current account of the balance of payments.

	$ (millions)
Exports of goods	80
Imports of goods	95
Exports of services	22
Primary income balance	−12
Secondary income balance	15
Current account balance	−20

What was the value of the country's imports of services?

A $10m

B $15m

C $23m

D $30m

6 Which of the following would appear as a debit item in secondary income of the balance of payments of the Maldives?

A dividends paid on Indian shares held by residents of the Maldives

B interest paid by Maldivian firms on loans from Dutch banks

C profits earned by UK firms in the Maldives which are reinvested in the Maldives

D transfers of money from US citizens working in the Maldives to their families in the US

7 A country pays more interest on foreign loans and receives a higher value of workers' remittances from abroad. What effect will these changes have on components of the country's current account of the balance of payments?

	Increase in interest paid abroad	Increase in workers' remittances received from abroad
A	improve trade in services	improve primary income
B	improve primary income	worsen trade in services
C	worsen primary income	improve secondary income
D	worsen secondary income	improve primary income

8 The table shows information on four countries: W, X, Y and Z.

	Country W	Country X	Country Y	Country Z
GDP	$6250m	$3910m	$5840m	$4900m
Consumer expenditure	$4100m	$1720m	$3650m	$2800m
Investment	$1452m	$960m	$1250m	$1350m
Government spending	$2050m	$850m	$2400m	$750m

Which country has a surplus on the current account of its balance of payments?

A Country W

B Country X

C Country Y

D Country Z

9 What effect is an increase in a deficit on the current account of the balance of payments likely to have on economic growth and unemployment?

	Economic growth	Unemployment
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

10 Which cause of a deficit on the current account of the balance of payments would be of the *least* concern to a government?

A the country's aircraft industry expanding and buying imported engines

B the country's consumers switching their preferences from clothes that are domestically produced to imported clothes

C the country's inflation rate exceeding that of its rivals

D the country's rate of innovation being below that of its rivals

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Identify the components of a country's balance of payments			
Describe the components of the current account of the balance of payments			
Calculate the balance of trade in goods, in services and in goods and services and overall current account balance			
Analyse the causes of imbalances in the current account			
Examine the causes of a current account deficit: growing domestic economy, declining economic activity in a country's trading partners, structural problems			
Examine the causes of a current account surplus: declining domestic economy, increasing economic activity in a country's trading partners, structural advantages			
Discuss the consequences of imbalance in the current account			

Chapter 28

Exchange rates

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of an exchange rate
- explain how a floating exchange rate is determined
- explain the difference between depreciation and appreciation of a floating exchange rate
- analyse the causes of changes in a floating exchange rate
- discuss, using AD/AS analysis, the impact of exchange rate changes on the domestic economy's equilibrium national income and the level of real output, the price level and employment.

ECONOMICS IN CONTEXT

Morocco considers changing its exchange rate system

The Moroccan central bank, Bank al-Maghrib, has traditionally influenced the price of its currency, the Moroccan dirham, on the foreign exchange market. At the start of 2018, however, it allowed market forces to play a larger role in determining its exchange rate. Unfavourable global economic conditions and rising Moroccan debt resulted in a large fluctuation of the dirham, affecting the country's export and import prices. The central bank went back to intervening in the market. In 2019, the governor of the central bank announced that it would again allow demand and supply to determine the exchange rate. The governor claimed that this would increase the country's international competitiveness and help the country cope with unexpected economic changes.

Figure 28.1: The central bank of Morocco, Bank al-Maghrib

At the start of 2020, the exchange rate between the US dollar and the Moroccan dirham was relatively constant at $1 = 9.6 dirham. In mid-February, the value of the dirham started to fall. By mid-April, 10.2 dirhams had to be sold to buy one US dollar.

Most countries allow their exchange rates to be determined by the demand for and supply of their currencies. Some central banks, like Bank al-Maghrib, will intervene if they think the prices of their currencies are falling or rising too much. For example, if a central bank thinks the price is going too low, it may buy its own country's currency.

Discuss in a pair or a group:

- A reason why you might buy another country's currency?
- How might changes in an exchange rate affect the current account of the balance of payments?
- What would you expect to happen to a country's exchange rate if demand for its currency increases?

28.1 The exchange rate

The foreign exchange rate is the price of one currency in terms of another currency; that is, the price of the domestic currency in terms of a foreign currency. For example, the price of US$1 may be 50 Indian rupees. This would mean that a 5000-rupee product would sell in the US for US$100. A rise in India's foreign exchange rate against the US dollar would increase the price of India's exports in terms of US dollars and would lower the price of India's imports in terms of rupees. For example, the value of the rupee might rise to US$1 equals 40 rupees so that a US dollar may be purchased with fewer rupees. Now a 5000-rupee product would sell in the US for US$125. A US $20 import that would have initially sold in India for 1000 rupees, will now sell in India for 800 rupees.

TIP

Remember when examining the effects of a change in the exchange rate that there is a difference between the external and internal value of a currency. The exchange rate shows the external value and the price level shows the internal value.

28.2 How a floating exchange rate is determined

A **floating exchange rate** is one determined by market forces. Currencies are bought and sold on the foreign exchange market. This market does not exist in a single location but is made up of financial institutions that buy and sell foreign currency on behalf of private and business customers. Large values of currencies are bought and sold on any particular day. The price of the currency is determined by the relative strengths of the demand for and supply of the currency.

There are various reasons why currency traders will buy the domestic currency. These include enabling their customers to:

- purchase goods and services from the country
- invest in the country
- speculate on making a profit if the value of the currency should rise in the future. Financial institutions also speculate on future currency movements on their own behalf.

The currency will be sold to buy imports, to invest abroad and in expectation that the value of the currency will fall in the future.

28.3 Depreciation and appreciation of a floating exchange rate

A fall in the value of a currency caused by market forces is known as a **depreciation**. Such a fall will cause a reduction in export prices in terms of foreign currencies and a rise in import prices in terms of the domestic currency. Figure 28.2 shows that an increase in the supply of a currency will result in a fall in its value.

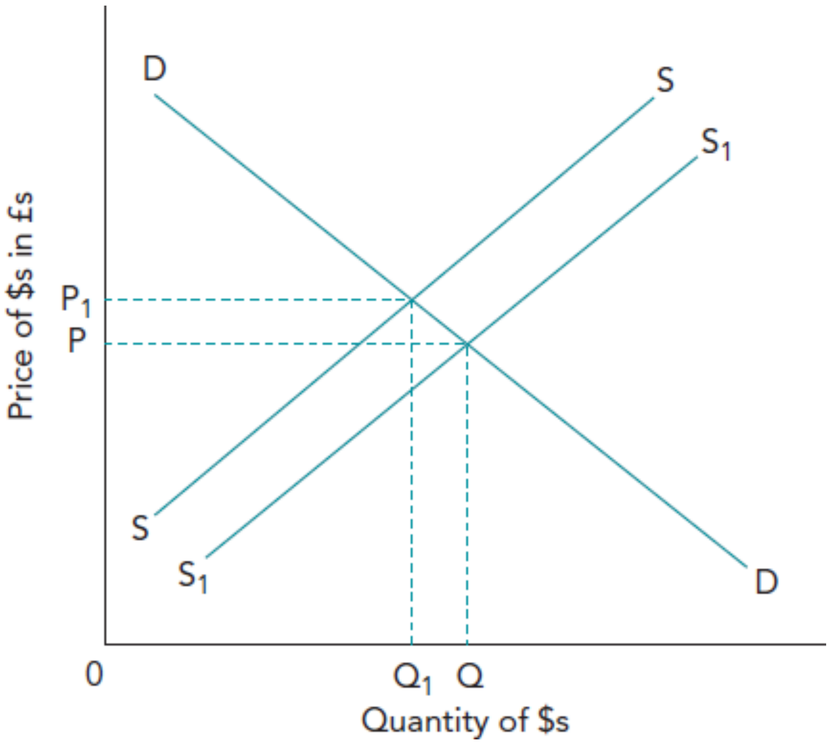


Figure 28.2: The effect of an increase in the supply of currency

A rise in the value of the currency, caused by an increase in demand and/or a decrease in supply, is known as an **appreciation**. This will make exports more expensive in terms of foreign currencies, and imports cheaper in terms of the domestic currency. Figure 28.3 shows an appreciation in the value of the US dollar. This might have been caused by a fall in the American demand for UK imports. If Americans are buying fewer UK imports, they will need to sell fewer dollars to purchase pounds sterling.

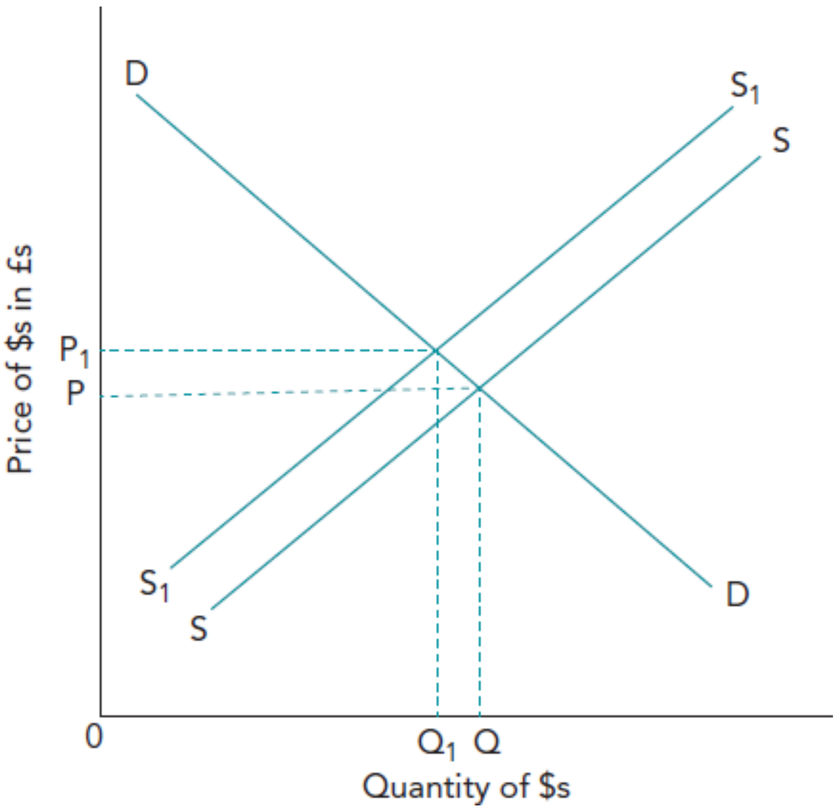


Figure 28.3: The effect on the value of the dollar of Americans buying fewer UK products

28.4 The causes of changes in a floating exchange rate

Changes in the demand for and supply of a currency will cause a change in the price of the currency in the case of a floating exchange rate.

Demand for the currency will rise if a higher value of exports is being sold. More exports may be sold if the country's relative inflation rate has fallen, relative productivity has risen, the quality of products produced has risen or incomes abroad have increased.

Foreigners may buy more of the currency if they wish to purchase shares in the country's firms due to the country's economic prospects improving. They may also want to buy more of the currency in order to open accounts in the country's banks because of higher interest rates. There can be considerable movements of money around the world seeking to gain a financial advantage by earning higher interest rates and buying currencies that are expected to rise in prices. Such short-term movements of money between countries are sometimes referred to as **hot money flows**. Speculation about future interest rate changes and changes in the price of currencies can account for a large proportion of the currency purchased.

Foreign firms may purchase a greater value of the currency in order to set up branches in the country, perhaps because of a rise in labour productivity in the country, a growing market or to get round trade restrictions.

While an increase in demand for the currency will push up its price, an increase in its supply will cause a fall in its price. More of the currency may be sold to purchase other currencies for a variety of reasons, including to purchase more imports, to undertake foreign travel, to purchase more of the country's government bonds, to set up firms abroad and in anticipation of a fall in the value of the currency or the country's interest rate.

TIP

When explaining the causes of a change in a floating exchange rate, it is useful to include a demand and supply diagram.

ACTIVITY 28.1

Table 28.1 shows the changes in the value of the Australian dollar between 2010 and 2019.

Year	Price of A$ in US$	Price of A$ in Pound Sterling (UK)	Price of A$ in Japanese Yen
2010	0.84	0.60	80.6
2011	1.06	0.64	82.6
2012	1.02	0.65	82.7
2013	0.95	0.62	94.3
2014	0.94	0.55	91.0
2015	0.76	0.50	80.8
2016	0.76	0.55	86.0
2017	0.77	0.60	82.5
2018	0.74	0.56	75.8
2019	0.70	0.55	75.5

Table 28.1: Changes in the value of the Australian dollar (A$)

In pairs, using Table 28.1, discuss the following questions:

1. What is likely to have happened to the price of Australian imports from the USA between 2012 and 2015?
2. What was the pound sterling worth in Australian dollars in 2015?
3. What happened to the value of the Japanese Yen between 2016 and 2018?
4. How stable was the value of the Australian dollar in the period shown?
5. In which year did the Australian dollar depreciate the most?
6. If a currency depreciates against another currency, what has happened to the value of that other currency?
7. What was the $ worth in Australian dollars in 2019?
8. What further information would it have been useful to have to answer Q4?

28.5 The impact of exchange rate changes on the domestic economy

A change in the exchange rate can have a number of effects on an economy. It can influence its income, output, price level and employment.

The impact of a depreciation on the domestic economy's national income and real output

A fall in the value of the exchange rate will make exports cheaper, in terms of foreign currencies, and imports more expensive, in terms of the domestic currency. This may enable domestic firms to sell more products both at home and abroad. Some domestic consumers may now purchase home-made products rather than the now relatively more expensive imports. Some foreigners may now buy the country's exports rather than products produced by firms in other countries.

A rise in net exports will increase aggregate demand. As can be seen in Figure 28.4, this may result in a rise in output and national income.

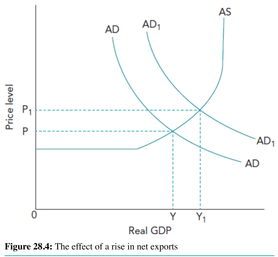


Figure 28.4: The effect of a rise in net exports

ACTIVITY 28.2

Sweden's exchange rate fell in 2018 and at the start of 2019. In 2018, the country's current account surplus on its balance of payments fell, but it rose in 2019. Some Swedish economists claimed that the country's currency – the krona – was undervalued. They recognised that such a rise in the currency value would have a different effect on different groups, including tourists and exporters. They also suggested that an appreciation could harm its future economic performance.

Write answers to the following questions:

1. Explain why a fall in a country's current account surplus would be expected to reduce its foreign exchange rate.
2. Analyse why a rise in the Swedish krona might help Swedish tourists but harm Swedish exporters.
3. Discuss whether a rise in a country's foreign exchange rate would always threaten an improvement in its economic performance.

Compare your answers with another learner. Amend your answer if appropriate.

The impact of a depreciation on the domestic price level

As Figure 28.4 shows, the higher aggregate demand that occurs because of a rise in net exports may give rise to inflationary pressure. As the economy approaches full capacity, resources will become increasingly scarce and their prices will be bid up. In addition, finished imported products that are still purchased will be more expensive and some of these will count in the country's consumer price index. Costs of production will be pushed up because the cost of imported raw materials will rise. Domestic firms may also feel less competitive pressure to keep costs and prices low.

TIP

Remember when explaining the effects of a fall in the price of a currency that it is likely to lead in a rise in the price level in the domestic economy and vice versa.

The impact of a depreciation on the domestic economy

If a depreciation does result in higher aggregate demand, firms producing for both the domestic economy and the external economy will be likely to take on more workers to expand their output. This may cause a decrease in cyclical unemployment.

The impact of an appreciation on the domestic economy's national income and real output

An appreciation (a rise in the exchange rate) will make exports more expensive in terms of foreign currencies, and imports cheaper in terms of the domestic currency. This is likely to result in a fall in demand for domestic products. This could result in a slowdown in economic growth or possibly even a recession. With lower real output, incomes are likely to fall.

The impact of an appreciation on domestic inflation

An appreciation may cause a reduction in inflationary pressure if the economy is operating close to or at maximum capacity. Figure 28.5 shows that in the absence of a rise in the exchange rate, aggregate demand might increase to AD_1 causing the price level to rise to P_1. A rise in the exchange rate may reduce the growth of aggregate demand to AD_2 and so the inflation rate would be lower than would be the case if the exchange rate had remained unchanged.

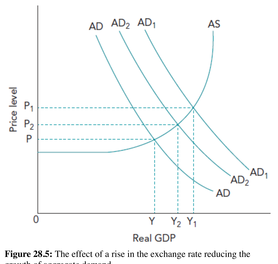


Figure 28.5: The effect of a rise in the exchange rate reducing the growth of aggregate demand

A higher exchange rate may also reduce inflationary pressure by shifting the aggregate supply curve to the right because of lower costs of imported raw materials. The price of imported finished products would also fall and there would be increased competitive pressure on domestic firms to restrict price rises in order to try to maintain their sales at home and abroad.

The impact of an appreciation on unemployment

An appreciation may increase unemployment. If aggregate demand decreases, firms may not replace workers who retire and may make some workers redundant.

ACTIVITY 28.3

Figure 28.6: A currency trading room

In a pair, role play the workings of a foreign currency trading room of a commercial bank.

Write out cards, each with a $1000 in a different major foreign currency (you could use the currencies listed below).

Select a card. Then, using the internet and newspaper articles, research predictions for what is likely to happen to the price of your currency and at least three other currencies. You can then decide to 'sell' some of the currency to 'buy' another currency or currencies. Record what currencies you are holding at the end of the exercise.

One week later, using the exchange rates on the day, calculate the value of the currency/currencies you are holding. Check with your class whether they have made or lost money on their transactions.

REFLECTION

How did you decide what currencies to buy? Explain to another pair how you made your decisions and ask them to explain their decisions. Did the other pair make any criticisms of your choices? If so, were you able to defend your choice? Did you make any criticisms of their choices?

KEY CONCEPT LINK

Time: A change in the exchange rate may take time to have an impact on the domestic economy. Firms and consumers have to first recognise that prices have changed. Then they need time to find substitutes. In the case of firms, they may also have signed contracts to buy or supply products for a number of months.

THINK LIKE AN ECONOMIST

The top ten currencies

Below are the top ten major currencies traded in 2019:

1. The US dollar
2. The European euro
3. The Japanese yen
4. The pound sterling
5. The Australian dollar
6. The Canadian dollar
7. The Swiss franc
8. The Chinese renminbi (Yuan)
9. The Swedish krona
10. The Mexican peso

Keep a record of changes in the value of a currency of your choice against three of these currencies, noting the causes and effects of these changes. Plot the changes on a wall chart.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A Chinese firm buys copper from Chile. What effect will this transaction have on the foreign exchange market?

	Chinese currency (renminbi/yuan)	Chilean currency (peso)
A	decrease demand	decrease supply
B	increase demand	decrease supply
C	increase supply	increase demand
D	decrease supply	increase demand

2 A country's exchange rate is initially 20 rupees = $1. Its firms sell a product in the USA for $20. Its domestic price stays the same, but the exchange rate changes to 25 rupees = $1. How much will the product now sell for in the USA?

A $16

B $18

C $24

D $25

3 There is a fall in Norway's exchange rate from 10 krona = US$1 to 15 krona = US$1. What must occur as a result of this change?

A Norwegian krona will become cheaper in terms of dollars.

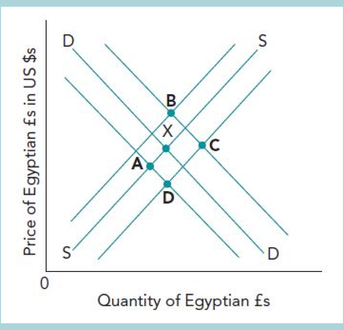
B The price level will fall in Norway.

C The US dollar will be undervalued.

D US imports from Norway will rise in price.

4 The diagram shows the exchange rate for Egyptian pounds in terms of dollars. The initial equilibrium is at X.

What will be the new equilibrium position if Egypt experiences a higher inflation rate than the USA and if more Egyptians visit the USA as tourists?



5 The diagram shows the demand for and supply of dollars on the foreign exchange market. D and S are the initial demand and supply curves of the dollar ($). Which change would cause the demand curve to shift to D_1 and the supply curve to S_1?

A a decrease in Japanese tariffs on US imports

B a decrease in US interest rates

C an increase in Japanese incomes

D an increase in the quality of US products

6 A country experiences an appreciation of its floating exchange rate. Which combination of changes to the components of the current account of the balance of payments would have caused this?

	Trade in goods deficit	Trade in services surplus	Primary income deficit	Secondary income surplus
A	decrease	increase	unchanged	increase
B	increase	decrease	increase	unchanged
C	increase	unchanged	increase	decrease
D	unchanged	decrease	increase	decrease

7 The price of a country's imports decreases and its trade in goods and services deficit decreases. What could explain this?

A export revenue decreases

B the net inflow of profit increases

C the price elasticity of demand for imports is inelastic

D workers' remittances out of the country decrease

8 Country X and Country Y have floating exchange rates. What would cause Country X to have to pay more for Country Y's currency?

A Country X's citizens switch their purchases from Country Y's products to products produced at home.

B Country X's firms spend less on machinery from Country Y.

C Country Y's citizens pay more interest on loans from Country X's banks.

D Country Y's workers earn more in Country X.

9 When would a government welcome an appreciation in its country's currency?

A The country has a current account deficit.

B The country has a high inflation rate.

C The country has a high unemployment rate.

D The country is experiencing a recession.

10 What is a likely consequence of a fall in the international price of the Canadian dollar?

A a fall in Canada's price level

B a fall in the foreign currency price of Canada's exports

C a rise in cyclical unemployment in Canada

D a rise in the deficit on the current account of Canada's balance of payments

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that an exchange rate is the price of one currency in terms of a foreign currency			
Explain how a floating exchange rate is determined by demand for and supply of the currency			
Explain why a depreciation is a fall in the price of a currency whereas an appreciation is a rise in the price of a currency			
Consider how changes in the demand for and supply of a currency will cause a change in the price of the currency in the case of a floating exchange rate			
Discuss how a change in the exchange rate can influence the current account position, national income, level of real output, price level and employment			

Chapter 29

Policies to correct - imbalances in the current account of the balance of payments

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the government policy objective of stability of the current account
- analyse the effect of fiscal, monetary, supply-side and protectionist policies on the current account.

ECONOMICS IN CONTEXT

China's large current account surplus

China has had a large current account surplus for decades. There are thought to be a number of reasons for this. One is thought to be an undervalued exchange rate, making the country's exports cheap and the country's imports expensive. Another is the country's high savings ratio. Both Chinese households and Chinese firms save a relatively high proportion of their income while spending only a low proportion on imports. China has also gained a comparative advantage in a range of manufactured goods.

Figure 29.1: A shopping mall in China

The current account surplus has brought pressure on the country to reduce the surplus. It has worsened its trading relations with the USA with a trade war breaking out between the two countries. In contrast to China, the USA has a low savings ratio and a large current account deficit.

The Chinese government is seeking to rebalance the economy with less reliance on exports and more reliance on consumer expenditure as a source of economic growth.

Discuss in a pair or a group:

- What would be the relationship between the demand and supply of a currency if it is undervalued?
- What could cause a country to gain a comparative advantage in manufacturing goods?
- What would be *two* advantages of relying more on consumer expenditure and less on exports as a source of economic growth?

29.1 Government policy objective of stability of the current account

Most governments do seek to achieve balance of payments stability, with money entering the country equalling money leaving the country. If export revenue equals import expenditure, the country will not get into international debt. It will also not be giving up the opportunity to buy foreign products that it can afford.

In the short run, however, a government may welcome more being spent on imports than earned from exports if this arises from more raw materials and capital goods being imported. A deficit also allows a country to consume more goods and services than it is producing. Alternatively, a government may encourage a surplus of export revenue over import expenditure in order to boost aggregate demand and to provide funds to repay external debt.

TIP

Remember when considering the extent to which there is an imbalance in the current account, it is useful to look at a deficit or surplus as a percentage of GDP.

29.2 The effect of fiscal policy on the current account

If a country is experiencing a deficit on the current account of its balance of payments, it may use a variety of fiscal policy tools. To reduce demand for goods and services including imports, it could use contractionary fiscal policy, increasing income tax and reducing government spending. A rise in income tax will reduce disposable income, leaving less income for households to spend on imports as well as products produced by domestic firms. Lower government spending will directly reduce demand for goods and services which may reduce imports and put pressure on domestic firms to increase their exports.

If a government is seeking to reduce a current account surplus, it could use expansionary fiscal policy. Lower income tax and higher government spending on, for instance, state pensions will increase consumer expenditure. More imports will be purchased and some products may be diverted from the export market to the home market.

Figure 29.2: Imports entering a country

Fiscal policy measures may alter a country's current account position in the short term but are unlikely to be a long-term solution. This is because once the policy measures are stopped, households and firms are likely to go back to spending the same amount on imports relative to the amount of export revenue earned.

Raising taxes may also have adverse side effects. They lower demand, which may increase unemployment and slow economic growth. Higher taxation can also create disincentive effects and so may reduce aggregate supply.

29.3 The effect of monetary policy on the current account

Reducing the growth of the money supply may be used to reduce the growth in spending on imports. However, it can be difficult to control the money supply (see Section 23.2).

Changing the rate of interest to influence the current account position is a more complex process. If an economy has a low rate of inflation and a current account deficit, its central bank may reduce the interest rate in an attempt to put downward pressure on a floating exchange rate. A lower exchange rate may result in the country's products becoming more internationally competitive, but there is a risk it may generate inflationary pressure. In contrast, a higher interest rate may act as a way of cutting consumer expenditure, reducing demand for imports and reducing inflationary pressure. It may, however, raise a floating exchange rate that could reverse the fall in demand for imports.

To reduce a current account surplus, a government may seek to increase consumer expenditure by using expansionary monetary policy. In this case, it may raise the money supply and cut the rate of interest. It might also try to encourage an appreciation of the exchange rate.

Most monetary policy tools are not likely to be effective in reducing imbalances in the current account of the balance of payments in the long-term. This is because they are unlikely to be tackling the structural weaknesses in the economy, such as low productivity, which are causing a current account deficit. They may also not have any long-term effect on structural strengths, such as a high rate of innovation and ownership of scarce raw materials, which are causing a current account surplus.

29.4 The effect of supply-side policy on the current account

Supply-side policy tools may reduce a current account deficit by making domestic products more price competitive and by making domestic markets more attractive to invest in. For instance, deregulation and privatisation may increase the competitive pressure on domestic firms to keep costs and prices low, to improve quality and to become more responsive to changes in consumer demand.

Increased spending on education and training and increased investment subsidies may also increase exports. A more skilled labour force and better capital equipment may reduce the relative price of domestic output and raise its quality. Both of these effects will be likely to increase domestic firms' share of the home market and the international market.

A skilful labour force and good-quality capital equipment may also attract foreign multinational companies (MNCs) to set up a local branch in the country in expectation they will be able to produce good-quality products at low cost. Such multinational companies may contribute to the country's exports.

Trade union reform may enable domestic firms to work with more flexibility and so be more responsive to changes in demand. A resulting fall in industrial action combined with greater flexibility may make foreign firms more willing to buy the country's exports.

Supply-side policy is unlikely to be a quick way of correcting imbalances in the current account of the balance of payments. It is also not designed to reduce a current account surplus as it seeks to increase the quantity and quality of the country's resources. It does, however, have the potential to correct a deficit in the current account in the long run.

ACTIVITY 29.1

In 2019, the deficit on Zimbabwe's current account of the balance of payments increased from 0.8% of GDP a year before to 1.8%. One cause of this was the rapid increase in the country's inflation rate resulting from a large increase in the money supply. The country also had a high unemployment rate and low economic growth. To tackle its economic problems, the Zimbabwean government increased spending on education, although from a low level, and increased its privatisation programme.

1. Explain why a rising inflation rate may contribute to a growing current account deficit.
2. How would a decrease in the money supply be expected to affect its current account deficit?
3. Assess the effect that Zimbabwe's supply-side policy measures may have on the country's imports.

Share your answers with another learner.

TIP

In answering questions on whether a government should correct imbalances in the current account of the balance of payments, the size, duration and cause of the imbalances need to be considered.

29.5 The effect of protectionist policy on the current account

Protectionist policy can be used as a way of encouraging domestic consumers and firms to switch to buying domestic products. For instance, a government could impose a tariff or increase an existing tariff on imports. Such a measure works more effectively when high quality substitutes produced by domestic firms are available.

However, imposing tariffs against trading partners in a trade bloc is not an option. Imposing or increasing tariffs against other countries involves two risks. One is that it may provoke retaliation and the other is that it may reduce the pressure on domestic firms to become more efficient.

KEY CONCEPT LINK

Efficiency and inefficiency: In considering how domestic firms respond to being protected from foreign competition, it is useful to make use of the key concept of efficiency. Domestic firms may feel less pressure to seek to be productively, allocatively and dynamically efficient if imports become more expensive due to the imposition of tariffs.

THINK LIKE AN ECONOMIST

Using policy tools

From the following list, find four policy measures a government could use to achieve:

- a reduction in a current account deficit on the balance of payments
- a reduction in inflation
- a reduction in unemployment
- an increase economic growth.

Policy tools

Cut in corporate tax	Imposition of import tariffs
Cut in general sales tax	Increase in the money supply
Cut in spending on public-sector pay	Limit on bank lending
Cut in income tax	Privatisation
Deregulation	Rise in government spending on education
Fall in the exchange rate	Rise in government spending on infrastructure
Government subsidies to declining industries	Rise in the interest rate
Imposition of export tariffs	Rise in the schoolleaving age

ACTIVITY 29.2

In a pair, prepare a presentation on a policy tool your government could use to improve your country's current account balance. Give your presentation to the class and be prepared to take questions.

ACTIVITY 29.3

In pairs, produce two multiple choice questions on comparative advantage, two on the terms of trade, two on protectionism, two on the current account of the balance of payments, two on exchange rates and two on policies to correct imbalances in the current account of the balance of payments. Ask other learners in the class to answer the questions.

REFLECTION

In Activity 29.3, how easy did you find it to write options (other than the correct one) that are clearly wrong but which other learners might select? How challenging did your fellow learners find the questions? Were there any questions they did not think were fair? If so, what reasons did they give?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Why might an expansionary fiscal policy reduce a current account deficit?

A Higher government spending may be on state pensions, which could increase consumer expenditure.

B Higher government spending could be on training workers, which could raise productivity.

C Lower taxes on income could result in higher aggregate demand and demand-pull inflation.

D Lower corporate tax could result in an increase in firms' expenditure on imported banking services.

2 Which change would be most likely to reduce a current account deficit and inflation?

A cut in export subsidies

B depreciation of the currency

C increase in income tax

D tariff on imports

3 Which government policy measure may increase a surplus on the current account of the balance of payments?

A decrease in the money supply of importing countries

B imposition of exchange control

C increase in the quality of products that can be imported

D removal of import tariffs

4 A country has a deficit on the current account of the balance of payments and demand-pull inflation. Which of the following would help to reduce both the current account deficit and demand-pull inflation?

A decreasing the price of the currency

B decreasing investment

C increasing a budget surplus

D increasing the money supply

5 Why might an increase in the surplus on the current account of the balance of payments *not* require a government to introduce anti-inflationary policy tools.

A The current account surplus arises from primary and secondary income surpluses.

B The current account surplus arises from a trade in goods and services balance.

C The economy is operating with a growing budget deficit.

D The economy is operating with spare capacity.

6 Which type of policy is *most* likely to lead to a long-term improvement in a country's current account balance?

A fiscal

B monetary

C protectionist

D supply-side

7 Which policy tool designed to reduce unemployment is *most* likely to reduce a current account deficit?

A cut in income tax

B increase in the number of public sector workers employed

C increase in government spending on training

D increase in the money supply

8 What could explain a fall in the number of workers unemployed despite a country experiencing a growing current account deficit?

A Government spending has fallen.

B Investment has increased.

C Labour mobility has fallen.

D The size of the labour force has increased.

9 Which policy tool is likely to be *least* effective, in the short term, in reducing a deficit on the current account of the balance of payments?

A contractionary fiscal policy

B increase in export subsidies

C increase in the money supply

D increase in import tariffs

10 How does supply-side policy seek to reduce a current account deficit?

	Increase price competitiveness of domestic products	Increase quality competitiveness of domestic products	Reduce demand for domestic products and imports
A	no	no	yes
B	no	yes	yes
C	yes	yes	no
D	yes	yes	yes

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that governments usually aim to ensure export revenue equals import expenditure in the long run; in the short run a current account surplus may benefit an economy			
Explain how fiscal policy tools may be used to reduce a current account deficit on the balance of payments			
Explain how monetary policy tools may be used to reduce a current account surplus			
Explain how supply-side policy tools may be used to reduce a current account deficit			
Explain how protectionist policy tools may be used to reduce a current account deficit			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Cambodia's current account deficit

In recent years, Cambodia has had a deficit on the current account of its balance of payments. Figure 1 shows Cambodia's current account balance as a % of GDP and its inflation rate over a period of eight years.

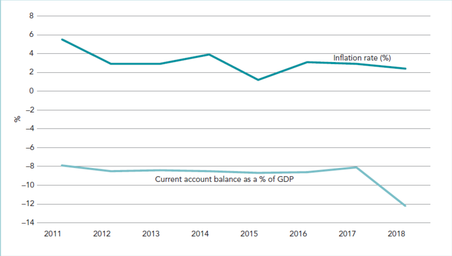


Figure 1: Cambodia's current account balance as a percentage of GDP and inflation rate, 2011–2018

Cambodia is a relatively open economy. Its exports approximately 62% of its output and it imports nearly 64% of the goods and services it consumes. The country exports a range of products including timber, rubber and fish. Its most important category of exports is textiles, usually accounting for at least 65% of total exports. The country's main buyers of its exports are shown in Figure 2.

Cambodia's exchange rate against the US$ has been relatively stable in recent years. It changed from $1: 4 033 Khmer Riel (the Cambodian currency) in 2012 to $1: 4 051 Riel in 2018. At the end of the twentieth century, however, there was a large change in the exchange rate due to speculation that it would fall in value.

The Cambodian government imposes tariffs on a range of imports. The rate charged on imported raw materials and capital goods is lower than that on imported finished goods. Import tariffs have a number of effects on Cambodian consumers. These include affecting the range of products available to them and the price they pay for them.

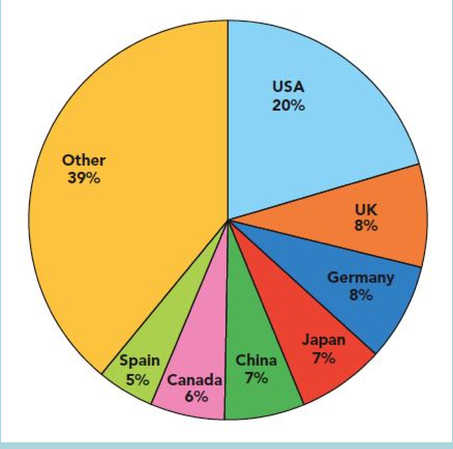


Figure 2: Destination of Cambodia's exports, 2018

In 2018, the Cambodian government experienced a budget deficit equivalent to 5% of its GDP. This arose largely because of the government deciding to spend more on roads, electricity power stations, education and healthcare.

a i Using the data in Figure 1, compare the change in Cambodia's inflation rate and current account balance over the period shown. **[2]**

ii Explain whether the relationship shown in Figure 1 is the expected relationship. **[2]**

b Using the data in Figure 2, explain how Cambodia's current account balance might be affected by an increase in the economic growth rate of the USA. **[2]**

c With the help of a diagram, explain why Cambodia's exchange rate changed at the end of the twentieth century. **[2]**

d Assess how Cambodia's consumers could benefit from the removal of the country's import tariffs. **[6]**

e Discuss whether Cambodia's fiscal policy in 2018 would have reduced the deficit on the current account of its balance of payments. **[6]**

Essays

2 a Explain the difference between an import tariff **and** an import quota and consider which would be more effective in reducing imports. **[8]**

b Discuss whether protectionism can reduce unemployment. **[12]**

3 a Explain the advantages a country may gain from engaging in international trade **and** consider the extent to which the theory of comparative advantage explains the pattern of international trade. **[8]**

b Discuss whether a surplus on the current account of the balance of payments will benefit an economy. **[12]**

Unit 7

The price system and the microeconomy (A Level)

UNIT INTRODUCTION

This unit builds on Unit 2. The unit begins by looking at how we as consumers are expected to make rational choices. This is followed by a discussion of market failures due to externalities – these are side effects on others that result from consumption or production decisions. Examples include the problem of pollution, road traffic congestion and the negative effects of consuming certain goods.

The remainder of the unit concentrates on firms. Cost, revenue and profit are analysed for firms that operate in various types of market. Conclusions are then drawn as to which type of market is best from a consumer's and society's standpoint. There is also a discussion of why and how some firms grow while others remain small businesses.

Chapter 30

Utility

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of total utility and marginal utility
- calculate total utility and marginal utility
- explain diminishing marginal utility
- explain the equi-marginal principle
- derive an individual demand curve
- evaluate the limitations of marginal utility and its assumptions of rational behaviour.

ECONOMICS IN CONTEXT

Are Black Friday events what they claim to be?

Black Friday originated in the USA and is the day after the US holiday of Thanksgiving at the end of November. As many people are not at work, retailers offer discounts on their products to entice shoppers to spend more money before the start of the Christmas/holiday selling period. The event now continues over the weekend to the following Monday, known as Cyber Monday.

Figure 30.1: Shoppers at a Black Friday event in India

The Black Friday shopping event has become global. The online retailer Amazon introduced Black Friday to the UK in 2010. Since then, the event has expanded to cover a wide range of retailers. In 2019, some big name retailers opted out. This has not been the case elsewhere.

South Africa, one of the world's most economically unequal countries, has Black Friday. Critics of Black Friday in South Africa object to the queues of wealthy shoppers waiting to pick up bargains. In Egypt, another unequal country, the event is known as White Friday.

Black Friday is also popular in India, and follows special sales events for Diwali. In 2019, an Indian media outlet reported that 'one in three Indian shoppers [was] ready to queue up overnight for Black Friday bargains'. The best deals tend to be on higher-priced items such as televisions, electronic devices, computers, cookers and so on. Some deals are available online, but the best bargains can only be obtained by those who are prepared to queue.

But, have things got out of hand? Critics suggest that Black Friday is an excuse for retailers to get rid of products from over-stocked warehouses. The event is also an opportunity to sell slow-moving products that had previously been on sale at prices below the Black Friday selling price.

Without wishing to spoil the satisfaction that someone has gained after grabbing a bargain, many economists agree that Black Friday causes a waste of resources and prompts over-consumption similar to that from a demerit good. These criticisms have prompted the French government to legislate a ban on Black Friday events from 2020.

Discuss in a pair or a group:

- Why do you think that more countries are holding Black Friday events?
- What are the benefits to consumers, retailers and manufacturers of a Black Friday event?
- Is the French government justified in seeking to ban Black Friday events?

Economists have long been interested in the way that consumers behave. Previously, economists assumed that individual and market demand curves could be derived from data collected for the demand schedule. This chapter looks at the demand curve in more depth and explains why consumers buy more of a good when its price falls.

30.1 Utility and diminishing marginal utility

A good place to start is with the notion of **utility**. Utility is a measure of the level of happiness or satisfaction that someone receives from the consumption of a good. Utility assumes that satisfaction can be measured in units, in the same way that the actual goods consumed can be determined.

Suppose you were hungry and wanted a slice of pizza. How much would you pay for it? Let us say you paid $2 for one slice. If you were still hungry, how much would you pay for a second slice of pizza? You might be willing to pay slightly less than you paid for the first slice, perhaps $1.50. If you wanted a third slice, you might be prepared to pay less still, perhaps $1.25. This is because the satisfaction or utility you derived from consuming a further piece of pizza has decreased as your consumption increases. The reduced amount you have paid for each successive piece of pizza is indicative of the reduced satisfaction you have received from consumption. This is an example of the principle or **law of diminishing marginal utility** where marginal utility is the additional utility that is derived from the consumption of one more unit of a good. The law of diminishing marginal utility suggests that as consumption of a good increases, the marginal utility will get smaller.

Two important measures of satisfaction are:

- **total utility** – the overall satisfaction that is derived from the consumption of all units of a good over a given time period
- **marginal utility** – the additional utility derived from the consumption of one more unit of a particular good. So, if someone gets ten units of satisfaction from consuming one piece of pizza and 15 units after consuming two pieces of pizza, then the marginal utility is five units.

The law of diminishing marginal utility can also be applied to a situation where a consumer sees an item on sale at a price less than expected. The consumer is likely to buy the item. By contrast, if an item is priced at more than the expected price, a consumer will be unlikely to buy the item at this time. Both consumers are linking the item's utility with the actual price at the point of sale.

TIP

Learners are often unsure about what is meant by utility. Think of utility as a useful measure of satisfaction from something that has been consumed.

Figure 30.2: Pizza slices representing marginal utility

ACTIVITY 30.1

Suppose you are revising for a mock examination. Table 30.1 below shows the improved knowledge or utility you have obtained for each of the seven days spent on revision.

Days	Utility
1	20
2	13
3	9
4	6
5	4
6	3
7	2

Table 30.1: Utility gained from time spent on revision

1. Calculate the marginal utility as the number of days increases.
2. Draw the total utility and marginal utility curves. (Put 'utility' on the vertical axis and 'days' on the horizontal axis).
3. What might this say to you about how you could plan your revision?

KEY CONCEPT LINK

The margin and decision-making: Utility may be used to consider how consumers rank their purchases in relation to the satisfaction that is gained from their consumption.

30.2 The equi-marginal principle

A consumer is said possible to switch any expenditure fro uct B to increase total utility. This is **rinciple**. If the marginal utility fror s and the price is $5, the consumer is 0 units of product B if its price is $10

consumers maximise their utility where their marginal valuation for each product consumed is the same

$$\frac{MU_A}{P_A} = \frac{MU_B}{P_B} = \frac{MU_C}{P_C} \cdots = \frac{MU_N}{P_N}$$

where MU = marginal utility

P = the price

A, B, C and N = different products

Where the equi-marginal principle applies, it is not possible to increase total utility by reallocating expenditure between any of the products that are available. A consumer has therefore allocated income in a way that has maximised utility, resulting in consumer equilibrium. It should be recognised that the equi-marginal principle is based on the following assumptions:

- consumers have limited incomes
- consumers will always behave in a rational manner
- consumers seek to maximise their utility.

The idea of consumer equilibrium is shown in Table 30.2. Two products, x and y, are priced at $1 and $2 respectively. It is assumed that a consumer has $10 to spend. Consumer equilibrium is where the MU/P is the same for each product. This is where 4x and 3y are consumed with a total utility score of 235. No other combination of goods generates a higher total utility; therefore, any other combination would provide less satisfaction.

Product x ($1 each)			**Product y ($2 each)**	
MU	**MU/P**	**Quantity**	**MU**	**MU/P**
60	60	1	42	21
40	40	2	32	16
25	25	3	24	12
12	12	4	18	9
5	5	5	14	7
2	2	6	12	6

Table 30.2: Consumer equilibrium

ACTIVITY 30.2

Think about three things you would like to buy, their prices and how much satisfaction you are expecting to get from each.

1. Use this information to calculate MU/P for each.
2. Compare the result with if you had just put choices in simple rank order.
3. Are your preferences rational? (For example, if you prefer A to B and B to C, so you prefer A to C).

Compare your results with another learner. Discuss any differences.

REFLECTION

What was the purpose of Activity 30.2? How has it required you to apply a new way of thinking to a new economic concept?

KEY CONCEPT LINK

Equilibrium and disequilibrium: The equi-marginal principle is used to determine whether or not consumer equilibrium is being achieved.

30.3 Derivation of an individual demand curve

Marginal utility can be used to explain how an individual's demand curve is derived. Look again at Table 30.2. Assume the price of y is now reduced to $1; the price of x and the income remain unchanged. MU/P can now be calculated again for product y. This gives a new consumer equilibrium of 4x and 6y, a gain of 3y. Total utility has increased. Part of the demand curve is shown in Figure 30.3.

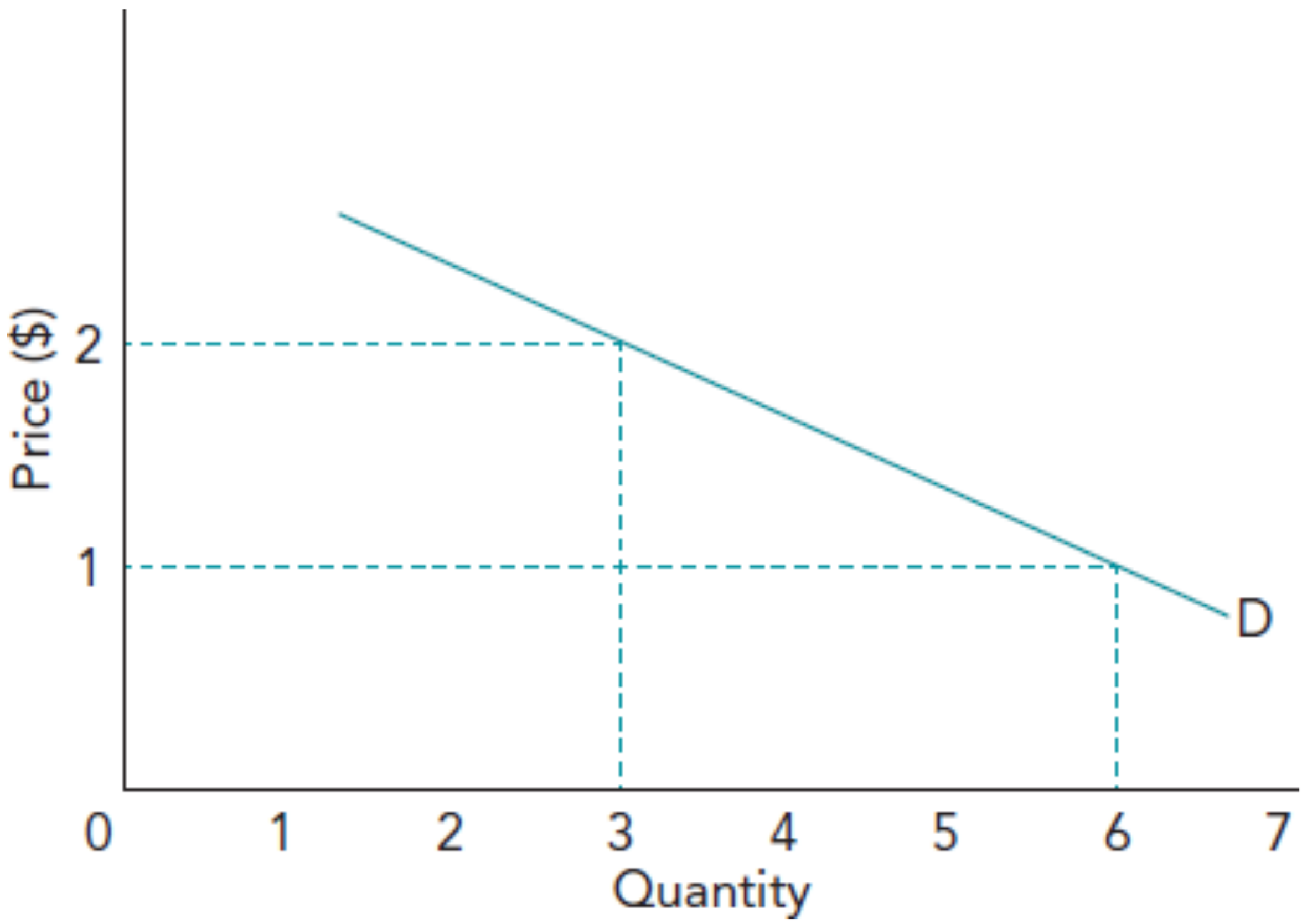


Figure 30.3: Derived individual demand curve for product y

ACTIVITY 30.3

1. Using the data in Table 30.2, justify the new consumer equilibrium.
2. Calculate the increase in total utility.
3. How would you derive a more comprehensive demand curve?

Discuss your answers with another learner.

30.4 Limitations of marginal utility theory and assumptions of rational behaviour

Marginal utility theory assumes that consumers are capable of putting their wants in rank order and assigning a value to the satisfaction gained from their consumption. This is a major assumption to make. The law of diminishing marginal utility further assumes that consumers act and behave in a rational way in their purchasing decisions. This is another major assumption. Empirical or real world evidence consistently shows that there are other factors apart from utility that determine what we purchase. To understand the behavioural factors involved requires being aware of what people are thinking to determine and then model these psychological influences.

TIP

You should not assume that consumers always act in the way that is indicated by economic theory.

THINK LIKE AN ECONOMIST

Increasing sales of tinned food in the UK

For the first time in many years, sales of tinned food in the UK have increased. The reasons for the increase are unclear. British consumers bought large quantities of tinned goods in the early days of the COVID-19 pandemic in 2020. Another possible reason may be that consumers are substituting tinned food for fresh food as the latter has increased in price. A third theory is that with modern methods of canning food, tinned food is no longer an inferior good. This is likely to explain why sales of tinned fish and processed meat products have increased. Tinned fish, especially, is likely to have been processed within hours of the fish being landed; the same timescale also applies to tinned vegetables which are likely to be more nutritious than out of season crops that have travelled half way around the world.

Figure 30.4: Tinned foods in a British supermarket

1 Consider how the increase in sales of tinned food affects employment in the UK and elsewhere.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 The marginal utility of a good is zero. This means:

A the good gives no satisfaction to the consumer.

B the price of the good is zero.

C the consumer is in equilibrium.

D total utility is maximised.

2 A consumer gets ten units of satisfaction from purchasing clothing at $5 dollars per unit and two units of satisfaction from purchasing a unit of food.

Assuming the consumer is rational, what is the price of the food item?

A $0.5

B $1

C $2

D $5

3 A consumer should allocate expenditure between two goods, X and Y, to get maximum satisfaction when:

A the marginal utility of X equals the marginal utility of Y.

B the marginal utility of X plus the marginal utility of Y is at a maximum.

C the marginal utility of X / price of Y is equal to the marginal utility of Y / price of X.

D the marginal utility of X / price of X is equal to the marginal utility of Y / price of Y.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that total utility is the overall satisfaction that is derived from the consumption of all units of a good over a given time period and that marginal utility is the additional utility derived from the consumption of one more unit of a particular good			
Calculate total utility and marginal utility			
Explain the equi-marginal principle whereby consumers maximise their utility where their marginal valuation for each product consumed is the same			
Use the equi-marginal principle to derive an individual demand curve			
Evaluate the limitations of marginal utility theory and understand that consumers do not always behave as prescribed by utility theory			

Chapter 31

Indifference curves and budget lines

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of an indifference curve and a budget line
- explain the causes of a shift in the budget line
- analyse the income, substitution and price effects for normal, inferior and Giffen goods
- evaluate the limitations of the model of indifference curves.

ECONOMICS IN CONTEXT

Why the Oreo cookie was changed for the Chinese biscuit market

The Oreo cookie is the best-selling cookie brand in the world. The Oreo brand, owned by Mondelēz International, is sold in more than 100 countries. Billions of Oreo cookies are produced each year.

Figure 31.1: Green tea Oreo biscuits for the Chinese market

Oreo cookies were introduced to China by Kraft Foods in 1996. The product was packaged and marketed in the same way as in the US market. Sales in China were poor and then began to fall at a time when Chinese consumers were buying more and more biscuits. Despite expensive marketing campaigns, every single packet of Oreo biscuits sold in China was losing the company money. To find a solution, the company decided to consult focus groups of Chinese consumers.

The research showed that the company had not taken into account the preferences of Chinese consumers. The biscuit was too sweet for Chinese tastes. Food scientists then developed a series of alternative products with various levels of sweetness and with different elements such as colour and thickness. Chinese consumers also preferred a softer, wafer-like texture compared to the harder American cookie that was being sold to them.

The research allowed the company to produce a new biscuit that was less sweet and with a more wafer-like texture. The research also led the company to review its packaging. Oreo packs were reduced in size and this made them easier to sell in convenience stores and street kiosks. As a result, sales quickly grew. New flavours exclusive to China were introduced. In 2006, Oreo became the number 1 selling biscuit in China.

What can be learned from the Oreo experience in China? The main conclusion is that consumer tastes differ. There is no guarantee that what is a best-selling good in one market will become a major seller in a different market.

Discuss in a pair or a group:

- Choose another product from a multinational company that is widely on sale in your country (e.g. McDonalds, KFC, Nescafé, Cadbury's Dairy Milk). Consider the product's appeal to consumers in your country.
- Now choose a similar product made by a domestic producer in your own country. Think about its appeal. Compare the appeal of the two products and consider whether this has anything to do with economics.

31.1 Indifference curves

As explained in Section 7.3, a change in price of a good causes a movement along the demand curve. An individual's demand curve therefore is a reflection of a consumer's preferences. However, it does not always follow that consumers will buy more of a good when its price falls. Consumers will only buy a particular good if it is something that they actually want or prefer when having to choose between alternatives. Consumer preferences can be represented by **indifference curves** (see Figure 31.2).

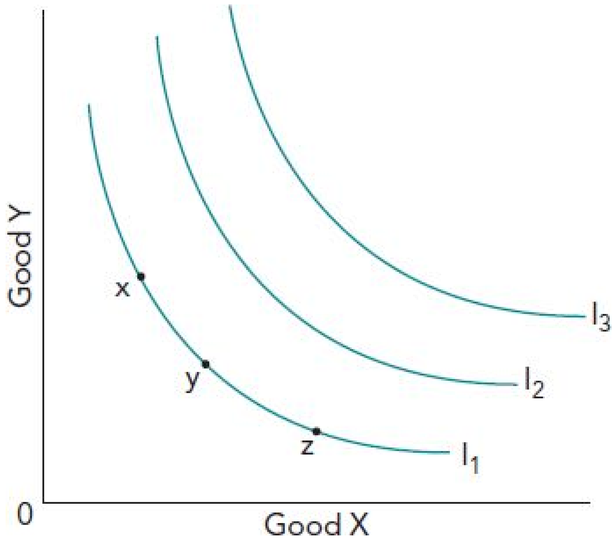


Figure 31.2: Indifference curves

An indifference curve shows all of the combinations of two goods that give the consumer equal satisfaction or utility. Figure 31.2 shows three examples of indifference curves out of the many that can apply to a particular consumer. The consumer in indifference curve I_1 is indifferent with respect to combinations x, y or z since each are on the same indifference curve. The indifference curve slopes downwards to indicate that a fall in the quantity consumed of one good is accompanied by an increase in the consumption of the other good, given the same level of satisfaction. In Figure 31.2, for example, if the consumer moves from point z to point y, the consumption of good X falls at the expense of an increase in consumption of good Y. Point y represents a situation where the consumer is still equally happy with the combination of goods that are being consumed.

It is possible to produce an indifference map - a diagram showing a number of different indifference curves. This shows many more than just the three combinations of goods for three levels of satisfaction shown in Figure 31.2. Higher indifference curves represent higher levels of satisfaction; consumers are being rational when preferring to be on a higher and not a lower indifference curve. I_2 provides a higher level of satisfaction than I_1. A rational consumer will always opt for the highest indifference curve. Indifference curves cannot cross each other as this would be where a consumer was being irrational in the choices being made. As a result the consumer would not get the maximum possible amount of satisfaction.

TIP

Extension content: Indifference maps are not covered in the syllabus, but it is useful to know about them. An indifference map shows a number of indifference curves (Figure 31.2 has just three). A move to an indifference curve further from the origin, say from I_1 to I_2 or from I_2 to I_3 in Figure 31.2, represents an increase in a consumer's level of satisfaction.

The slope of the indifference curve is important – it represents the extent to which the consumer is willing to substitute one good for another. In Figure 31.2, all three curves slope more steeply from left to right, showing that when consuming large amounts of good Y, the consumer is willing to give up rather more of this good than when consumption of good X is small. The rate at which the consumer is willing to substitute one good for another in this way is known as the **marginal rate of substitution**.

31.2 Budget lines

As shown in Section 6.4, consumers are restricted in what they are able to buy due to their limited disposable income and the prices of goods. These two principles of consumer behaviour (disposable income and prices of goods) are brought together through a **budget line**. A budget line shows numerically all the possible combinations of two goods that a consumer can purchase with a given income and given prices of the two goods.

Suppose a person has $200 to spend on two goods, X and Y. Assume the price of Y is $20 and the price of X is $10. Table 31.1 shows the possible combinations that can be purchased. Each of the combinations costs $200 in total. Figure 31.3a shows the budget line for this situation. Any point along this line will produce an outcome where consumption is maximised for this level of income.

Quantity of Y ($20 each)	Quantity of X ($10 each)
10	0
9	2
8	4
7	6
6	8
5	10
4	12
3	14
2	16
1	18
0	20

Table 31.1: Combinations of X and Y with a budget of $200

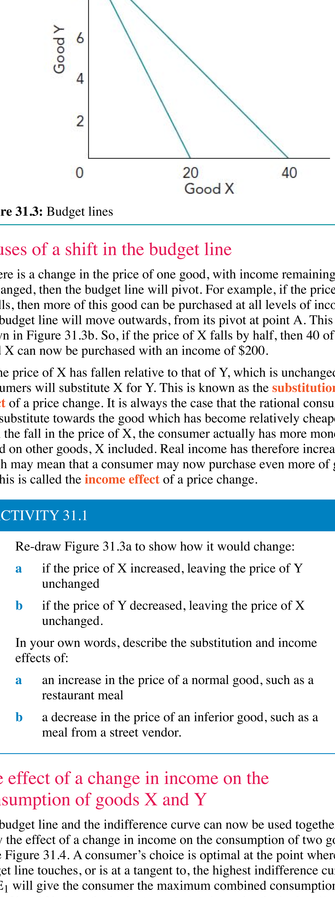


Figure 31.3: Budget lines

Causes of a shift in the budget line

If there is a change in the price of one good, with income remaining unchanged, then the budget line will pivot. For example, if the price of X falls, then more of this good can be purchased at all levels of income. The budget line will move outwards, from its pivot at point A. This is shown in Figure 31.3b. So, if the price of X falls by half, then 40 of good X can now be purchased with an income of $200.

As the price of X has fallen relative to that of Y, which is unchanged, consumers will substitute X for Y. This is known as the **substitution effect** of a price change. It is always the case that the rational consumer will substitute towards the good which has become relatively cheaper. With the fall in the price of X, the consumer actually has more money to spend on other goods, X included. Real income has therefore increased, which may mean that a consumer may now purchase even more of good X. This is called the **income effect** of a price change.

ACTIVITY 31.1

1. Re-draw Figure 31.3a to show how it would change:
   - **a** if the price of X increased, leaving the price of Y unchanged
   - **b** if the price of Y decreased, leaving the price of X unchanged.
2. In your own words, describe the substitution and income effects of:
   - **a** an increase in the price of a normal good, such as a restaurant meal
   - **b** a decrease in the price of an inferior good, such as a meal from a street vendor.

The effect of a change in income on the consumption of goods X and Y

The budget line and the indifference curve can now be used together to show the effect of a change in income on the consumption of two goods – see Figure 31.4. A consumer's choice is optimal at the point where the budget line touches, or is at a tangent to, the highest indifference curve. So, E_1 will give the consumer the maximum combined consumption of goods X and Y given the budget constraint shown by the budget line B_1.

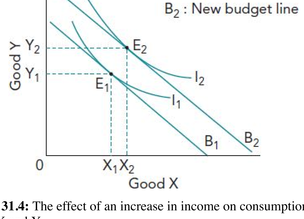


Figure 31.4: The effect of an increase in income on consumption of goods X and Y

If income increases then this will allow the consumer to choose a better combination of goods X and Y. More of each good will usually be consumed. So, if the budget constraint rises to B_2, then the consumer will increase consumption of good Y and also of good X, albeit to a lesser extent. E_2 is the new optimal position, where more of both goods are being consumed. The change in position from E_1 to E_2 is what occurs when both goods are normal goods. If the increase in income or budget constraint results in less of one good being consumed then this is indicative that this good is an inferior good. When there is a fall in consumer income, the budget line shifts downwards in a parallel way. This indicates that both goods are normal and that less of each will be consumed. In the case of an inferior good, there will be an increase in the consumption of this good.

ACTIVITY 31.2

1. Re-draw Figure 31.4 to show the change in consumption of goods X and Y when there is a decrease in consumer income. Assume that both are normal goods.
2. Re-draw Figure 31.4 to show the change in consumption when good X is an inferior good.

Compare your diagrams with another learner. If your diagrams are different, try to understand why. If necessary, correct your diagram.

31.3 The income and substitution effects of a price change

The income and substitution effects of a price change can be explained for normal and inferior goods using indifference curves and budget lines.

Figure 31.5 shows the income and substitution effects when there is an increase in price of a normal good. If the price of good X increases, this means that consumers have less spending power. The loss of spending power is represented by a new budget line B_2. The price of good Y is unchanged, which is why B_2 pivots downwards towards the origin, indicating that less of good X can now be consumed with the same level of income.

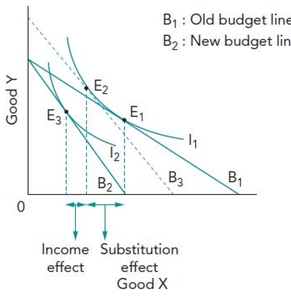


Figure 31.5: The income and substitution effects of an increase in price of good X

The change that occurs consists of two stages:

- A movement along I_1 to point E_2. This is the substitution effect, so-called since the consumer buys less of good X as it is now relatively more expensive than good Y.
- A shift downwards to a lower indifference curve I_2 moving from E_2 to E_3.This is the income effect, so-called because the consumer has less spending power due to the increase in price of good X. The income effect is negative, resulting in a decrease in consumption of both goods

The income effect in Figure 31.5 has been eliminated by removing the reduction in real income through including an imaginary budget line that is parallel to the new budget line but at a tangent to the original indifference curve.

Figure 31.6 shows the substitution and income effects when there is a decrease in the price of good X. The consumer is in equilibrium at E_1. A fall in the price of good X is equivalent to a rise in real income; the budget line pivots to B_2. The substitution effect is the move from E_1 to E_2 where more of good X is now being consumed. The income effect is positive and involves the move from E_2 to E_3 as the consumer reaches a higher indifference curve through a further increase in consumption of good X.

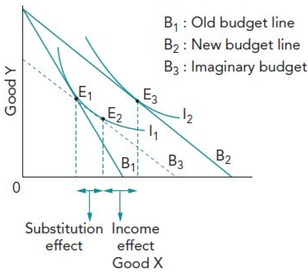


Figure 31.6: The income and substitution effects of a decrease in price of good X

A third example, the case of good X being an inferior good, is shown in Figure 31.7. The point about good X in this case is that as real income increases, consumers will substitute more expensive, better quality goods for good X. As a consequence, the income effect is negative but not enough to outweigh the substitution effect.

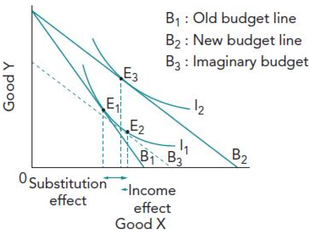


Figure 31.7: The case of an inferior good

TIP

Drawing accurate figures such as Figures 31.5, 31.6 and 31.7 is quite demanding and can use up much writing time. Consider whether a diagram is really necessary, especially if you cannot remember how to draw it accurately.

A fourth case is the unusual case of a type of inferior good, known as a **Giffen good**. With a Giffen good, demand falls as the price of the good falls and demand increases as the price increases. For low-income families, this could be a staple food such as rice or wheat flour. As the price of the staple food increases, consumption will increase since real income has fallen. More rice or wheat flour is now being consumed instead of other types of food. The demand curve is upward sloping as the income effect is negative and greater than the substitution effect. Alternatively, when the price of an essential food item decreases, demand for this good falls as real income has now increased. The individual has more to spend on other things as the food item takes up a large part of their small income.

ACTIVITY 31.3

Assume good X in Figure 31.7 is a Giffen good. Re-draw the diagram to show the substitution and income effects when the price of good X falls. (Hint: you need to move point E_3 further left).

TIP

When writing answers or drawing diagrams, remember that the substitution effect is always positive; the income effect can be positive or negative depending on the type of good. The substitution effect is always shown by a movement along an indifference curve; the income effect is represented by a shift from one budget line to another.

REFLECTION

You may have found the topics in this chapter difficult to understand. How did you try to improve your understanding of the different types of indifference curve diagrams?

KEY CONCEPT LINK

The margin and decision-making: The use of indifference curves and budget lines are relevant examples of how decision-making by individuals is based on choices at the margin.

31.4 Limitations of the model of indifference curves

The indifference curve model aims to provide a simple representation of reality. In this chapter, indifference curves have been used to explain consumer behaviour when there are two goods and consumer income is fixed. With these assumptions, it is reasonably straight forward for a consumer to be indifferent to the combinations of the two goods that will provide a particular level of satisfaction. There are three main limitations to the indifference curve model:

- In reality, consumers have to choose from many more goods than just two. Sometimes they may have to choose between hundreds of goods in the case of everyday food products.
- The term 'indifference' implies that consumers are willing to accept any combination of the two goods as represented by an indifference curve. Some economists point out that consumers express their wants and needs in terms of preference or rank order, and not indifference.
- Indifference curves assume that consumers act rationally. This is not always true.

THINK LIKE AN ECONOMIST

The growing popularity of veganism in the UK

The number of people in the UK eating a diet free of animal products has soared. It is estimated that nearly 2% of the population (around 1.1 million people) was vegan at the beginning of 2020. By 2025, about one-quarter of the UK population are forecast to be vegans or vegetarians. Many people who are not vegans or vegetarians are choosing to eat less meat.

Figure 31.8: A vegan meal

What are the reasons for this major shift in diet? People's reasons for cutting down on meat include health benefits, concerns about animal welfare and the environment.

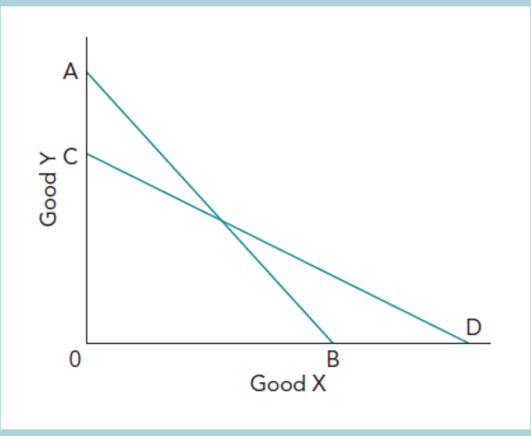
In 2020, McDonald's launched its first fully vegan meal in the UK. Other food retailers have introduced vegan products including Greggs, the largest bakery chain, which started selling vegan sausage rolls in 2019. The introduction of the vegan sausage roll had a major positive impact on Greggs' sales and profits. What is happening in the UK is also taking place in many other high-income countries, including the USA.

1. What are the likely economic effects of the popularity of veganism on farmers and food retailers in the UK and elsewhere?
2. Are there any global implications of what is happening in the UK and elsewhere?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 In the diagram, the curve AB is a consumer's budget line.

Which of these combinations will cause the budget line to shift to CD?



	Price of good y	Consumer's money income
A	decrease	increase
B	decrease	decrease
C	increase	increase
D	increase	decrease

2 In indifference curve analysis, the substitution effect of a price change for a good is always positive because consumers will:

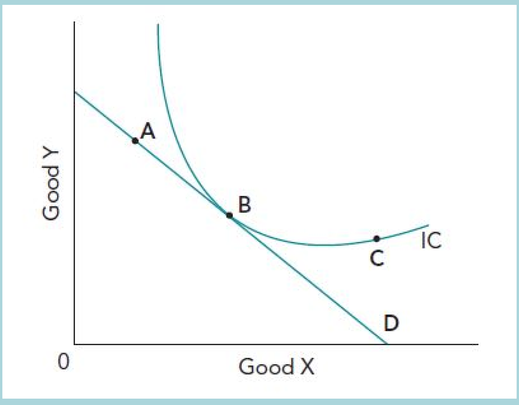
A want to buy more of the other good.

B always substitute towards a good that has become relatively cheaper.

C always buy more goods when their price falls.

D be indifferent towards the other good.

3 On the diagram, at which point is consumer equilibrium?



4 A Giffen good is one where if the price of the good falls,

A the substitution effect is positive and the income effect is positive.

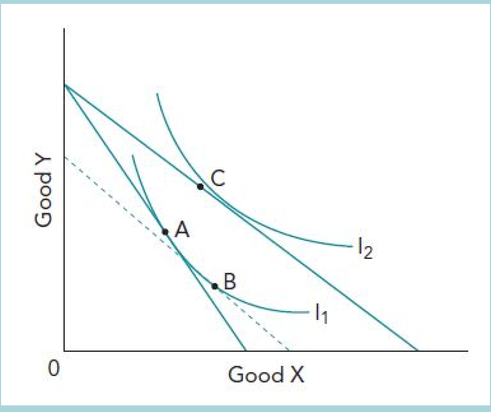
B the substitution effect is negative and the income effect is positive.

C the income effect is negative and greater than the substitution effect.

D the income effect is positive and less than the substitution effect.

5 In the diagram of an indifference curve, the initial equilibrium is at A. The substitution effect is A to B and the income effect is B to C.

What type of good is good X?



A normal good

B inferior good

C Giffen good

D superior good

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that an indifference curve shows the combinations of two goods that give a consumer equal satisfaction			
Understand that a budget line shows the combinations of two goods that can be purchased with a given income and prices			
Explain why a change in price of one good will result in a shift in the budget line			
Analyse the income, substitution and price effects for normal, inferior and Giffen goods			
Evaluate the limitations of the model of indifference curves			

Chapter 32

Efficiency and market failure

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of productive efficiency and allocative efficiency
- explain the conditions needed for productive efficiency and allocative efficiency
- explain Pareto optimality
- define the meaning of dynamic efficiency
- define the meaning of market failure
- explain the reasons for market failure.

ECONOMICS IN CONTEXT

Is there such a thing as an efficient aircraft?

The demand for air transport continues to grow, particularly in Asia. Demand is growing despite warnings about the negative effects that emissions from aircraft are having on climate change. Unlike other forms of transport, emissions from aircraft are especially hazardous because they are released above cloud level.

Figure 32.1: An Airbus 350 aircraft

Aircraft manufacturers like Airbus and Boeing are committed to using clean technology to make their planes more fuel efficient. Airlines are keen to make the best use of fuel to help give them a competitive advantage in a very competitive market.

Figure 32.2 shows the relative fuel efficiency of the main long-haul aircraft that were in service in 2019. (The units on the vertical axis, pax-km/L, are passenger revenue per kilometre per litre of fuel.)

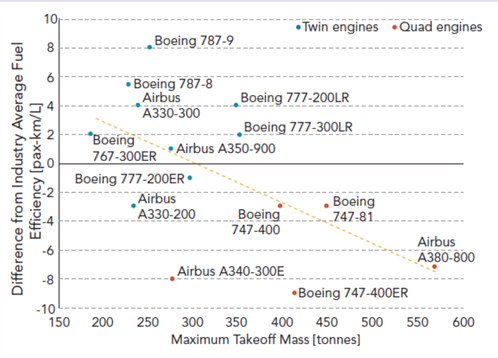


Figure 32.2: Which are the most efficient aircraft?

The dotted line in Figure 32.2 shows the optimum combination of take-off mass and average fuel efficiency. It shows that the new Airbus 350-900 is currently the most fuel efficient commercial aircraft in service. The A350 is being widely adopted by many airlines to replace ageing aircraft fleets that are less efficient.

The A350 is lighter than other long haul aircraft. Airlines like Finnair and KLM are increasing their use of more sustainable fuels, especially biofuels derived from waste materials. Other measures are being applied to further increase efficiency.

The pressure is on all airlines to be more efficient, especially in their use of fuel. This is vital if the target of zero emissions by 2050 is to be realised.

Discuss in a pair or a group:

- What are the implications for the world's airlines of the information contained in the diagram?
- In what other ways, apart from fuel efficiency, could an aircraft be used more efficiently?

32.1 Introduction to efficiency

The basic concept of **economic efficiency** stems from the fundamental economic problem. Economic efficiency is said to exist when it could be judged that all of our scarce resources are being used in the 'best' possible way. This means that the greatest possible level of infinite wants is being met with those scarce resources. In agriculture, for example, it is where maximum crop yields result from farming a given area of land, or in manufacturing, where as much output as possible is produced from a given set of inputs. Efficiency is a very important concept in economics. Efficiency is something that is always judged to be desirable. It represents the best possible solution to the fundamental economic problem.

Economic efficiency consists of:

- **Productive efficiency:** This occurs when firms produce at the lowest possible cost. A firm is productively efficient when it is making the best use of resources and producing at the lowest cost possible. For example, it can apply where a car assembly plant is using the latest technology, minimising the cost of producing each vehicle.
- **Allocative efficiency:** This occurs when firms produce the combination of goods and services that are most wanted by consumers. Allocative efficiency gives consumers maximum satisfaction at their current level of income. The implication is that there is no waste and both producers and consumers are satisfied with what is produced. The price that they are willing to pay reflects their preferences and the benefits they derive from consumption. Allocative efficiency represents the additional benefit derived from the consumption of one more unit of a particular good. The **marginal cost**, the cost of producing one more unit of a good, is a measure of the opportunity cost of the resources used to produce this last unit. So, where the price equals the marginal cost, consumers are prepared to pay what it costs to produce the last unit. It is only where this occurs that resources are efficiently allocated.

When both productive and allocative efficiency co-exist, the best possible use is being made of scarce resources. There is efficient resource allocation.

At a global level, economic efficiency is achieved when economies are using all of the world's resources in the best possible way. However, the use of protectionist trade policies demonstrates that global efficiency is not being achieved. A few more examples will help to explain why efficiency is both a microeconomic and macroeconomic concept:

- Oil: The global supply of oil will one day run out, although exactly when this will happen is not clear. Consumption continues to increase not only in high-income economies but increasingly in lower middle-income countries and emerging economies such as Brazil, India, Malaysia and Pakistan. Growing populations, rising living standards and increasing car ownership levels are just three reasons behind this increase in demand. The reality is that the use of oil is invariably inefficient. Much fuel is wasted through traffic congestion, the popularity of vehicles with a high fuel consumption and the inefficient use of oil and oil products in manufacturing. If we are serious about avoiding a climatic catastrophe, more efficient use of fuel has to be achieved by the 'Net Zero 2050' global target date.
- Timber: The world demand for timber and timber products, such as paper and cardboard, shows little sign of slowing down. In 2020, only about one-fifth of the world's forests remained intact, with the worst destruction being that of the Amazonian rainforests and other forests in the Congo Basin, Canada and Southeast Asia. The costs of this destruction are overlooked by the large, powerful global companies who control the sale of timber and pulp on the world market.
- Water: As the global population grows and the effects of climate change intensify, water as a resource will get scarcer and be an even greater political issue. This has already occurred in those countries that share natural water resources, such as with Egypt, Sudan and other African countries in the case of the River Nile. High-income countries often pay little attention to how more efficient use can be made of this essential resource.
- Trade: The European Union signed two new trade agreements in 2019 with Vietnam and with Mercosur, the South American trading bloc consisting of Argentina, Brazil, Paraguay and Uruguay. The agreements were particularly significant as they were with middle-income countries at a time when there were growing protectionist trends in the global economy. The agreements are in line with the law of comparative advantage. They should lead to greater efficiency in production and consumption beyond the country's production possibility curves.

KEY CONCEPT LINK

Equilibrium and disequilibrium / Scarcity and choice: The examples given here and in 'Economics in context' at the start of the chapter show how the need for economic efficiency is underpinned by the fundamental economic problem. It is essential that scarce resources are used in the most efficient way in order to maximise the benefits for producers and consumers.

32.2 Conditions needed for productive efficiency

Productive efficiency can be demonstrated using a firm's average cost curve as shown in Figure 32.3.

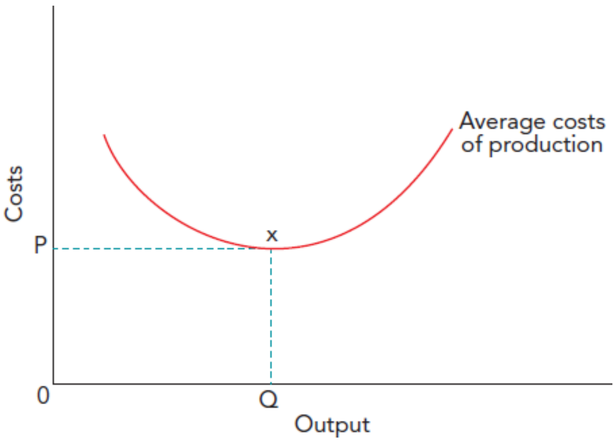


Figure 32.3: Productive efficiency for a firm

A production possibility curve (PPC) can also be used to show productive efficiency. A point on the PPC shows the maximum production for combinations of any two products (for example, capital goods and consumer goods) that are produced in an economy.

Given this, productive efficiency can only exist when an economy is producing on the boundary of its production possibility frontier as in Figure 32.4. The problem with point X is that more of both goods could be made with the resources available. Goods are not being produced using the least possible resources; this is productive inefficiency. At point Y, it is not possible to produce any more of either good because no more resources are available. The minimum possible resources are being used to make the products. This is therefore a point of productive efficiency.

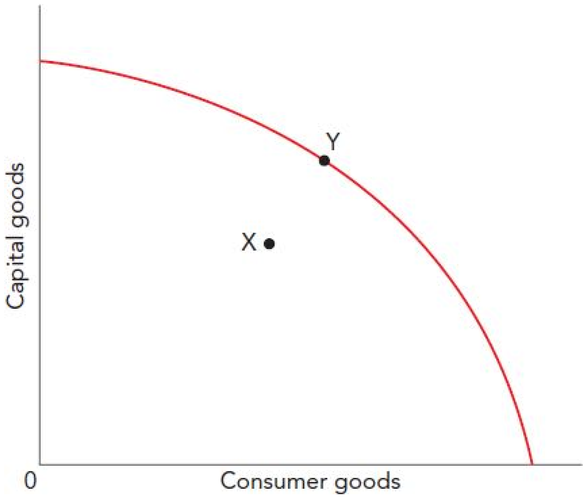


Figure 32.4: Productive efficiency in an economy

Competition can lead to productive efficiency. This is the case as firms are constrained to produce at the lowest possible cost in a competitive market. Firms have the incentive of profit to make their products at the lowest possible cost: the lower the cost, the greater the possible profit. Alternatively, a failure to produce at the lowest possible cost in a competitive market may lead to bankruptcy for a firm. As rivals will produce at their lowest cost, the price for the firm that has failed to minimise costs will be too high and so there will be low demand.

It can also be seen how a competitive market leads to the necessary conditions for productive efficiency. This is shown in Figure 32.5.The point of long-run equilibrium for a firm is given by price P and output Q. At this point, it can be seen that the firm is producing at the lowest point on its average cost curve, that is at productive efficiency. Competition in this market will mean that firms have to produce at the lowest possible point on their average cost curve in the long run; production at this point, therefore, is productively efficient.

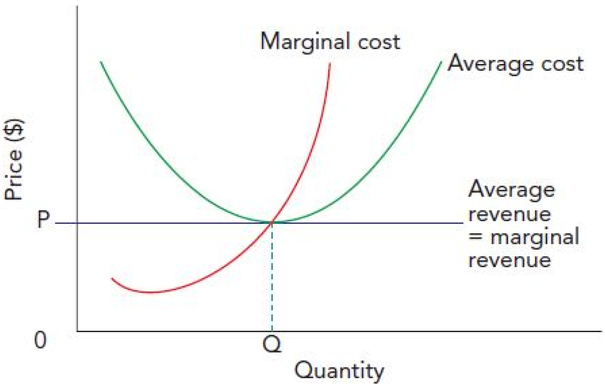


Figure 32.5: Productive efficiency in a competitive market

32.3 Conditions needed for allocative efficiency

Allocative efficiency exists when the price of a product is equal to its marginal cost of production, the cost of producing one more unit of output. In this situation, the price paid by the consumer represents the true economic cost of producing this last unit of the product and should ensure that precisely the right amount of the product is produced. The idea of allocative efficiency can be shown through the simple example in Table 32.1.

Quantity	1	2	3	4	5	6	7
Price per unit ($)	5	5	5	5	5	5	5
Marginal cost per unit ($)	2	3	4	5	6	7	8

Table 32.1: Allocative efficiency

For this product, output of one unit would not be allocatively efficient since the cost of producing the product is less than the value put on it by the consumer (as represented by the price that the consumer is willing to pay for that product). The product should certainly be produced, but there is scope for further worthwhile production from this point. This is also true when two or three units are made. On the other hand, an output of seven units of the product should not be produced. Here, the seventh unit costs $8 to produce but is only valued at $5 by the consumer. The same problem exists with output levels of five and six units. There is only one ideal output level (that is, one output level that will yield allocative efficiency). This is an output of four units where price is equal to marginal cost.

Unlike productive efficiency, it is not possible to show allocative efficiency on the production possibility frontier. Any point on the PPC could potentially be such a point provided price is equal to marginal cost at this point. The exact location will depend upon consumer preferences; these are not part of the PPC model.

A competitive market can lead to allocative efficiency. In such a market, firms are constrained to produce those products that consumers most desire relative to their cost of production. As with productive efficiency, there are two motivations. First, the desire to make the greatest possible profit will push firms to produce such products. This desire will lead to the highest possible demand and therefore the greatest revenue and profits. Secondly, firms in competitive markets will be forced to produce those products most demanded by consumers. If firms do not produce these goods, other firms will step in and do so. A failure to produce such products will therefore force some firms to close.

An alternative way to consider how a competitive market will achieve allocative efficiency is through Figure 32.5. In the diagram, you can see that the point of equilibrium (price P and output Q) is a position at which price is equal to marginal cost. This is the requirement for allocative efficiency.

ACTIVITY 32.1

1. Explain what type of efficiency each of the following might lead towards.
   - **a** A firm uses a new machine that costs less than the old one but produces more.
   - **b** A firm swaps production to a different product that sells at the same price but is in greater demand.
   - **c** A car plant makes 1000 workers redundant because their jobs can now be done by robots that cost less over a period of time than paying workers' wages.
   - **d** Following privatisation, firms in an industry have to change what they produce in order to make a profit.
2. The internet has allowed consumers to purchase products from all over the world in a way that was not previously possible. Online shopping has greatly increased the level of competition faced by firms in different markets as they now have to compete directly in a global market.

   In a group, discuss the ways in which the development of online shopping could lead to greater efficiency in global markets. Make a poster showing your findings. You can then use this to make a short presentation to the rest of the class. Alternatively, make a podcast of your discussion using a recording device such as a smartphone.

32.4 Pareto optimality

The concept of **Pareto optimality** occurs when it is impossible to make someone better off without making someone else worse off. Pareto optimality represents the best possible situation in the circumstances, with resources allocated in the most efficient way.

The concept can be simply applied using a PPC like that shown in Figure 32.4. When an economy is operating on its PPC, it is not possible to increase the output of capital goods without reducing the output of consumer goods. In other words, it is a state of Pareto optimality. In contrast, any point within the PPC, for example X, would be Pareto inefficient. This is because it is possible to increase the output of either type of good without reducing the output of the other. Producers and consumers are better off.

If the allocation of resources is *not* Pareto efficient, then there is the opportunity for improvement, for example where at least one person is made better off without making anyone else worse off. If there are welfare losses at a particular point on the PPC, the reallocation of resources will lead to Pareto improvement. In reality, any improvement in efficiency may require some form of compensation to be paid when individuals are worse off.

An example where Pareto optimality can be applied is the case of airport expansion. Turkey's new Istanbul airport and many examples throughout Asia are typical. Passengers and airlines using the more efficient airport will benefit from the new upgraded facilities through fewer flight delays and a better experience at the terminals. Residents living on the site of the proposed airport expansion are likely to lose their homes as land is required for the construction of new facilities. These residents will be worse off. In principle, they should be given financial compensation, but many residents may never receive anything. Residents living near the extended airport may be badly affected by additional noise from more aircraft movements and by poorer air quality. Overall, though, the case for expansion is based on the efficiency gain.

ACTIVITY 32.2

In pairs or a group, choose an example from your own country to explain the concept of Pareto optimality. Produce a poster for the classroom wall.

TIP

Learners often confuse types of efficiency. A good way of remembering the difference is that a PPC is a simple way of explaining productive efficiency and Pareto optimality.

32.5 Dynamic efficiency

The concept of **dynamic efficiency** is a form of productive efficiency that benefits a firm over time. Resources are reallocated in such a way that output increases relative to the increase in resources. Dynamic efficiency is achieved when a firm meets the changing needs of its market by introducing new production processes in response to competitive pressures. By using their excess profits, firms are able to engage in research, development and product innovation in order to protect their market share. This can bring benefits to consumers in the form of new technologies and lower prices. Firms benefit from a more efficient means of production.

Dynamic efficiency is a long-run concept. To achieve dynamic efficiency requires investment sourced from within or outside of the firm. Initially, this investment can result in higher costs; the payback comes later. If a firm does not invest, it may become less efficient and may be forced to leave the market. Where a firm is dynamically efficient, its long-run average cost curve (LRAC) shifts downwards. This is shown in Figure 32.6.

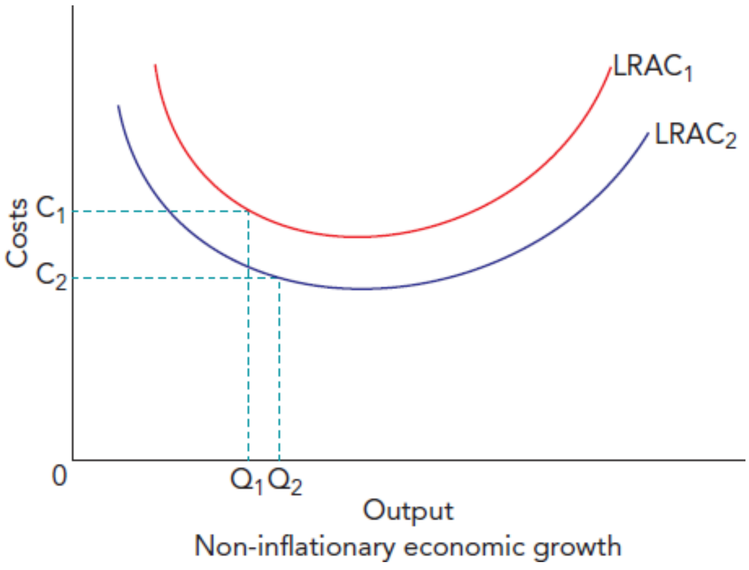


Figure 32.6: Dynamic efficiency

A typical example of dynamic efficiency is that of the motor vehicle manufacturing industry. The industry is very competitive. It has experienced both growth and rationalisation as firms have had to become more efficient to survive. The industry has come a long way since Henry Ford made his factories the most efficient in the USA in the 1920s and 1930s. Innovation and extensive investment have resulted in highly efficient, automated production plants. Computer-aided techniques and robots rather than workers have contributed to increased efficiency and lower production costs per vehicle.

ACTIVITY 32.3

1 Using information from your own country or one that is known to you, state the possible ways in which each of the following might achieve dynamic efficiency:

   a the food processing industry

   b livestock farming

   c courier services.

Discuss your results with another learner or in your group.

TIP

Efficiency has many applications in economics. It may seem abstract in theory so try to use examples to support the theoretical parts of your answers.

KEY CONCEPT LINK

Equilibrium and disequilibrium / Time: Efficiency and inefficiency can be explained in various ways. Efficiency and inefficiency are dynamic concepts: over time, markets and economies can move from being efficient to being inefficient and back to being efficient.

32.6 Market failure

The idea that markets can fail was introduced previously. The question that now needs to be asked is: 'What do markets fail at?' The answer is: 'Markets fail at delivering efficiency.'

Market failure exists whenever a free market, left to its own devices and totally free from any form of government intervention, fails to make the best use of scarce resources. In the context of this chapter, it is when the interaction of supply and demand in a market does not lead to productive and/or allocative efficiency. In other words, there is not an efficient allocation of resources.

There are various consequences of market failure. Some you have already considered; others you will look at in more detail in later chapters:

- where there are externalities in the market
- the provision of merit and demerit goods
- the provision of public and quasi-public goods
- information failure
- adverse selection or moral hazard
- abuse of monopoly power in the market.

TIP

These are just some of the many examples of market failures in economics. When writing about market failure, always bear in mind that there is an inefficient allocation of resources. This is why markets fail.

KEY CONCEPT LINK

Efficiency and inefficiency: Market failure arises because the free market mechanism is not always efficient in the way in which resources are allocated. As will be seen later, market failure invariably requires various types of government regulation to make good market failure.

THINK LIKE AN ECONOMIST

Should we be flying less?

Figure 32.7: Passengers board a plane

Are people likely to be flying less in the future? Not according to the latest forecasts of the size of the global aircraft fleet in 2038.

It is projected that the global aircraft fleet will almost double to over 50 000 aircraft in 2038. The biggest increase, 146%, is expected in the Asia Pacific region and there will be large increases in Europe and North America – 77% and 45% respectively.

Around 2.5% of global CO_2 emissions come from aviation. This may not seem a lot compared to the bigger picture, but there are growing pressures for us to cut back on the number of times we fly and to use alternative forms of transport, such as rail, which is far more efficient in terms of emissions and fuel used.

Interestingly, as well as environmental groups, KLM and Lufthansa, two of Europe's biggest airlines, have launched campaigns to get people to think more about whether they need to fly. The head of Lufthansa has also been critical of low-cost airlines flying too many people to too many destinations, all of which is damaging to the environment.

Consider the arguments for flying less:

1. Comment on the likely economic and social impact of fewer people flying for business and leisure reasons.
2. What impact would fewer aircraft have on global supply chains?

REFLECTION

For Activities 32.1 and 32.2, it is recommended that you make a poster of your findings. What are the benefits of doing this? How does a poster make it easier for you to present your work?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What is an essential requirement for productive efficiency?

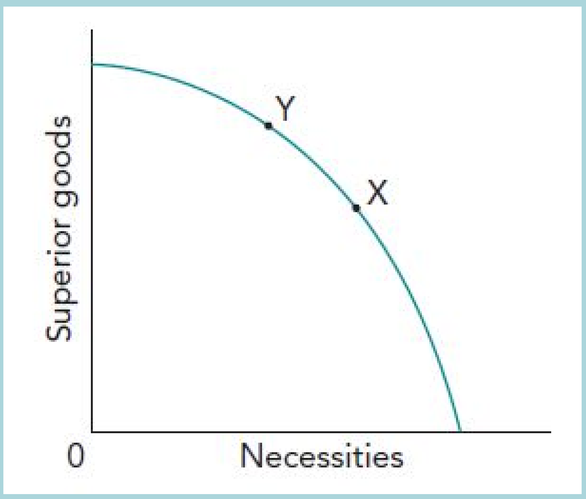
A All costs have been taken into account.

B The production of a good is at minimum average cost.

C All resources are being used.

D The most efficient machinery is being used to produce the good.

2 The diagram shows an economy reallocating its resources by moving along its production possibility frontier from Y to X.



Assuming the marginal utility of superior goods is less than the marginal utility of necessities, what is the effect on economic efficiency of the movement from Y to X.

	Productive efficiency	Allocative efficiency
A	increases	increases
B	increases	no change
C	no change	increases
D	no change	no change

3 Allocative efficiency assumes that each person is in the best position to judge their own economic well-being. Which of these examples of government intervention rejects this assumption?

A the provision of flood defences as a public good

B regulations to limit emissions from vehicle exhaust systems

C a ban on imported cigarettes

D the provision of merit goods, like healthcare

4 An economy is economically inefficient when:

A there is a rise in its Gini coefficient.

B the private sector takes over a state-owned business.

C it is possible to make someone better off without making someone else worse off.

D productivity in the car industry is falling.

5 Which of these is an example of market failure?

A excessive traffic noise experienced by those people living alongside a busy highway

B a rise in the unemployment rate

C an increase in the price level above its 2% target

D a shortage of ice cream during hot weather

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that economic efficiency consists of productive efficiency where a firm is producing at the lowest possible cost and allocative efficiency where price is equal to its marginal cost of production			
Explain the conditions needed for productive efficiency and allocative efficiency			
Understand how productive efficiency and allocative efficiency can be applied using a production possibility curve (PPC)			
Explain that Pareto optimality occurs when it is impossible to make an individual better off without making another individual worse off			
Explain that the long-run concept of dynamic efficiency is a form of productive efficiency that benefits a firm over time			
Understand that markets sometimes fail to deliver the most efficient allocation of resources			
Analyse the causes of market failure			
Evaluate the consequences of market failure			

Chapter 33

Private costs and benefits, externalities and social costs and benefits

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of a negative externality and a positive externality
- define the meaning of private costs and benefits, external costs and benefits and social costs and benefits
- calculate private costs and benefits, external costs and benefits and social costs and benefits
- analyse negative and positive externalities of production and consumption
- analyse the deadweight welfare losses arising from negative and positive externalities
- explain asymmetric information and moral hazard
- evaluate the use of costs and benefits in analysing decisions.

ECONOMICS IN CONTEXT

Air quality in Southeast Asia

Poor air quality is an annual problem in the ASEAN region due largely to farmers illegally setting fires to clear the land of rainforest to plant palm oil plantations. Hot weather and strong winds made the problem worse in 2019. In Malaysia and Indonesia, pollution from the forest fires forced schools to close. Many people went to hospital suffering from the effects of air pollution.

Figure 33.1: The Kuala Lumpur skyline with the Petronas Twin Towers (centre) just visible through the smog

In Indonesia, the authorities brought in thousands of temporary firefighters. Land owners were warned that they could face criminal charges if they were found to have started fires without permission. In Jakarta, Indonesia's capital, the air quality was officially classified as 'very unhealthy'.

Beyond Indonesia, the effects of the pollution extended to Malaysia, Singapore and Thailand. In Malaysia, pollution levels were classified as 'unhealthy'; the famous Petronas Twin Towers in the capital, Kuala Lumpur, were shrouded in smog. The air pollution reached Thailand where air quality in the tourist resort of Phuket was classified as 'unhealthy'. In Singapore, many residents wore face masks and were advised to stay indoors.

Discuss in a pair or a group:

- Which groups are affected by the illegal burning of rainforest in Indonesia?
- Why is the burning of rainforest an example of market failure?

33.1 Externalities

If the market system is to work well and lead to economic efficiency, it is important that people who make economic decisions are the same as those who are affected by these decisions. A transaction between a producer and a consumer for a good or service should only affect those who are involved. As long as this occurs, both sides will act accordingly since all is well in the market. However, a problem could arise if someone else not involved in the economic decision is affected by that decision. This is the concept known as **externality**. Those not directly involved are called **third parties**.

A few examples will make clear what is meant by an externality.

- People living along the flight path to an airport will experience increased noise disturbance if the number of flights increases or an additional runway is opened.
- If a chemical factory discharges waste into a nearby river, killing fish stocks, those who make a living from fishing on the river will not be able to earn any money.
- When a pharmaceutical company develops a new vaccine to combat a disease, if other firms are able to have access to the results, the benefits extend beyond the firm that has financed the cost of the research and product development.
- When a new publicly-funded flood barrier is built, people who have been affected by flooding in the past can continue to work and earn their usual wages.

Figure 33.2: A storm surge barrier protects the Netherlands from flooding from the sea

In the above examples, the third parties are the people living along the flight path, those who catch fish, the global population and those living near the flood barrier able to continue with their normal lives. All can be described as situations where a person's well-being or a firm's production capability is being directly affected by the actions of other consumers or firms.

TIP

Learners are often unclear about what is meant by an externality. An externality is the effect, negative or positive, on a so-called third party who has had no involvement in the action that has caused the externality. The action itself is not the externality.

The side effects on third parties can be negative or positive

- A **negative externality** occurs where the side effects have a negative or damaging impact on third parties involving unexpected costs to them.
- A **positive externality** is where the side effects provide unexpected benefits to the third parties.

ACTIVITY 33.1

Using the four examples of externalities at the start of the chapter, explain for each one why it involves an externality, and whether the externality is negative or positive. Discuss your answers with another learner.

33.2 Types of costs and benefits

Economists use three types of costs and benefits to describe externalities:

- **Private costs (PC)** and **private benefits (PB)** are experienced by the people who are directly involved in the decision to take a particular action. Private costs therefore are the costs incurred by firms, individuals or others who actually carry out the particular action, either as producers or consumers. The private benefits are directly received by those who produce or consume the good or service in the action. For example, in the case of the expansion of an airport, the private costs are the development costs that are paid for by the owners of the airport. Private costs can also apply to users of the airport such as airlines and passengers who are charged to use the new facilities. The private benefit is the revenue received by the airport's owners and the advantages that accrue to the additional passengers able to travel to and from the extended airport.
- **External costs (EC)** and **external benefits (EB)** are a consequence of externalities that arise from a particular action. External costs and benefits are not paid for, nor do the advantages accrue to those responsible for the action. Instead they fall on the third parties. In the case of airport expansion, people who live on the flight path of the airport will experience additional noise pollution problems. They may be forced to soundproof their homes at their own expense or in extreme cases, move home. An external benefit could be if some flights transfer to the expanded airport from elsewhere, resulting in less noise pollution for those people who live on the flight path of the other airport.
- **Social costs (SC)** and **social benefits (SB)** are the total costs and benefits incurred or accruing to society as a result of a particular action. Social costs are the sum of private costs and external costs:

  Social costs = Private costs + External costs
- Social benefits are the sum of private benefits and external benefits:

  Social benefits = Private benefits + External benefits

A problem arises when the private costs do not exactly equal the social costs or the private benefits do not exactly match the social benefits. The external costs or external benefits distort the efficient allocation of resources. It is for this reason that the market fails to produce the best allocation of resources.

However, it is possible for the private and social costs to be the same; all of the costs of an action accrue to the individual or firm. If this is the case, then there are no externalities. It is also possible that there will be a difference, that is private and social costs may not be equal to each other. For example, if you make a decision to take a journey by car, you consider only the costs of the fuel and the time taken. You do not consider the further costs that you may be imposing on others in terms of your contribution to road congestion, to atmospheric pollution and to possible road accidents. In this situation, a negative externality exists, the cost of which is an external cost. This situation is illustrated in Figure 33.3. Here, private costs are part of the social costs involved in a decision. They do not represent all of the social costs. The difference shown between the two is the external cost or the cost of the negative externality.

It is possible that the social benefits of a decision may exceed the private benefits. If this is the case, then a positive externality that produces an external benefit is said to exist. For example, if you make a decision to be inoculated against a particular disease, then clearly you receive the private benefit of not catching that particular disease. However, you may not be the only one to benefit. The fact that you do not get the disease has some benefit to others with whom you come into contact and who will now not catch the disease from you.

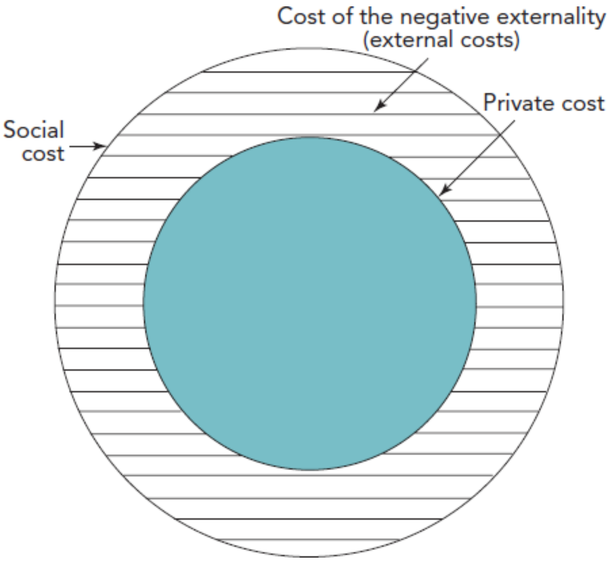


Figure 33.3: A difference between private and social costs

KEY CONCEPT LINK

Efficiency and inefficiency: A market is not efficient where there are externalities present. Whether a market remains inefficient can be the consequence of the actions taken to tackle market failure.

33.3 Negative and positive externalities of production and consumption

It is also possible to recognise when the externalities are the result of production or consumption decisions. Four examples are given below.

Negative production externalities

Negative production externalities are spillover effects that occur as a result of production. A common case is that of most forms of environmental pollution. Suppose a firm illegally disposes of toxic waste which emits toxic fumes into the atmosphere. A production externality occurs because there are additional costs imposed on the community. Those living near the factory may suffer from ill health and respiratory problems and there is the wider issue of how the toxic emissions are contributing to global warming due to the negative consequences of the firm's action. There is no cost to the polluting firm.

Another topical example is the growing problem of plastic waste. All economies rely on plastics for many reasons. One issue that arises is how to dispose of plastic once it has been used since there are limits to which plastics can be recycled. Much of the waste plastic finds its way into rivers and the oceans, causing distress to marine creatures. Some waste plastic finds its way into the food chain with potentially serious problems when fish and seafood are consumed.

Figure 33.4: Toxic waste from a factory pollutes a nearby river

Negative externalities of production therefore occur when third parties are harmed by the production of a good or service.

Figure 33.5 shows how negative externalities of production cause market failure. There is a misallocation of resources. The marginal external costs are shown by the curve MEC and increase as output increases. The marginal social costs, shown by MSC, are the marginal private costs (MPC) plus marginal external costs. MPC is the firm's supply curve. There are no consumption externalities so the demand curve, D, for the firm's products is downward sloping. The marginal social benefit is the same as the marginal private benefit and therefore equal to D. The socially optimum output Q is where MSB equals MSC. The actual output Q_1 that is produced is where MPC equals MPB. This means that output is above the optimum level. This overproduction results in too much toxic waste being emitted by the factory. The triangular area, xyz, is called the deadweight welfare loss due to this overproduction.

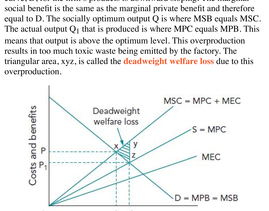


Figure 33.5: Negative production externalities

TIP

This example of a negative production externality is the one most widely used in questions. Be careful when drawing the diagram to include the deadweight welfare loss.

Positive production externalities

Positive production externalities are benefits to third parties and are created by producers of goods and services. A typical example is when, as a result of medical research, a new medicine or vaccine is developed to combat a serious disease. The recipients of the medication obviously benefit, but there are also wider benefits to others and to the economy as a result of the reduced incidence of the disease. These benefits include the greater output and productivity from having a healthy workforce.

A second example is where new trees are planted to replace those that have been destroyed to make way for a plantation. The people who plant the trees will eventually be able to sell them or sell their crops. The wider community will also benefit through a reduction in CO_2 in the atmosphere. This is an external benefit that is a consequence of planting the new trees.

Figure 33.6 shows how this situation can be represented. In this case, there are external benefits; these are shown by MEB. Given the positive externalities, MSC is now below MPC. Assuming no consumption externalities, MSB equals MPB. The socially efficient level of output is at Q where MSB equals MSC. This is above what the output would be in a competitive market. The external benefits result in a level of output below the socially efficient level. There is underproduction at Q_1. The deadweight welfare loss is the triangle xyz and results from this underproduction. This will only be removed when even more new trees are planted.

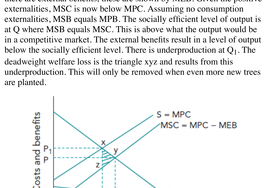


Figure 33.6: Positive production externalities

Negative consumption externalities

Negative consumption externalities are created by consumers as a consequence of their use of products that result in harm to third parties not involved in the consumption. A topical example is that of passive smoking which is now subject to regulations in many countries. Passive smoking causes costs to non-smokers in the form of discomfort and, if long term, respiratory problems due to extensive exposure to cigarette smoking. The cost of treating people who are subjected to passive smoking is likely to have to be paid for by those who are affected or by their public health care programme. The cost is not paid for by the smokers.

A second example is where after a big sporting event the area around the stadium is left in an untidy state with drinks cans and food containers thrown on the ground. Clearing the mess involves a cost to the city authorities, not the owners of the stadium. Noise and anti-social behaviour from those attending the event are other negative externalities. These externalities have a negative impact on the lives of residents or those who own businesses close to the sports stadium. Extra policing may be needed to ensure a peaceful situation returns to the area after an event.

Figure 33.7 illustrates this situation. There are external costs which are represented by MEC. The marginal social benefit MSB of the sporting event is lower than the marginal private benefit MPB. This is shown by the MSB curve in a position below the MPB curve. Assuming no production externalities, the socially efficient level of output is at Q where MSB equals MSC. Due to the external costs of consumption, the level of output is at Q_1 which is above the socially efficient level. The deadweight welfare loss caused by overconsumption is shown by the triangle xyz. In the case of passive smoking and from society's point of view, too much tobacco is being produced and consumed.

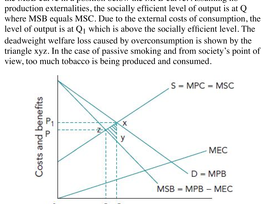


Figure 33.7: Negative consumption externalities

Positive consumption externalities

The benefits of positive consumption externalities are the spillover effects of consumption of a good or service on others. This is a key argument for the provision of merit goods by a government. In the case of high school education, those students who receive it clearly benefit. Their employment opportunities are greater and they can expect higher pay due to their educational background compared to others who left school earlier. The benefits further extend to their families and to their future economic prospects.

A further example is in the provision of healthcare, particularly if this is free. The benefits will be felt not only by those who receive treatments but also by their families and the economy. If someone avoids serious illness, then they are much more likely to be able to provide for their family. A healthy population is also likely to raise living standards in the economy and, in turn, a higher rate of economic growth. In both examples, the external benefits are to others and not the individual benefiting from free education or free healthcare.

Figure 33.8 shows this situation. Here, the marginal social benefit MSB is greater than the marginal private benefit MPB due to the positive externalities referred to above. So, the MSB curve is above the MPB curve. The gap between them is the marginal external benefit, MEB.

Assuming no external benefits of production, the level of output Q_1 is below the social optimum of Q. There is underconsumption of both secondary education and free healthcare. The deadweight welfare loss is the triangle xyz.

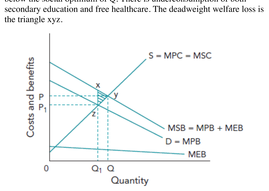


Figure 33.8: Positive consumption externalities

ACTIVITY 33.2

In a group of four, think about where your school or college is situated, or somewhere else that is known to you.

1. For each of the four categories of externalities, obtain some examples of each externality. You could look at one category of externality each. Be clear on the distinction between the action and the ways in which third parties have been affected by the action. Discuss your results with other learners, identifying any problems you may have experienced.
2. If you have time, produce a poster for the classroom wall showing the four externalities and the evidence you have gathered for each. Include diagrams as this will help you to remember how to draw them.

TIP

When drawing diagrams like Figures 33.5 to 33.8, it is important to be clear on whether you are dealing with production or consumption externalities. Remember that production externalities affect cost curves, and consumption externalities affect benefit curves.

33.4 Asymmetric information and moral hazard

In Section 6.4, it was explained that the underconsumption of merit goods and the over consumption of demerit goods is because consumers make choices based on imperfect information. It was assumed that all consumers have the same information when making decisions on what or what not to consume. This is not always true. The quality of information available to consumers varies and can lead to a misallocation of resources.

Figure 33.7 showed this misallocation of resources in a simple way. If a buyer lacks full information, there is a tendency to overestimate the benefits of consumption. The demand curve is above that if the consumer had perfect information; too much is being bought at too high a price.

In many markets in real life, sellers generally know more about what is being sold than buyers. A typical example is the market for used cars or scooters. Buyers find it difficult to know whether they are buying a good quality car or scooter, or one of low quality. Because they do not know, buyers will only be prepared to offer an average price for what may turn out to be a good quality car or scooter. The owners of good quality cars or scooters would not want to sell at an average price. The result is that the only cars or scooters sold would be poor quality. The market has failed; poor quality cars and scooters have driven good quality ones out of the market.

This is an example of **asymmetric information**. Assymetric information occurs when one party in the market, usually the seller, has some information that the other party, usually the buyer, does not have. This situation applies in the market for used cars and scooters. Buyers are often more concerned about the colour of the car, for example, and not whether it has been repaired following an accident. Another example is healthcare. Medical practitioners know far more about medical conditions than their patients and are in a better position to be able to advise what treatment should be given to their patients.

In other markets, the buyer may have some information that is unknown to the seller. Suppose you want a bank loan to set up a business. The bank has to take a risk by assuming that the information provided by you as the borrower is correct. After all, only the borrower knows whether they will be able to pay back what is owed. A similar situation applies in the insurance market where the seller has usually to accept the health details provided by the buyer. Some important details may not be provided.

Adverse selection and moral hazard

There are two types of asymmetric information:

- Hidden characteristics, when only one party knows more about a situation than the other party. An outcome of this situation is **adverse selection**. For example, Buyers of used cars may end up purchasing more low quality cars in the market, reducing the market for good quality vehicles. As another example, unhealthy people could purchase more life insurance than they need while healthy people may not purchase any life insurance.
- Hidden actions, when one party takes actions that the other party cannot observe but which affect both of them. This may apply in the case of a bank loan where the person who has obtained the loan takes a bigger risk in setting up a business. With insurance, a policy holder may attempt to do something that is prohibited by the terms of the policy. These situations involving hidden actions are known as **moral hazard**.

ACTIVITY 33.3

Figure 33.9: A used car market in Pakistan

In a pair, research the market for used cars and scooters in your country. One of you should look at the market for cars and the other look at the market for scooters. What evidence would you need if asked to investigate whether asymmetric information applied to these markets? Compare your findings.

REFLECTION

This chapter has explained an important concept in microeconomics. Look again at Activities 33.2 and 33.3. How did you begin to collect the information you needed? How easy or difficult was it to obtain information? Explain why this was the case. What might you have done differently?

33.5 Use of costs and benefits in analysing decisions

A useful technique to aid decision-making is to analyse the various costs and benefits that are involved. It is particularly useful where a financial appraisal alone may not be entirely appropriate. Analysis of costs and benefits is used by the public sector, for example in the case of public goods, such as a road where no direct charge is made to users. Where the full range of costs and benefits is considered then this involves what is referred to as a **cost–benefit analysis**.

In general terms, cost–benefit analysis takes a long view and a wide view in assessing whether a particular project should go ahead. The long view comes from the nature of most public sector investment. Because of the large sums involved, a project like a new road or rail link is normally appraised over 30 to 50 years. The wide view comes from the need to take into account the full social costs and social benefits. This is because we are often concerned with situations where major economic projects produce substantial and often controversial side effects, in particular where there are externalities that fall upon people and communities who have no direct connection with the particular project.

There are many situations where cost–benefit analysis can be used to aid decision-making. In all types of economy there are numerous examples of environmental pollution that result in external costs being imposed on the local community. The external costs can be far-reaching and substantial. Cost–benefit analysis attempts to quantify the opportunity cost to society of the various possible outcomes or sources of action.

Cost–benefit analysis is also widely used in the appraisal of major transport projects such as the UK's High Speed 2 (HS2) railway and the Hong Kong– Zhuhai–Macau Bridge in the Pearl River Delta region. Where huge investment is needed, cost–benefit analysis can provide the justification to go ahead (or not) based on a broad view of a project's impact on users of the facility and on the wider community and economy over a given period of time.

The cost–benefit approach differs from private sector methods of appraisal in two main ways. First, it seeks to include all of the costs and benefits, not just private ones. Secondly, it often has to provide a **shadow price** for costs and benefits where no market price is available. For example, in the case of transport projects, there is a need to value travel time savings. Other situations are how to value the benefit of cleaner air or being able to live in a less noisy environment.

KEY CONCEPT LINK

Scarcity and choice: Cost–benefit analysis is a well-used technique for dealing with the fundamental economic problem in situations where the market mechanism is an inappropriate way of allocating scarce resources. It forms the basis for decision making by governments, especially in the context of public goods.

TIP

When writing about cost-benefit analysis, as well as using an example, it is useful to remember that cost-benefit analysis takes a much wider view than a financial appraisal. This is why some projects go ahead when, if considered purely on financial terms, this would not be so.

ACTIVITY 33.4

Research the internet to find a recent example of a cost-benefit study.

1. Summarise the costs and benefits using the classification provided in this chapter.
2. Explain the extent to which an analysis of the costs and benefits has been used to decide whether the project goes ahead.
3. Present your findings to your group.

Development of a cost–benefit analysis

Whatever the problem under investigation, there are four main stages in the development of a cost–benefit analysis. The stages are shown in Figure 33.10.

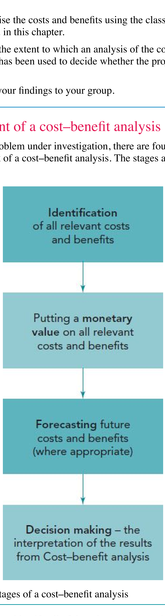


Figure 33.10: Stages of a cost–benefit analysis

The first stage is to identify all of the relevant costs and benefits arising out of any particular project. This involves establishing what are the private costs, the private benefits, the external costs and the external benefits. This may seem a relatively simple task. In reality, and with a little more thought, it is not so easy. There are particular problems when it comes to identifying external costs and benefits. The costs and benefits are often controversial and may not be easy to define in a discrete way. There may be the added difficulty that it is not always possible to identify a physical or geographical cut-off. The spillover effects of a new road or rail route, for example, are wide-reaching and affect people and communities beyond the immediate location of the proposed development.

The second stage involves putting a monetary value on the various costs and benefits. This is relatively straightforward where market prices are available. For example, in the case of a new road, a monetary value can be put on the jobs created or on the supplies provided by local businesses. For other variables, where no direct prices are available, a monetary value must be attributed for the costs and benefits. This is difficult and is controversial where cost–benefit analysis has come under close public scrutiny. A good example is how to value time, especially savings from a faster travel time.

The third stage applies in situations where projects have longer-term implications that extend well into the future. Here, economists have to employ statistical forecasting techniques, sometimes of a very crude nature, to estimate costs and benefits over many years. This particularly applies to projects where massive capital expenditure is involved.

The final stage is where the results of the earlier stages are drawn together so that the outcome can be presented in a clear manner in order to aid decision-making. The important principle here is that if the value of benefits exceeds the value of the costs, then the particular project is worthwhile since it provides an overall net benefit to the community. An estimate is made of the **benefit:cost ratio**, that is the net benefits as a proportion of the net costs of a project. Dependent on funding, projects with the highest benefit:cost ratios are most likely to get the go ahead.

The four stages in a cost–benefit analysis provide a clear framework for making decisions where the market mechanism is not fully functional. Any application of the technique should be seen in this way.

THINK LIKE AN ECONOMIST

The China–Pakistan Economic Corridor

The China–Pakistan Economic Corridor (CPEC) is a major economic venture between China and Pakistan. It is an important part of China's Belt and Road initiative to connect China to countries across the globe. In July 2019, a 393-kilometre motorway between Punjab and Sindh provinces opened to traffic. It represented a visible step forward in Pakistan's relatively new friendship with China.

Figure 33.11: The Punjab–Sindh motorway

The CPEC has various objectives, which include the development of new industrial zones and the port at Gwadar in Balochistan province as well as new roads and railways, and energy projects. One early benefit has been an increase in the number of infrastructure construction jobs for Pakistani workers and opportunities for local suppliers of cement, tarmac and construction equipment. CPEC has also provided around 10 000 jobs for skilled Chinese workers and for Chinese companies to feed into the supply chain.

The Pakistan government is obliged to pay half of the final cost of $60bn. This would seem to be a good return for the estimated 8-10 % increase in GDP by 2030.

1. What do you think are the economic implications of the CPEC from Pakistan's and China's viewpoints?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 How is external cost calculated?

A Social cost – social benefit

B Social cost – private cost

C Social cost + private cost

D Social cost – external benefit

2 The government funds a new barrier to protect residents from flooding from a nearby river.

Which of these is a positive externality of this action?

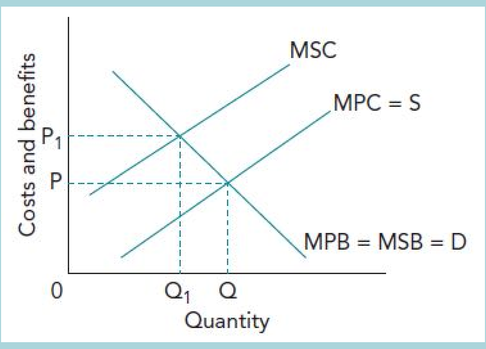
A The government can now spend money on other flood barriers.

B Residents are now better protected from flooding.

C Residents can now get flood insurance.

D Residents who previously had to stay at home due to flooding can now go to work.

3 The diagram shows some cost and benefit curves in a market. If output is at Q and price is at P, what type of market failure does this represent?



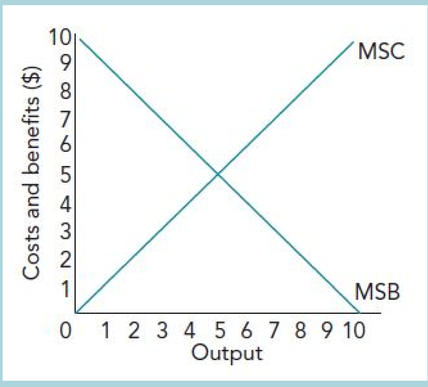
A negative externality of production

B negative externality of consumption

C positive externality of production

D positive externality of consumption

4 The diagram shows the marginal social benefit (MSB) and the marginal social cost (MSC) of production by a firm. What is the socially efficient level of output?



A 0

B 5

C 10

D 20

5 A cost–benefit analysis of four public sector investment projects produces the following results.

	Private benefits $m	External benefits $m	Private costs $m	External costs $m
A	200	20	180	40
B	150	30	200	50
C	180	70	160	80
D	120	60	100	60

Which project is most likely to be funded?

6 The deadweight welfare loss occurs when there is:

A over production of a good.

B a socially efficient allocation of resources.

C marginal private cost = marginal social cost.

D marginal external cost = marginal external benefit.

7 Asymmetric information is present in a market when:

A there is no information available on what is being bought or sold.

B the buyer and seller have an equal share of information.

C the buyer and seller do not have an equal share of information.

D the buyer or seller is prepared to take more risk.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that the social costs of an activity is the sum of private costs and external costs			
Understand that the social benefit of an activity is the sum of the private benefits and the external benefits			
Explain that a common example of market failure is when there are externalities arising from the actions of others in the market			
Understand and calculate the main types of costs and benefits used to describe externalities: private costs and benefits, external costs and benefits, social costs and benefits			
Explain how negative and positive externalities may be the result of production decisions or consumption decisions			
Analyse why externalities in the market may result in deadweight welfare losses			
Explain why asymmetric information and moral hazard are features of markets where there is information failure			
Evaluate the use of costs and benefits in analysing decisions			

〉Chapter 34

Types of cost, revenue and profit, short-run and long-run production

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the short-run production function, including: fixed and variable factors of production; total product, average product and marginal product; the law of diminishing returns (law of variable proportions)
- calculate total product, average product and marginal product
- explain the short-run cost function, including: fixed costs (FC) and variable costs (VC); total, average and marginal costs (TC, AC, MC); the shape of short-run average cost and marginal cost curves
- calculate fixed costs and variable costs, and total, average and marginal costs
- explain the long-run production function, including no fixed factors of production and returns to scale
- explain the long-run cost function, including the shape of the long-run average cost curve and the minimum efficient scale
- analyse the relationship between economies of scale and decreasing average costs
- explain internal economies of scale and external economies of scale
- explain internal diseconomies of scale and external diseconomies of scale
- define the meaning of total, average and marginal revenue
- calculate total, average and marginal revenue
- define the meaning of normal, subnormal and supernormal profit
- calculate supernormal and subnormal profit.

ECONOMICS IN CONTEXT

Does bigger mean better? Economies of scale in container shipping

Container ships have tripled in size since container vessels were first introduced on deep-sea routes between Europe, the USA and Asia in the 1950s. The container ship the *OOCL Hong Kong* has a carrying capacity of over 21 000 TEU's (twenty-foot equivalent units; one standard 45-foot container is 2 TEU). The *OOCL Hong Kong* is 400m long and weighs over 190 000 metric tons deadweight. Even bigger ships are under construction. OOCL and rivals such as Maersk and CMA CGM are committed to building these huge ships for one main reason – **economies of scale**.

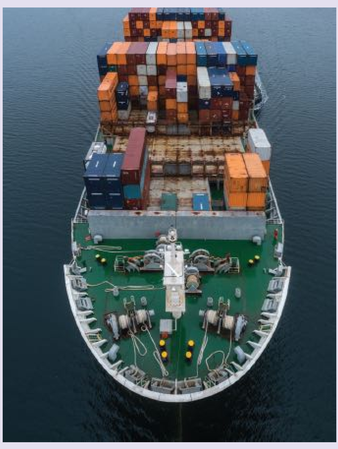


Figure 34.1: The *OOCL Hong Kong* was the world's largest container ship at the time of its launch in 2019

Economies of scale mean lower shipping costs per container. This generates benefits further down the supply chain. It means, for example, that global manufacturers find it most economical to locate production in countries with low labour costs. This means that the lower costs of production offset the costs of transportation. Economies of scale have had a major impact on the supply chain. To give an idea of the impact, it is estimated that the cost of shipping one item of clothing from Asia to Europe in a container can be as little as $0.25.

It is often forgotten that shipping is a major polluter of the air as well as the sea. For example, one container ship may emit as much pollution as 50 million cars. The emissions consist of carbon dioxide and poisonous oxides. The ships also pollute the sea with waste and oil spillage.

Shipping companies argue that bigger container ships mean fewer container ships and that the latest vessels are cleaner and more efficient than those they are replacing. There is external pressure on shipping companies far beyond the benefits of economies of scale. These include threats to globalisation due to increased trade protection and the urgent need to combat climate change.

Discuss in a pair or a group:

- What can economists contribute to the debate on economies of scale?
- Make a list of the possibilities and think about where you might be able to obtain information.

34.1 Introduction to production

The demand for the four factors of production (land, labour, capital, enterprise) comes from producers who wish to use them to make various goods or products. The producer is normally a firm whose demand for factors of production is derived from the needs of operating factories. Let us look at a clothing manufacturer as an example.

As a consequence of globalisation, many items of clothing are now produced in Southeast Asia, North Africa and Central Europe. This includes clothing and footwear for the mass retail market as well as designer brands such as Nike, Calvin Klein and Ralph Lauren. These brands are no longer produced on any large scale in the home country of their designer.

Clothing producers need factors of production in order to make goods for sale in markets that are mainly in high-income countries. Their task is to combine factors of production in an effective way to be efficient, competitive and profitable in the world market. The most important decision they have to make concerns the relative mixture of labour and capital. Therefore the task for the firm is to find the least cost or most efficient combination of labour and capital for the production of a given quantity of output. Clothing is a typical example of a business where labour and capital are in direct competition with each other. If labour costs are relatively cheap, as in lower middle-income countries, then the production process is likely to take place using much more labour than capital. In most high-income economies, the reverse is true. High-tech machines can be used to replace labour, largely because it is more cost effective to do so. So, in this case, the same amount of output is produced using more capital and far less labour than if it were taking place in a lower middle-income country.

Figure 34.2: A clothing manufacturer in Bangladesh

Firms therefore have to choose between alternative production methods. In the example of the clothing manufacturer, Figure 34.3 shows three different methods of production, each of which combines different levels of labour and capital to make items of clothing. Line A shows a method whereby labour and capital are used in equal proportions; line B shows a production method that uses twice as much capital as labour; line C shows the output resulting from twice as much labour as capital being used. On these lines, points x, y and z show the respective amounts of labour and capital that are needed to produce 100 units of clothing. Joining these points gives an **isoquant**, a curve that joins points that give a particular level of output. The isoquant can be extended for other combinations of labour and capital not shown on Figure 34.3.

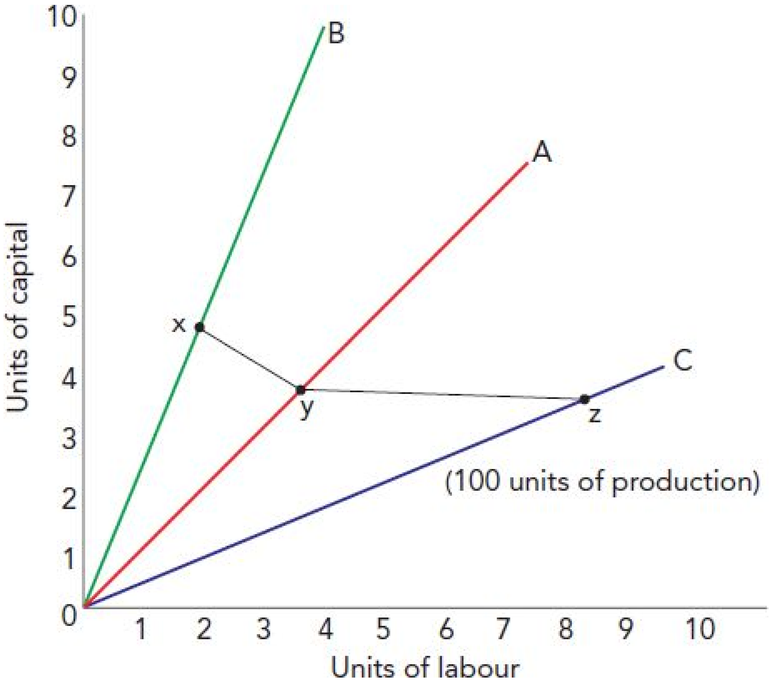


Figure 34.3: Alternative methods of production

34.2 Short-run production function

In terms of factors of production, labour is the usual variable factor of production in the short run; all others are fixed. Table 34.1 shows how the quantity of clothing produced depends on the number of workers employed. For example, if there are no workers in the factory, there is no output or no **total product**; with one worker, total product is 100 units. When there are two workers, the total product is 180 units and so on.

Number of workers	Total product	Marginal product	Average product
0	0		0
		100	
1	100		100
		80	
2	180		90
		60	
3	240		80
		40	
4	280		70
		15	
5	306		51
		11	
6	306		51

Table 34.1: Short-run production data

Figure 34.4 is a graph of the first two columns of data in Table 34.1. The graph shows the relationship between the quantity of factor inputs (labour/workers) and the total product or output of clothing. This graph is called the **production function**. The third column of Table 34.1 shows the **marginal product**, the increase in total product that occurs from an additional unit of input (labour, in this case). The data in the third column show that, when the number of workers goes from one to two, output increases by 80 units; when it goes from two to three workers, the marginal product is 60 units. As the number of workers increases, the marginal product declines. This concept is known as a diminishing return and is often referred to as the **law of diminishing returns**. The law of diminishing returns is clearly evidenced in many organisations. Adding more workers can be a short-term way of increasing output, but there comes a point where the marginal product falls and it might even become negative.

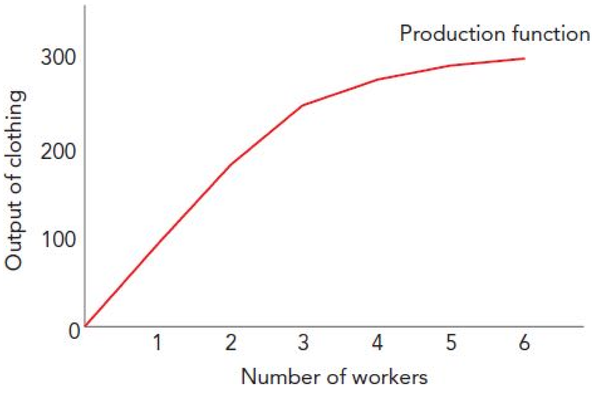


Figure 34.4: A production function

The final column of Table 34.1 shows another important measure **average product**. Average product is calculated by dividing the total product by the number of workers employed. It is a simple measure of labour productivity, that is, how much output is produced by each worker.

TIP

Learners often confuse product and productivity. This is a common error. You should remember that product is about output; productivity is about output per worker.

KEY CONCEPT LINK

The margin and decision-making: The law of diminishing returns is a relevant illustration of firms making choices at the margin in the short run.

ACTIVITY 34.1

1 Using the data from Table 34.1, draw a graph to show:
   a the marginal product of labour
   b the average product of labour.

   Compare your graph with another learner's. Discuss any differences.

   Now working in pairs:

2 What do you notice about the shapes of the two curves and what do the shapes indicate?

3 Explain how a knowledge of marginal and average product may be useful for a clothing firm planning how much to produce.

34.3 Short-run cost function

The term 'firm' was defined in Section 1.1 and referred to in earlier chapters. More specifically, a firm has particular objectives such as **profit maximisation**, the avoidance of risk-taking and achieving long-term growth. At its simplest level, the firm may be a sole trader with a small factory, a food stall or a local convenience shop. A firm is also used to describe national or multinational companies with many factories and offices, such as Apple. In economic theory, all firms are headed by an entrepreneur.

A firm and its entrepreneur must consider all the costs of the factors of production involved in the final output. These are the private costs directly incurred by the owners. Production may create external costs for others but these are not taken into account by the firm (see Section 33.2). The firm is simply the economic organisation that transforms factor inputs such as raw materials with capital equipment, labour and enterprise to produce goods and services for the market.

Fixed costs and variable costs

There are two types of short-run costs:

- **Fixed costs (FC)** are the costs that are independent of output. Total fixed costs when drawn on a diagram take the form of a horizontal straight line as shown in Figure 34.5. At zero output, any costs that a firm has must be fixed. Some firms, where capacity is fixed or where the product is perishable as in the case of a hotel, operate in markets where fixed costs represents a large proportion of the total costs. It would be advisable to produce a large output in order to reduce unit costs or to sell all available capacity to make the firm more likely to cover total costs.
- **Variable costs (VC)** include all the costs that are directly related to the level of output, the usual ones being labour and raw material or component costs. In other words, variable costs are incurred directly in the production process.

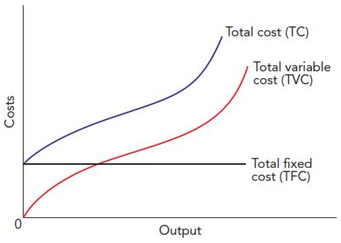


Figure 34.5: Total cost curves

Total, average and marginal costs

There are five types of short-run costs:

- total cost (TC)
- average fixed cost (AFC)
- average variable cost (AVC)
- average total cost (ATC)
- marginal cost (MC).

Total cost (TC) = total fixed cost (TFC) + total variable cost (TVC)

$$\text{Average fixed cost (AFC)} = \frac{\text{total fixed cost}}{\text{output}}$$

$$\text{Average variable cost (AVC)} = \frac{\text{total variable cost}}{\text{output}}$$

$$\text{Average total cost (ATC)} = \frac{\text{total cost}}{\text{output}}$$

$$\text{Marginal cost (MC)} = \frac{\text{change in total cost}}{\text{change in output}}$$

Marginal cost is the addition to the total cost when making one extra unit of output. These costs are shown in Figure 34.6.

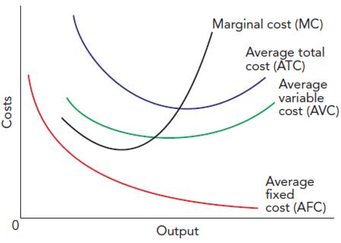


Figure 34.6: Average and marginal cost curves

The most important cost curve for the firm is the average total cost (ATC), which shows the cost per unit of output. For most firms, the decision to increase output will raise total cost; marginal cost will be positive as extra inputs are used. Firms will only be keen to increase output when the expected sales revenue outweighs the extra cost of production. Rising marginal cost is also an indicator of the law of diminishing returns (see Section 34.2). As more of the variable factors are added to the fixed ones, the contribution of each extra worker to the total output will begin to fall. The diminishing marginal returns cause the marginal and average variable cost to rise, as shown in Figure 34.6.

The shape of the short-run average cost and marginal cost curves

The shape of the short-run ATC is the result of the interaction between the average fixed cost and the average variable cost: AFC + AVC = ATC. As the firm's output rises, the average fixed cost will fall because the total fixed cost is being spread over increased output. At the same time, average variable cost will be rising because of diminishing returns to the variable factor. Eventually, this will outweigh the effect of falling AFC, causing ATC to rise. The result is the classic 'U' shape to the ATC curve because of the law of diminishing returns (shown in Figure 34.7). On the diagram, the MC crosses AVC and ATC at their lowest points (see Figure 34.6). It means that the most efficient output for the firm is where the average total or unit cost is lowest. This is known as the optimum output. Optimum output is where the firm is productively efficient in the short run. The most efficient output is not necessarily the most profitable, since profit maximisation may only be possible in the long run. For a firm wishing to maximise its profits, its chosen output will depend on the relationship between its revenue and its costs.

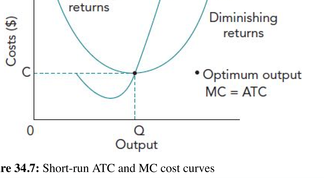


Figure 34.7: Short-run ATC and MC cost curves

ACTIVITY 34.2

Figure 34.8 shows the cost structure of a firm.

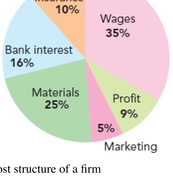


Figure 34.8: Cost structure of a firm

1. For each cost item, say whether it is likely to be fixed or variable in the short run.
2. Use this information to say what type of industry this cost structure might represent. Justify your answer.

TIP

Decision making by firms is very dependent upon marginal cost in relation to the revenue that is received from producing one more unit of output. Maximum output is where marginal cost equals marginal revenue. A common error is to refer to total costs and total revenue, not marginal costs and marginal revenue.

34.4 Long-run production function

The short run is a period of time in economics when at least one of the factors of production is fixed. The factor that tends to be easiest to change is labour, as explained above. The factor that takes longest to change is capital.

Learners often ask the question, 'How long is the short run?' This is not an easy question to answer, as it tends to differ for different industries. In the clothing industry, it is likely to be no more than a few weeks, the time that is taken to install new machines and to get these up and running to produce clothing. In other industries, it will be much longer. A country building a new hydroelectric power station will take much longer to plan, install and make the power station operational. Ten years may well be a realistic estimate in this case. This time is still referred to as the short run since capital is fixed over this time. So, the short run is *not* defined in terms of a specific period of time; it refers to the time when not all factors of production are variable.

All factors of production are variable in the long run. This gives the firm much greater scope to vary the respective mix of its factor inputs so that it is producing at the most efficient level. For example, if capital becomes relatively cheaper than labour or if a new production process is invented and this is likely to increase productivity, firms can then reorganise the way in which they produce. Firms must know the cost of the factors of production they use and consider this in relation to the additional product from using one more unit of a factor of production. In the case of labour, it is easy to know the costs; it is more difficult to estimate costs for other factors of production. The best combination of factors can be arrived at as their price varies. Firms should aim to be in a position where:

$$\frac{\text{marginal product factor A}}{\text{price of factor A}} = \frac{\text{marginal product factor B}}{\text{price of factor B}}$$

$$= \frac{\text{marginal product factor C}}{\text{price of factor C}}$$

and so on for all factors of production they use. For firms to be able to do this, all factors of production must be variable.

It is possible to derive the long-run production function for a firm by constructing an isoquant map using the principles of a production function shown in Figure 34.3. The map shows the different combinations of labour and capital that can be used to produce various levels of output. The isoquant map is shown in Figure 34.9a. It consists of a collection of isoquants for output levels of 100, 200, 300, 400 and 500 units of production. From this, it is possible to read off the respective combinations of labour and capital that could produce these output levels.

TIP

Remember that Figure 34.9a is looking at output from a physical standpoint, not a cost standpoint. A common error is to regard isoquants as cost curves.

Returns to scale

Figure 34.9a also shows that as production increases from 100 to 200, relatively less capital and labour is required per unit of output. This is referred to as **increasing returns to scale**. As production expands further, increasing amounts of capital and labour are needed to produce 100 more units of output and so move up to the next isoquant. This is indicated by the increasing width of the gap between the isoquants indicating **decreasing returns to scale**.

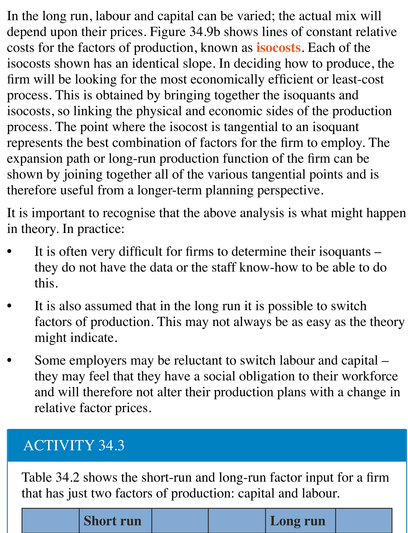


Figure 34.9: Long-run production function: **a** Isoquant map **b** Isoquants and isocosts

In the long run, labour and capital can be varied; the actual mix will depend upon their prices. Figure 34.9b shows lines of constant relative costs for the factors of production, known as **isocosts**. Each of the isocosts shown has an identical slope. In deciding how to produce, the firm will be looking for the most economically efficient or least-cost process. This is obtained by bringing together the isoquants and isocosts, so linking the physical and economic sides of the production process. The point where the isocost is tangential to an isoquant represents the best combination of factors for the firm to employ. The expansion path or long-run production function of the firm can be shown by joining together all of the various tangential points and is therefore useful from a longer-term planning perspective.

It is important to recognise that the above analysis is what might happen in theory. In practice:

- It is often very difficult for firms to determine their isoquants – they do not have the data or the staff know-how to be able to do this.
- It is also assumed that in the long run it is possible to switch factors of production. This may not always be as easy as the theory might indicate.
- Some employers may be reluctant to switch labour and capital – they may feel that they have a social obligation to their workforce and will therefore not alter their production plans with a change in relative factor prices.

ACTIVITY 34.3

Table 34.2 shows the short-run and long-run factor input for a firm that has just two factors of production: capital and labour.

	Short run			Long run	
Capital	Labour	Output	Capital	Labour	Output
2	1		1	1	
2	2		2	2	
2	3		3	3	
2	4		4	4	
2	5		5	5	
2	6		6	6	

Table 34.2: Short- and long-run factor inputs

1 Insert your own output data in the table to show:
   a diminishing marginal returns
   b increasing returns to scale
   c decreasing returns to scale.

34.5 Long-run cost function

In the long run, the firm can alter *all* of its inputs, using greater quantities of any of the factors of production. It is now operating on what is known as a larger scale. All of the factors of production are variable in the long run. In the very long run, technological change can alter the way the entire production process is organised, including the nature of the products themselves. In a society with rapid technological progress, this will shrink the time period between the short run and the long run. In turn, this will shift the firm's product curves upwards and its cost curves downwards since firms are more efficient as a consequence of new technologies. There are examples in consumer electronics where whole processes and products have become obsolete in a matter of months, let alone years. For example, mobile phones evolved into smartphones and are likely to continue to change in the future. An even bigger challenge is to reduce the use of fossil fuels in transport systems. The switch to electric cars, buses and other vehicles is vital if global CO_2 emissions are to be drastically cut.

It is possible that a firm can find a way of lowering its cost structure over time. One way might be by increasing the amount of capital used relative to labour, with a consequent increase in factor productivity. The use of robots in car assembly plants and computer-aided production methods are good examples of how costs can be reduced.

Shape of the long-run average cost curve

The long-run average cost (LRAC) curve shows the least cost combination of producing any given quantity of output. This is shown in Figure 34.10. The LRAC curve is a flatter U-shaped curve compared to the SRAC and is indicative of a firm experiencing falling long-run costs over time. Falling long-run average costs allow a firm to lower its price without sacrificing profit. Products such as laptops, digital cameras, iPhones and games consoles are examples where costs and therefore prices have fallen through competition and changing technology.

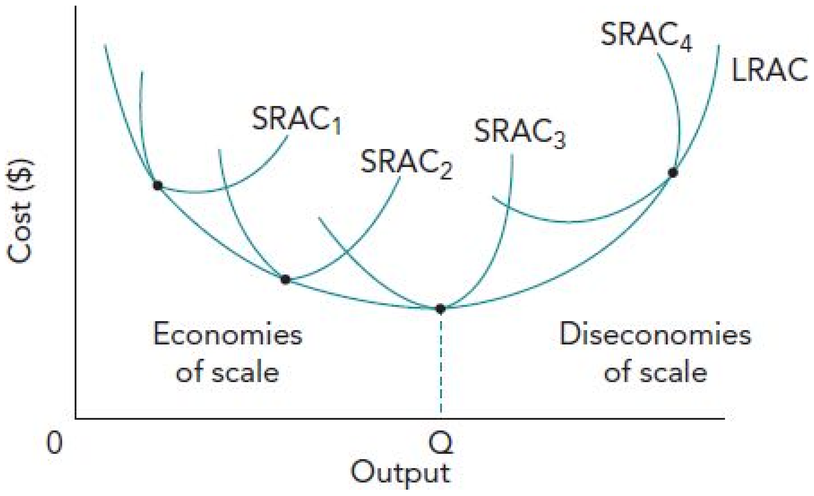


Figure 34.10: The long-run average cost curve

The shape of the LRAC is derived from a series of short-run situations, as shown in Figure 34.10. As output increases, so too does the scale of the firm's operations. The LRAC is sometimes referred to as the 'envelope curve' as it envelops a series of SRAC curves. The SRAC curves just touch or are tangential to the LRAC as output increases. The LRAC curve is therefore the lowest possible average cost for each level of output where the factors of production are all variable. However, this does not mean that the firm is producing at the minimum point on each of its SRAC curves.

The concept of the minimum efficient scale

A firm that is producing at its optimum output in the short run and the lowest average cost in the long run has maximised its efficiency. This is known as the **minimum efficient scale** since it is the lowest level of output where average costs are minimised. In industries where the minimum efficient scale is low there will be a large number of firms. Where the minimum efficient scale is high, competition will tend to be between a few large players. The minimum efficient point of production in Figure 34.10 is at Q.

34.6 Internal and external economies and diseconomies of scale

The shape of the LRAC is also used to explain economies of scale. A firm experiences economies of scale if costs per unit of output fall as the scale of production increases. This is shown by the downward sloping section of the LRAC curve in Figure 34.10. If a firm gets increasing returns from using its factors of production, then it can produce more goods with smaller quantities of the factors of production. This means the firm is producing at a lower average cost. Specialisation and the division of labour (see Section 34.1) is an obvious source of economies of scale as workers become increasingly efficient in the tasks that they carry out. A production line in a food processing factory is a good example of where a group of workers contribute one part of the food production process.

The shape of the LRAC slopes upwards after the minimum point. The reason for this is that beyond a certain size, a firm's costs per unit of output may increase as the scale of output continues to increase. This situation is one of **diseconomies of scale**.

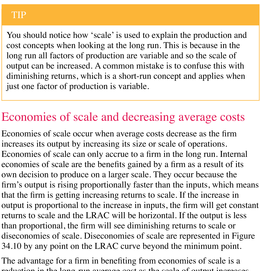


Figure 34.11: A food production line

TIP

You should notice how 'scale' is used to explain the production and cost concepts when looking at the long run. This is because in the long run all factors of production are variable and so the scale of output can be increased. A common mistake is to confuse this with diminishing returns, which is a short-run concept and applies when just one factor of production is variable.

Economies of scale and decreasing average costs

Economies of scale occur when average costs decrease as the firm increases its output by increasing its size or scale of operations. Economies of scale can only accrue to a firm in the long run. Internal economies of scale are the benefits gained by a firm as a result of its own decision to produce on a larger scale. They occur because the firm's output is rising proportionally faster than the inputs, which means that the firm is getting increasing returns to scale. If the increase in output is proportional to the increase in inputs, the firm will get constant returns to scale and the LRAC will be horizontal. If the output is less than proportional, the firm will see diminishing returns to scale or diseconomies of scale. Diseconomies of scale are represented in Figure 34.10 by any point on the LRAC curve beyond the minimum point.

The advantage for a firm in benefiting from economies of scale is a reduction in the long-run average cost as the scale of output increases. This can occur in various ways:

- Technical economies refer to the advantages gained directly in the production process through more efficient production methods. Some production techniques only become viable beyond a certain level of output. Vehicle production is the result of various assembly lines. The number of finished vehicles per hour is limited by the speed of the slowest sub-process. Firms producing on a larger scale can increase the number of slow-moving lines to keep pace with the fastest, so that no resources are standing idle and the flow of finished products is higher.
- Purchasing economies: As firms increase in scale, they increase their purchasing power with suppliers. Through bulk buying, they are able to purchase supplies more cheaply, so reducing average costs. One of the best examples of this is the US retail giant Walmart, which uses its huge purchasing power to buy goods for its stores at the lowest prices. All major retailers behave in this way.

  Purchasing economies can also be made where a retailer reduces the number of items it sells. This allows the firm to concentrate on selling a more limited range of goods which can be bought in bulk at discounted prices.
- Marketing economies: Large-scale firms are able to promote their products and pay lower rates for advertising on television, in newspapers and on social media because they are able to purchase large amounts of air time and space. This broad type of economies of scale includes savings in logistics costs (the cost of moving goods from where they are produced to where they are finally sold). Transport and warehousing costs can be reduced where customers require these services on a large scale.

  Another example is how large-scale firms can make savings through their IT systems. Examples include search engines and corporate websites where customers can buy a wide range of items such as insurance, hotel accommodation and airline tickets. The cost savings through efficient IT systems also contributes to the success of huge on-line retailers such as Alibaba and Amazon.
- Managerial economies: In large-scale firms, managerial economies come about as result of specialisation. Experts can be hired to manage operations, finance, human resources, sales, IT systems and so on. For small firms, these functions often have to be carried out by a multi-task manager. Cost savings are expected to accrue where specialists are employed.
- Financial economies: Large-scale firms usually have better and cheaper access to borrowed funds than smaller firms. This is because the perceived risk to the lender is lower.

KEY CONCEPT LINK

Time: The benefits from economies of scale can give firms a long-run competitive advantage in the market.

External economies of scale

External economies of scale are particular benefits received by all the firms in an industry as a direct consequence of the growth of that industry. External economies of scale may be one reason for the trend towards the concentration of rival firms in the same geographical area. Figure 34.12 shows how external economies of scale can reduce long-run average costs for all firms in an industry. The advantages may include the availability of a pool of skilled labour or a convenient supply of components and services from specialist producers that have grown up to provide for all firms in that area. All firms may further benefit from greater access to knowledge and research; better transport infrastructure can come from the general expansion of firms and can result in lower logistics costs for all firms. Silicon Valley in California is a typical example as is Guzhen, China's 'lighting capital'. Another example is Cambridge, UK, where there is a concentration of biotech and electronics firms, many of which have research and development links with the University of Cambridge.

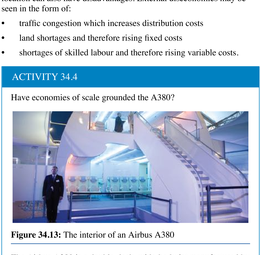


Figure 34.12: External economies of scale and the long-run average cost curve

Diseconomies of scale

It should be made clear that there are limits to economies of scale. As indicated in Figure 34.10, a firm can expand its scale of output too much, with the result that average costs start to rise: efficiency is therefore compromised. This is indicative of diseconomies of scale. The most likely source of diseconomies of scale lies in the problems of management co-ordination of large complex organisations and the effect that size and poor communications have on the morale of the workforce. This is one important reason why, after a period of growth, a firm may decide to split its business into two standalone companies. Another example of diseconomies of scale is where workers may feel a lack of motivation due to the repetitive nature of the work they are carrying out. Workers might also feel that they are just a small insignificant part of a big organisation where senior managers do not appear to have a duty of care to employees. Although not particularly visible, these are underlying reasons for an increase in costs as the firm expands its scale of operations.

In the same way as internal diseconomies of scale are possible, the excessive concentration of economic activities in a narrow geographical location can also have disadvantages. External diseconomies may be seen in the form of:

- traffic congestion which increases distribution costs
- land shortages and therefore rising fixed costs
- shortages of skilled labour and therefore rising variable costs.

ACTIVITY 34.4

Have economies of scale grounded the A380?

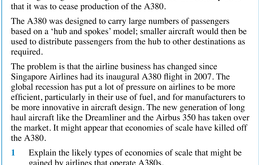


Figure 34.13: The interior of an Airbus A380

The Airbus A380 is a double-deck, wide-body jet manufactured by the Anglo-French Airbus Corporation. It is the world's largest passenger aircraft with a maximum capacity of 853 passengers in a single class configuration or 525 passengers in the more conventional three-class configuration. The aircraft's four engines are quieter and at the time it started service, were more fuel efficient compared to the aircraft it is replacing, notably the ageing 'Jumbo Jet' Boeing 747s. There seemed to be a clear opportunity for airlines to benefit from economies of scale, particularly on busy routes where this aircraft could replace two smaller ones.

Facing a near-empty order book and with extensive sales of Boeing's 787 Dreamliner (maximum capacity 336 passengers) showing no sign of slowing, Airbus announced in February 2019 that it was to cease production of the A380.

The A380 was designed to carry large numbers of passengers based on a 'hub and spokes' model; smaller aircraft would then be used to distribute passengers from the hub to other destinations as required.

The problem is that the airline business has changed since Singapore Airlines had its inaugural A380 flight in 2007. The global recession has put a lot of pressure on airlines to be more efficient, particularly in their use of fuel, and for manufacturers to be more innovative in aircraft design. The new generation of long haul aircraft like the Dreamliner and the Airbus 350 has taken over the market. It might appear that economies of scale have killed off the A380.

1. Explain the likely types of economies of scale that might be gained by airlines that operate A380s.
2. How might these airlines and their customers benefit from economies of scale?
3. In a group, discuss whether economics has grounded the A380? Make a podcast of your discussion using a recording device such as a smartphone. One member of the group should introduce the topic under discussion.

REFLECTION

How would you explain to another learner the many applications of the concept of economies of scale? What evidence would you need to investigate whether a firm is benefiting from economies of scale?

34.7 Total, average and marginal revenue

Revenue is the payment firms receive when they sell the goods and services that they have produced. Revenue is sometimes referred to as sales. Revenue is usually expressed over a time period such as a month or year.

There are three revenue concepts:

- **Total revenue (TR)** represents the sales of a firm and is obtained by multiplying the price of a good (P) by the number of units sold (Q):

  $TR = P \times Q$

- **Average revenue (AR)** is the revenue per unit of output sold:

  $AR = \frac{TR}{Q}$

- **Marginal revenue (MR)** is the additional revenue arising from the sale of an additional unit of output:

  $MR = \frac{\Delta TR}{\Delta Q}$

In analysing a firm's revenue, it is important to know the type of market in which the firm is operating. In a fully competitive market the firm has no control over the price of its goods. The firm is a **price taker**. The firm's demand curve will be horizontal and its revenue will depend entirely on the amount of goods sold. The market demand curve though will be downward sloping as shown in Figure 34.14.

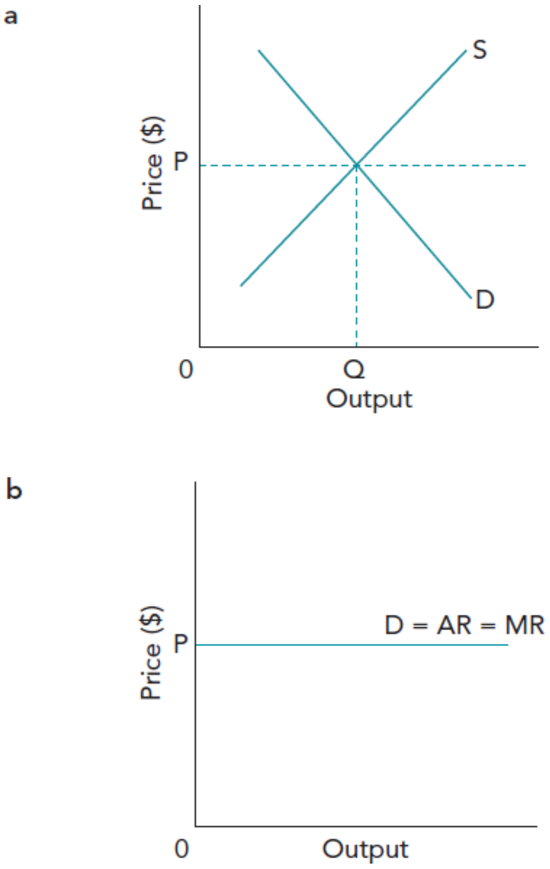


Figure 34.14: Price for a price-taking firm: **a** Market **b** Firm

In any other type of market the firm will face a downward sloping demand curve. The firm is a **price maker**. If the firm chooses to increase output, price will fall; if it decides to reduce output, price is expected to increase. As output changes so does price and revenue. The extent of the change in revenue will depend on the price elasticity of demand. The firm's demand curve is its average revenue curve. Marginal revenue will always be below average revenue since the firm can only sell more goods by reducing price. This is shown in Figure 34.15.

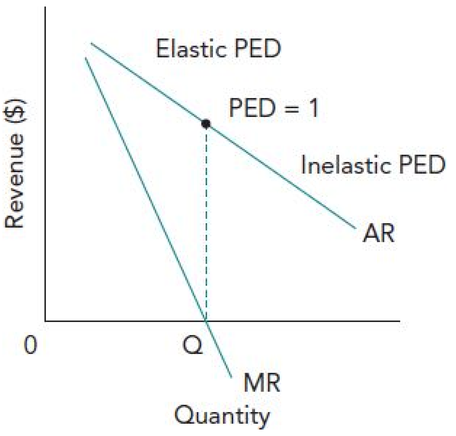


Figure 34.15: AR and MR for a firm with a downward sloping demand curve

34.8 Normal, subnormal and supernormal profit

Very simply, **profit** is what is left over when total costs are deducted from total revenue. The economist's view is rather wider than the view of an accountant since the accountant's approach does not fully recognise the full private costs of economic activity. As well as money paid out to factors of production, there must be an allowance for anything owned by the entrepreneur and used in the production process, such as any loans, that may have been made available to the business. This factor cost must be estimated and included with other costs. The concept of opportunity cost is relevant. The entrepreneur may have capital that could have been used elsewhere at no risk and this would have earned an income. So, this cost needs to be taken into account.

An entrepreneur, therefore, will expect a minimum level of profit to reflect what could have been earned elsewhere with the resources that are available. In economics, this is known as **normal profit**. It is the entrepreneur's reward as a cost of production because without it, nothing would be produced by the firm. It is therefore the minimum return that a firm must receive to remain in business. Crucially, normal profit is included in the total costs of a firm:

Profit = Total revenue – total costs, including normal profit

Any profit over and above normal profit is known as **supernormal profit**:

Supernormal profit = Total profit – normal profit

Where supernormal profits are being earned this is a signal for more firms to enter a market. **Subnormal profit** is when the profit that is earned by a firm is less than normal profit. Its significance is that if a firm is making subnormal profit then it may decide to withdraw from a market in the long run.

TIP

Learners often forget that normal profit is an item in the total costs of a firm. If a firm is not earning normal profits in the long run, then it should exit the industry.

THINK LIKE AN ECONOMIST

Who benefits from your daily cappuccino?

Figure 34.16: Coffee shops are popular places to work and socialise

Sales of coffee in specialist shops such as Costa, Starbucks and others continue to grow in many countries. Drinking coffee in such outlets has become a social experience. Coffee shops also offer a workspace with free wi-fi. Some customers may spend two to three hours drinking a coffee. This may be good value for the customer, but is less so for the retailer. Table 34.3 shows the cost structure of a large cappuccino with a retail price of £2.60 in the UK.

	Price (£)
Coffee	0.09
Milk	0.09
Cup, lid and stirrer	0.19
Staff costs	0.63
Overheads	0.76
Profit	0.32
Sales tax (VAT)	0.52

Table 34.3: Cost structure of a large cappuccino in the UK

It is not well known that the cost of the coffee is less than 4% of the retail price and that when the cost of milk is added, the cappuccino costs less than the cost of the disposable cup, lid and stirrer.

1 In a group, suppose you decide to lease a premises to open your own coffee shop. Use the information above to consider whether you as the owners are likely to benefit. Or will the owners of the premises benefit? Consider also how the coffee growers might benefit? Make a list of all the possible beneficiaries. Then try to put the beneficiaries in rank order.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A firm increases its factor inputs by 100%; its output increases by 150% in the long run.

Which of these concepts can be applied to explain this change?

A increasing returns to scale

B decreasing returns to scale

C the law of diminishing returns

D the equi-marginal principle

2 A firm has total costs of $120 000. Its average fixed cost is $50 and its average variable cost is $10. What are the firm's total variable costs?

A $10 000

B $20 000

C $50 000

D $60 000

3 The information below shows a firm's total costs for different levels of output. If the marginal cost is $20 per unit, by how much does average cost change when output increases from 4 to 5 units?

Output	Total cost ($)
1	100
2	135
3	160
4	180
5	200

A –$5

B +$5

C –$20

D +20

4 The average revenue curve for a firm is horizontal when:

A the firm leaves its price unchanged.

B the firm is unable to estimate its price.

C the firm is a price maker.

D the firm is a price taker.

5 Which of these is an external economy of scale?

A where component parts are bought in bulk from overseas suppliers

B where a business receives a government grant

C where firms in an area work together on product development

D where a firm pays less to a third-party logistics contractor

6 Why is a firm's normal profit included in its total cost?

A because it is what the firm expects to earn as profit

B because it represents the opportunity cost of the risk of being in business

C because profit is the difference between total revenue and total cost

D it is a typical annual average of the firm's profit over a number of years

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain that labour is the usual variable factor of production in the short run while all other factors of production are fixed			
Understand the difference between total product, marginal product and average product			
Calculate total product, marginal product and average product			
Describe the concept of the law of diminishing returns			
Explain the importance of the short-run cost function and the two types of short-run costs: fixed costs and variable costs			
Calculate total cost, average fixed cost, average variable cost, average total cost, marginal cost			
Understand that the short-run average cost curve (SRAC) and marginal cost curves are U-shaped			
Explain that all factors of production are variable in the long run			
Explain increasing and decreasing returns to scale			
Explain that in the long run all inputs are variable			
Explain why the long-run average cost curve (LRAC) is a flatter U-shaped curve			
Explain the concept of the minimum efficient scale			
Use the shape of the LRAC to explain internal and external economies of scale and diseconomies of scale			
Use the total sales from a firm's output (revenue) to calculate total, average and marginal revenue			
Understand the difference between normal, subnormal and supernormal profit			
Calculate subnormal and super normal profit			

Chapter 35

Different market structures

LEARNING INTENTIONS

In this chapter you will learn how to:

- describe the market structures of perfect competition and imperfect competition (monopoly, monopolistic competition, oligopoly and natural monopoly)
- explain the characteristics of the market structures in terms of the number of buyers and sellers, product differentiation, degree of freedom of entry and availability of information
- explain barriers to entry and exit (legal, market, cost, physical)
- analyse the performance of firms in different market structures through
  - revenues and revenue curves
  - output in the short run and in the long run
  - profits in the short run and in the long run
  - shutdown price in the short run and in the long run
  - deriving a firm's supply curve in a perfectly competitive market
  - efficiency and X-inefficiency in the short run and in the long run
  - price competition and non-price competition
  - collusion and the Prisoner's Dilemma in oligopolistic markets (including a two-player pay-off matrix)
- define the meaning of a concentration ratio
- calculate a concentration ratio
- analyse the features and implications of contestable markets.

ECONOMICS IN CONTEXT

Tesco completes exit from Southeast Asia

Tesco, the UK's biggest supermarket business, has completed the sale of its supermarkets in Thailand and Malaysia. This follows the recent sale of its stake in a joint venture with Gain Land in China.

Figure 35.1: A Tesco store in Thailand

Tesco has sold its Southeast Asian businesses to Thailand's largest corporation, CP Group, for an estimated $10.6 billion. Tesco's reason behind the sale is to enable the company to 'further simplify and focus the business' on the UK and Europe. Tesco has more than 3760 stores in the UK and Ireland, and 895 stores in the Czech Republic, Slovakia, Hungary and Poland. Tesco's stores include hypermarkets, supermarkets and local convenience shops. The stores sell food and non-food goods and, in some cases, petrol and diesel fuel.

Not everyone accepts Tesco's stated reason for the sale. Most economists would agree that the sale was a positive move by Tesco to concentrate its business in markets where it is best known. This is because its UK market share has been falling from a peak of 32%. Figure 35.2 shows the estimated market shares of the top ten supermarkets in the UK in August 2019.

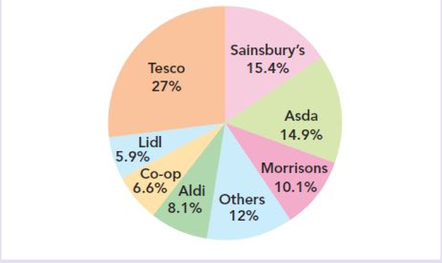


Figure 35.2: The estimated market share of the top ten supermarkets in the UK in August 2019

Tesco, like its main competitors in the UK, has been losing market share to two German-owned discounters, Aldi and Lidl. As a result, the market is extremely competitive with continuous pressure to reduce costs.

Discuss in a pair or a group:

- How might market share be calculated?
- What sort of problems might there be in making this calculation?
- Try to provide another justification for Tesco's reason for selling off its Southeast Asian stores.

35.1 Market structures and their characteristics

The term **market structure** describes the way in which goods and services are supplied by firms in a particular market. More specifically, it describes the characteristics of a market in terms of:

- the number of buyers and sellers in the market
- the nature of the products and whether they are different
- the ease of entry into the market
- the extent to which all firms in the market have the same information.

Over the years, economists have developed models of market structures. These are an idealistic representation of a market; their value is that any real market can be compared or benchmarked against these models. Conclusions can then be drawn with respect to their efficiency.

Perfect competition is an ideal market structure where there are many firms, freedom of entry into the industry with all firms producing identical products. Firms are price takers and there is perfect information for all firms in the market. The other market structures below are collectively referred to as **imperfect competition**.

- **Monopolistic competition** is where there are many firms and freedom of entry into an industry but, unlike perfect competition, firms have some control over the product and its price. Firms are price makers.
- **Oligopoly** is where there are few firms and they have market power to erect **barriers to entry** to deter competition from new firms. The products can be wide ranging. Firms are price makers as they have some control over price depending on the market power of competitors.
- Monopoly is where there is a single seller in the market. When there is just one firm producing a good or service for the entire market, this is referred to as a **pure monopoly**. A monopolistic industry may consist of one firm that dominates the market due to it having a very large market share. Barriers to entry into the market are substantial due to patents and other restrictive methods that prohibit competition. A monopoly is a price maker and there is limited information about how the firm operates.
- A particular form of monopoly is a **natural monopoly** This is one where long-run average costs are lower when there is just one firm in the industry.

Table 35.1 shows how these characteristics apply to the main models of market structure.

Characteristics	Perfect competition	Imperfect competition		
		Monopolistic competition	Oligopoly	Monopoly
Number of firms	Very many	Many	Few	One
Product differentiation	Identical	Differentiated	Differentiated or identical	Unique
Barriers to entry	None	Low	High	Very high
Control over price	Price taker	Limited	Some	Considerable
Availability of information	Perfect	Some	Some	Little

Table 35.1: Characteristics of market structures

TIP

A common mistake is to confuse monopoly and monopolistic competition. Look carefully at the 'Key terms' and later content of this chapter to help you understand how the two types of market structure differ.

Ways to identify type of market structure

Figure 35.3 shows the main characteristics that can be used to get a broad idea of the market structure that best describes a real-world market. A relevant method is to:

- Count the number of firms. The larger the total, the closer to perfect competition.
- Use a **concentration ratio** to see the combined market share of the biggest three, four or five firms as a percentage of the total market. This is calculated by adding the percentage market shares of each firm in terms of volume or revenue. The bigger the percentage, the closer the market will be to the oligopoly and monopoly models:

  4 firm concentration ratio = market size of top 4 firms ÷ total size of market x 100%
- By considering how easy or difficult it is for new firms to enter and how easy it is for existing firms to exit the industry. Barriers to entry are indicative of market structures on the less competitive side of the spectrum.
- By considering the importance of economies of scale to firms. The more important they are, the closer the industry will be to an oligopoly.

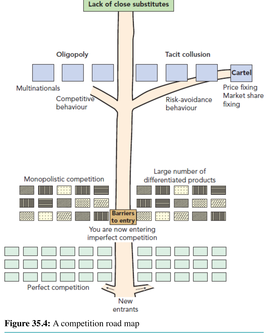


Figure 35.3: A The spectrum of competition

Figure 35.4 illustrates a competition road map. This shows the characteristics and some aspects of the behaviour of firms for each of the models of market structure. In terms of a journey, it indicates how markets move from being perfectly competitive and allowing new entrants to join to being heavily protective of their position in the market. The obvious conclusion might be 'competition good', 'no competition bad'. This is often true but the opportunity to compete is essential in determining efficiency in a market.

Figure 35.4: A competition road map

ACTIVITY 35.1

Hong Kong is a very densely populated city of over seven million people. It is relatively wealthy by Asian standards yet few people have cars. Hong Kong has a very low level of car ownership at around 70 cars per thousand population. An efficient public transport system is essential to enable this busy city to function.

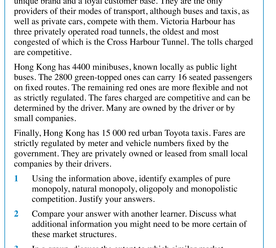


Figure 35.5: Hong Kong Island has an efficient tramway system

Hong Kong has a mixed public transport system consisting of modern surface rail (KCR) to the New Territories as well as to Guanghou in mainland China. Links with the mainland received a boost in 2018 when the much-delayed bridge with Macau and Zhuhai opened to road traffic. Hong Kong has an extensive mass transit system (MTR), franchised bus services, tram services, various ferry services, minibuses and public taxis. All are privately owned. Unusually, no subsidies are paid for their operation by the Hong Kong government.

In 2007, the KCR and MTR companies were amalgamated to form a new integrated company, the MTR Corporation. This move was designed to remove wasteful competition and duplication while providing scope for economies of scale. It was also seen as a way of generating new investment in the rail system, not least because of the extensive property portfolio owned by the MTR Corporation.

Franchised bus services are operated by five large private companies. Each has its own geographical group of services. Fares, frequency levels, types of vehicle, routes and even bus stops are all part of the franchise arrangement with the government. There are a few pinch points and stretches of route where they compete with each other.

The famous Star Ferry, with cross-harbour services, and the Hong Kong Tramways Company on Hong Kong Island are long-established operators which charge very low fares and have a unique brand and a loyal customer base. They are the only providers of their modes of transport, although buses and taxis, as well as private cars, compete with them. Victoria Harbour has three privately operated road tunnels, the oldest and most congested of which is the Cross Harbour Tunnel. The tolls charged are competitive.

Hong Kong has 4400 minibuses, known locally as public light buses. The 2800 green-topped ones can carry 16 seated passengers on fixed routes. The remaining red ones are more flexible and not as strictly regulated. The fares charged are competitive and can be determined by the driver. Many are owned by the driver or by small companies.

Finally, Hong Kong has 15 000 red urban Toyota taxis. Fares are strictly regulated by meter and vehicle numbers fixed by the government. They are privately owned or leased from small local companies by their drivers.

1. Using the information above, identify examples of pure monopoly, natural monopoly, oligopoly and monopolistic competition. Justify your answers.
2. Compare your answer with another learner. Discuss what additional information you might need to be more certain of these market structures.
3. In a group, discuss the extent to which similar market structures can be found in the public transport system in your own country. What evidence did you need to gather?

   What problems did you have in finding the necessary evidence?

35.2 Barriers to entry and exit

The existence of substantial barriers to entry into an industry differentiates oligopoly and monopoly from monopolistic competition and perfect competition. Barriers to entry are a range of obstacles that deter or prevent *new* firms from entering a market to compete with existing firms. Barriers to entry give firms a degree of market power. Decisions can be made by existing firms without the risk of their market share or price being challenged from outside. The construction and maintenance of these barriers can become part of the firm's behaviour. Below are some examples of barriers to entry.

Where the barriers to entry are strong, the market is likely to be dominated by a few large producers. New firms will only enter if they think that the benefits will be greater than the cost of breaking down the barriers to entry.

The concept of barriers to entry is central to understanding where the models of oligopoly and monopoly fit within the spectrum of competition.

Legal barriers

In some countries, it may be impossible for new firms to enter an industry because the economic activity is state-owned or the good is produced under licence from the government. This is a legal monopoly usually created to achieve social and political objectives. The economic justification lies in the concept of a natural monopoly, where it is more efficient to have a single producer than to have competing firms, for example in the case of railways. Alternatively, in countries where the former state-owned resources have been privatised and the market has been deregulated, the justification for removing barriers to entry is that the injection of competition will bring additional economic and social benefits through a more efficient allocation of resources.

The production process or products of a firm may be protected by a legal monopoly in the form of a patent, whereby competitors cannot copy a product without the permission of the owner. The principle is to try to guarantee exclusivity to entrepreneurs with original ideas but only for a reasonable period of time. The patent acts as a barrier to accessing technology or information.

Market barriers

Advertising and brand names with a high degree of consumer loyalty may prove a difficult obstacle to overcome. This explains why many firms regard their expenditure on advertising and promotion as a form of investment. Existing firms can make entry for new firms more difficult where a firm saturates the market with lots of brands, giving its consumers what appears to be a wide range of choice. Branding gives the firm greater market power because consumers do not see the rival firm's product as a close substitute on account of extensive advertising.

Collaboration between existing producers to develop new products may act as a barrier in that the resources necessary to compete are beyond the means of single new producers.

Market conditions, such as a fall in demand resulting from recession, can leave producers with surplus productive capacity and this will deter entry.

Cost barriers

The high fixed cost or setup cost in activities such as electricity generation, aircraft and car production and pharmaceuticals may deter potential entrants. The barrier here is access to capital. Only very large firms will be able to fund the necessary investment. Research and development costs will represent a high proportion of total costs. High sales over a long period of time are needed before the firm is profitable.

Economies of scale can be a barrier because existing large producers are able to produce at a lower average cost than those just starting up. Economies of scale give large firms an opportunity to cut their price in order to eliminate any high-cost producers. This is the concept of **predatory pricing**, which can be used to remove any new firms that enter the industry.

It may be possible for existing firms to hide the existence of supernormal profit by **limit pricing**. This involves firms deliberately setting a low price and temporarily abandoning profit maximisation as their objective to deter new entrants. It may be in the interest of all the firms to do this and, if they agree, it becomes a form of **collusion**.

In activities such as consumer electronics, the pace of product innovation is so rapid that existing firms will be working on the next generation of products while launching the current range. Unless new entrants have original ideas or can exploit a new market segment, they are destined to fail.

Physical barriers

Some firms may have monopoly access to raw materials, components or retail outlets, which will make it difficult for new entrants to make an impact. Vertically-integrated manufacturing businesses, where a firm is a specialist in different stages of production, will be protected by the fact that their rivals' costs will be higher.

Barriers to exit

If a firm is shutting down, then some costs such as research and development costs cannot usually be recovered. The resources are not easily transferred to other uses. They are regarded as sunk costs and act as a **barrier to exit** from the industry because the capital investment will be lost. It is therefore the risk of entering and the high cost of failure that deters potential entrants and so acts as a barrier to entry.

TIP

Predatory and limit pricing are often confused. Remember, the objective of predatory pricing is to force competitors out of a market. The objective of limit pricing is to stop competitors entering a market.

35.3 Performance of firms in different market structures

This section considers each of the four market structures in terms of their relative efficiency as determined by prices, revenue, output and profits in the short run and in the long run. It follows the spectrum of competition, starting with the most competitive market structure and finishing with monopoly, the least competitive.

Perfect competition

Perfect competition is a theoretical extreme. The main point of studying the model of perfect competition is that it acts as a benchmark when assessing the efficiency of real-world markets. The actual performance of firms can be judged against what is the most efficient model of market structure. (Some of the characteristics are shared by the next most competitive model, known as monopolistic competition.)

Perfect competition has the following characteristics:

- There is a large number of buyers and sellers who have perfect knowledge of market conditions and the price that is charged.
- No individual firm has any influence on the market price. Firms are described as being price takers. The ruling price is determined by the forces of market demand and the output of all the firms.
- The products are homogeneous or identical. This means that they are all of the same quality and are identical in the eyes of the consumer.
- There is complete freedom of entry into and exit from the market.
- All firms and consumers have complete information about products, prices and means of production.

The only industry that comes anywhere near this theoretical model is possibly agriculture. Here, there are many buyers, sellers and products but the problem in searching for an example is in finding products that are homogeneous from one grower to the next. Even a simple vegetable like a potato may not be identical. Another market that is close to perfect competition is the global market for foreign exchange where there are thousands of buyers and sellers in many different countries. Most real-world markets have some barriers to entry. Perfect competition has a lot of appeal as a benchmark because, if it were to operate, there would be consumer sovereignty and efficient production with no possibility of exploitation.

In perfect competition, the firm cannot do anything that will influence the market price. Each individual firm makes such a small contribution to output that no change in its own output can significantly affect the total supply. The firm can choose to produce any quantity it likes and will be able to sell all of it at the ruling market price. The demand curve facing the firm is therefore perfectly elastic at this price (see Section 34.7). If the firm sells an extra unit of output, it will get the same price as for the one before. The marginal revenue is therefore equal to the price on the average revenue. In Figure 35.6, all of the firm's revenue information is in the line: $TR = AR = MR$

The only decision that the firm has to make is to choose the output. This will be done by considering the relevant costs of production. Given the assumption that the firm wants to maximise profits, the chosen output will be where $MC = MR$. This is because the revenue from the last unit of output is exactly the same as the cost to produce it.

The firm's total revenue is the price multiplied by the output sold. If the total cost of producing this output is lower than the total revenue, then the firm will be making a supernormal profit. If $TC = TR$, then the firm would break even and be making normal profit.

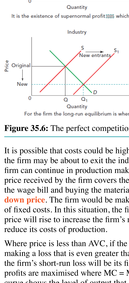


Figure 35.6: The perfect competition model

It is possible that costs could be higher than the revenue, in which case the firm may be about to exit the industry. This may not be immediate: a firm can continue in production making short-run losses, as long as the price received by the firm covers the AVC, usually the cost of paying the wage bill and buying the materials for production. This is the **shut-down price**. The firm would be making a loss equivalent to the amount of fixed costs. In this situation, the firm's only hope is that the market price will rise to increase the firm's revenue or that it can take action to reduce its costs of production.

Where price is less than AVC, if the firm continues to produce, it will be making a loss that is even greater than its fixed costs. By not producing, the firm's short-run loss will be its fixed costs. In perfect competition, profits are maximised where $MC = MR$ (Price). This means that the MC curve shows the level of output that a firm is willing to supply at a range of prices. This is the same supply curve that was introduced in Section 7.5. Given that the firm will not supply the market when the price falls below P_1, the minimum AVC, the short-run supply curve is that part of the MC curve that is above point x, the minimum AVC. This is shown in Figure 35.7.

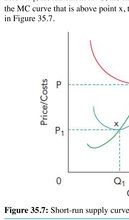


Figure 35.7: Short-run supply curve

Where the revenue is lower than costs in the long run, firms will leave the industry. If many firms leave, the effect will be a reduction in the overall market supply. The loss of firms will raise the market price, giving the rest an opportunity to continue producing and at least make normal profit. In the long run, firms will only supply the market if they can cover all of their costs and make a normal profit. The minimum supply for the firm will be the optimum output where average costs are lowest.

In perfect competition, firms will only make different amounts of profit from each other if they have different cost structures. Their behaviour is strictly limited and the only way to boost profit would be to increase productivity and lower average total cost.

Supernormal profit will only be a feature of perfect competition in the short run. This is because its existence will act as an incentive for the entry of new firms. The absence of barriers to entry means that total supply in the market will rise. The effect of this on existing firms is that the market price will fall and the supernormal profit will diminish. This is shown by a shift of S to S_1 in Figure 35.6. When the supernormal profit goes, the entry of new firms will stop, and the existing ones will simply be covering their costs. It is the competitive force of large numbers of new entrants that destroys supernormal profit.

The long-run equilibrium is therefore where the only firms left are the most efficient ones, making a normal profit. There is no action that the firm can take to prosper at the expense of rivals. It has no market power. The behaviour of firms in perfect competition is easy to understand. The appeal of this model is that supernormal profit is competed away and the only firms that continue to participate in the market in the long run are productively and allocatively efficient. It is this efficient economic performance which occurs in perfect competition that can be used to criticise real-world market structures.

KEY CONCEPT LINK

Efficiency and inefficiency: The model of perfect competition is the most efficient market structure in the long run. All other market structures are inferior to varying degrees in terms of their output, prices and profits.

ACTIVITY 35.2

This activity will help you to develop your understanding of the perfect competition model.

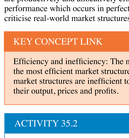


Figure 35.8: Perfect competition – three different cost situations

Using Figure 35.8:

1. Describe each firm's position relating to its profit.
2. If market demand increased and price rose to P_1, what would be the effect on each firm?
3. According to the theory of perfect competition, what will happen following an increase of price to P_1?
4. What output does a firm in perfect competition choose?
5. How can an individual firm increase its profits?

Monopolistic competition

Monopolistic competition is the market structure closest to the model of perfect competition because of the large number of competing firms. Monopolistic competition has the following characteristics:

- There is a large number of buyers and sellers.
- There are few barriers to entry into the market and it is easy for firms to recoup their capital expenditure on exit from the market.
- Consumers face a wide choice of differentiated products. Each firm has a slight degree of monopoly power in that it controls its own brand through quality and physical differences.
- Firms have some influence on the market price and are therefore price makers.

Each firm is competing with a large number of similar producers. In this situation, the demand curve facing the individual firm will be downward-sloping but relatively price elastic because of the availability of substitutes. An option for firms is to reduce their price in order to increase total revenue. As in perfect competition, the firms can make supernormal profit in the short run, but the key restraint on their power is the free entry of competitors. In the long run, profit-maximising firms will only be able to achieve normal profit covering all the production costs and the opportunity cost of capital.

The clue to the behaviour of firms in this market structure lies in the concept of product differentiation. The development of a strong brand image must be seen as an act of investment on the part of the individual firm. This highlights the important roles that advertising and promotions play in this market structure. Successful advertising will not only shift the firm's demand curve to the right at the expense of competitors but will also reduce the price elasticity of demand if the consumers feel there are fewer close substitutes. This is what is meant by brand loyalty – people will not easily shift back to rival products. There are problems associated with advertising because it is a competitive tool taken up by all firms.

It may be argued that any advantage will be temporary and that advertising will simply add to the firm's costs and bring little benefit to its demand curve. If advertising is not effective for all firms, those who are successful might take advantage of their greater market share and brand loyalty to charge a higher price. These firms would increase their sales revenue and by doing so move to the portion of the demand curve where price elasticity of demand has a value less than 1 (inelastic).

It is easy to see how each firm can try to strengthen its market power in the short run. The constraint on firms is that there is freedom of entry into the market, which threatens the existence of supernormal profit in the long run. By a combination of marketing and product innovation, individual firms may be able to postpone the long-run equilibrium if the total market is growing.

At the heart of the monopolistic competition model is the fact that there are a large number of competitors using a combination of **price competition** and **non-price competition** to try to increase their market power. If there are few barriers to entry, then their success will only be temporary. There are many typical examples of this market structure in operation. Take-away food outlets and local privately-owned restaurants are good examples. They may appear to be selling similar products, but in reality their products depend upon the skills and recipes of their owners. Local garage repair shops, market stalls, builders and travel agents also exhibit the characteristics of this market structure.

Figure 35.9 shows the equilibrium price and output in monopolistic competition. In the short run, the profit-maximising firm will be seen to make supernormal profits. In time these will be competed away by the entry of new firms, which will shift the firm's original demand curve to the left. This process will continue until all firms in the industry are making normal profit. A key point is that in both the short and the long

run the firm is inefficient. This is because the firm operates on but above the minimum point of its ATC curve, resulting in a situation of excess capacity. Additionally, the firm is not allocatively efficient as P > MC.

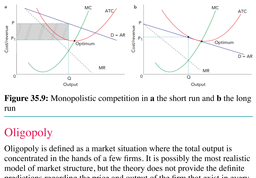


Figure 35.9: Monopolistic competition in **a** the short run and **b** the long run

Oligopoly

Oligopoly is defined as a market situation where the total output is concentrated in the hands of a few firms. It is possibly the most realistic model of market structure, but the theory does not provide the definite predictions regarding the price and output of the firm that exist in every other model. An effective oligopoly can exist in an apparently competitive industry, even when a handful of firms dominate the market.

An oligopoly has the following characteristics:

- The market is dominated by a few firms.
- The decisions taken by firms are interdependent. Firms must decide their market strategy to compete with close rivals, but they must also try to anticipate their rivals' reactions and think what the next step should be in the light of this response.

ACTIVITY 35.3

Figure 35.10: Bradford was voted the Curry Capital of Britain in 2019

The city of Bradford in the UK was once again voted Britain's Curry Capital in 2019. Bradford has hundreds of Asian food outlets; they range from upmarket restaurants to local cafés and take-aways. Virtually all the food outlets are small businesses, operated and managed by their Pakistani, Indian and Bangladeshi owners.

To the outsider, a curry might be just a curry. In Bradford, each outlet has its own style of rogan josh, biryani, vindaloo and chicken tikka masala (a favourite British mild curry). Variations in the product usually reflect the region where the owners or their families lived before coming to Bradford.

The food business is competitive, although prices tend not to vary within particular market segments. Quality is essential for owners to remain in business. Most outlets do not openly advertise but rely on personal recommendation and repeat business to earn a living.

1 The market for curries is monopolistically competitive. What evidence can you find to support this?

2 What additional evidence might you need to be more certain?

3 Why is the market for curry outlets in Bradford not perfectly competitive?

- There are high or substantial barriers to entry.
- The products may be differentiated or undifferentiated.
- The uncertainty and risks associated with price competition may lead to price rigidity.

There are many examples of oligopolistic markets. The telecommunications industry in Pakistan is like this (see Figure 35.11). Another good example is the car manufacturing and assembly industry in Malaysia (see Table 35.2).

Manufacturer	% Market share 2019
Perodua	45.2
Honda	16.4
Proton	16.4
Toyota	10.5
Nissan	8.8
Others	3.0

Table 35.2: Market share of passenger vehicle manufacturers in Malaysia, 2019

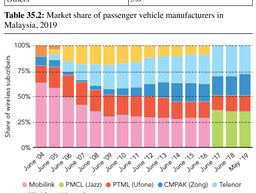


Figure 35.11: Mobile/wireless provider market share in Pakistan, 2004–2019

A concentration ratio is used to measure the power of firms in a market. A concentration ratio measures the market share of a given number of firms (usually 3, 4 or 5) in relation to the total market size. The value of sales is the usual data that is used although the measure could also be based on physical output or even the number of employees.

If percentage data for market shares is available, the concentration ratio is simply the sum of the market shares of the top four firms. There is no definite rule about interpreting the ratio: a 4 firm concentration ratio greater than 60% is seen to be 'highly oligopolistic'.

ACTIVITY 35.4

Using the data in Figure 35.11 and the formula for concentration ratio (see Section 35.1):

1 Calculate the 4 firm concentration ratios for the market in June 2009 and May 2019.

2 How might you explain the difference? Discuss your explanation with another learner.

The difficulty in studying oligopoly is that behaviour can follow two very different routes. There is evidence of aggressive competition in some industries, while in others there is a suggestion of co-operation and even collusion.

Oligopolists are price makers, but one of the dangers of using this tactic is that the firm can be drawn into a price war. An oligopolist would only start a price war if its costs of production were significantly lower than those of its rivals.

A price war may be the natural outcome of events, such as overcapacity in the industry or the entry of new firms. It could also be a defensive tactic where an oligopoly is losing market share to its rivals. Where the firms are highly diversified, a firm may be prepared to sacrifice profits by cutting the price in an attempt to increase or even retain market share. Profits from some of its activities may be used to cover short-term losses elsewhere in the business.

The traditional model of oligopoly is known as the **kinked demand curve**. The model is used to explain how firms react to each other's behaviour. The kinked demand curve model is shown in Figure 35.12. The model assumes that oligopolistic firms are interdependent, meaning that the behaviour of any one firm impacts on the behaviour of all others in the market. There is no collusion between firms.

Suppose a firm increases its price. This will not be followed by all firms as they have little to gain since their revenue is likely to fall. If price is reduced, there will be the same reaction from all firms. Again, revenue will fall.

In Figure 35.12, the oligopolist's best position is at the 'kink', where the price is P and Q is being supplied. Any change in costs, for example from MC_1 to MC_2, will not lead to a price increase. Prices will tend to stay the same and to change little over time. The conclusion is that there is **price rigidity** in the market as indicated within the limits shown by the gap LM.

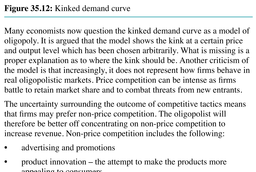


Figure 35.12: Kinked demand curve

Many economists now question the kinked demand curve as a model of oligopoly. It is argued that the model shows the kink at a certain price and output level which has been chosen arbitrarily. What is missing is a proper explanation as to where the kink should be. Another criticism of the model is that increasingly, it does not represent how firms behave in real oligopolistic markets. Price competition can be intense as firms battle to retain market share and to combat threats from new entrants.

The uncertainty surrounding the outcome of competitive tactics means that firms may prefer non-price competition. The oligopolist will therefore be better off concentrating on non-price competition to increase revenue. Non-price competition includes the following:

- advertising and promotions
- product innovation – the attempt to make the products more appealing to consumers
- brand proliferation – where the firm produces lots of brands to saturate the market and to leave no gaps for rivals
- market segmentation – producers may decide that there are markets where the consumers have different characteristics and needs; products will be adapted accordingly to maximise sales.
- process innovation – usually seen as a way of reducing average costs, allowing the firm to cut the price without sacrificing profits.

The difficulty of choosing competitive strategies and of predicting the response of rivals may change the objectives of the firm. Profit-maximising strategies may be replaced by other objectives.. The firm's management may become more cautious, preferring to make just enough profit to satisfy the shareholders. The focus shifts towards maintaining market share.

TIP

The kinked demand curve can also be used to explain why in pursuing a revenue maximisation objective, it makes sense for an oligopolist to have little wish to change price (see Section 37.5).

The Prisoner's Dilemma in oligopolistic markets

The Prisoner's Dilemma is why two otherwise rational people might not co-operate. It is presented below:

> Two members of a criminal gang, A and B, are arrested for a robbery. Each has no means of communicating with the other. The prosecutors would like to convict both on a serious charge but have only enough evidence to convict both on a less serious charge. The two prisoners are offered a deal by the prosecutors: betray the other by testifying that this person committed the crime or co-operate with their partner by remaining silent.
>
> The pay-off matrix in Table 35.3 shows the possible outcomes in terms of jail sentences.

A / B	B stays silent	B betrays A
A stays silent	1 year each	A: 3 years B: goes free
A betrays B	A: goes free B: 3 years	2 years each

Table 35.3: A two-player pay-off matrix

It should be clear that betraying a partner offers the greater reward of going free. The only realistic outcome therefore is to betray each other, meaning in total they serve 4 years in prison. This is greater than any of the other options.

Collusion in oligopolistic markets

Collusion in oligopolistic markets

There are situations where large firms find that it is in their interest to co-operate with rivals. One of the best examples is where research and development costs are a high proportion of the total costs and where the pace of technological change is very rapid. It is in the interests of all the firms to share their knowledge and agree on technical standards, perhaps taking part in joint ventures. Producing a vaccine to combat COVID-19 is a relevant example.

Collusion is the opposite. It is an anti-competitive action by producers. Informal collusion, however, is not illegal and usually takes the form of **price leadership**, where firms automatically follow the lead of one of the group. The objective is to maximise the profits of the whole group by acting as a single seller. The price leader is invariably the dominant firm and has sufficient market power to determine a price change that other firms follow. On the other hand, a **cartel** is a formal price or output agreement between firms in an industry to restrict competition. This is illegal. By joining a cartel and agreeing prices, firms are operating as a single seller and maximising their profit.

An example of the Prisoner's Dilemma is how producers might behave in a cartel. This could have applied to OPEC (Organization of the Petroleum Exporting Countries), especially when it had almost monopolistic control of the world's oil supply up to about 1990. OPEC members could restrict the supply of oil to force up the price. Output levels would regularly be agreed by the cartel. An incentive for one producer was always to increase their own supply, taking revenue away from other members of the cartel. In a simplified way, it shows how the Prisoner's Dilemma can result in a break-up of the cartel, which could make the wider community better off through cheaper supplies.

Collusion is more likely to be informal where the behaviour of each firm is the result of an unwritten rather than formal agreement. As mentioned above, one of the simplest forms is a follow-the-leader agreement, where each firm will only adjust its price following a move by the dominant firm. There are other price leadership models, such as using a typical firm as the benchmark for price. This will only change if a rise in costs affects the profit margin. The principle is the same: each firm will act in the same way in the interests of the group as a whole.

In practice, it is difficult to identify either informal or formal agreements. This is because price similarities can be the result of either aggressive pricing in a competitive oligopoly or the outcome of a collusive agreement. This makes investigations into anti-competitive behaviour time consuming and inconclusive.

Monopoly

A pure monopoly is where a single firm controls the entire output of the industry. Monopoly is also used to describe a situation where one firm has a very large share of the market. Monopolies are at the opposite end of the spectrum to perfect competition. In practice, a monopoly can occur when a firm has a dominant position in terms of its market share. In the UK, for example, a legal monopoly is when a firm has more than 25% of the total market; if this share exceeds 40% then the monopoly is said to be 'dominant'.

In theory, a monopoly has the following characteristics:

- a single seller
- no close substitutes
- high barriers to entry
- the monopolist is a price maker.

A monopoly is protected from competition by the barriers to entry explained earlier. The word 'monopoly' may make you think of giant powerful firms. However, a local monopoly can exist where a relatively small firm dominates a local market either because it is too costly for others to enter or the prospect of profit is not high enough. Even when monopolists are large, the extent of power must not be exaggerated. Sometimes a domestic monopoly can be suddenly broken up by new competition, say, from an overseas importer of similar goods and services.

A single firm or pure monopolist in theory faces a downward-sloping market demand curve. In this situation, it can decide on the price to charge or the quantity to supply, but not both. There may be situations where the monopolist is unable to make supernormal profits despite having market power. One such example would be where the fixed costs are so high that the necessary price would be outside the range that consumers can afford. This may occur, for example, in the case of an innovative product developed by a pharmaceutical firm. It may be that all the monopolist can hope for is that the revenue covers the production costs.

Figure 35.13 shows the equilibrium output of a pure monopolist. A profit-maximising monopolist would choose the output where MC = MR. This output will be over the price range where demand is price elastic and will be sold at the price consumers are willing to pay. If the total revenue is higher than the production costs, it will make supernormal profit. This will be a permanent feature.

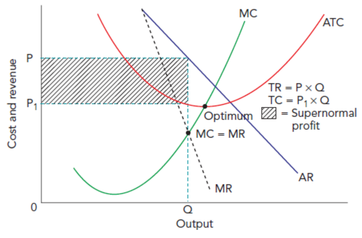


Figure 35.13: The equilibrium of a pure monopoly

In monopoly, there is no distinction between the short run and the long run because of the barriers that prevent the entry of competitors. There is no economic incentive for the monopolist to move away from the profit-maximising output Q.

The monopolist's profits could be increased in certain circumstances by a practice known as price discrimination. Price discrimination occurs where the monopolist chooses to split up the output and sell it at different prices to different customers.

TIP

The pure monopoly model assumes that the firm controls the whole market; learners often forget that, in practice, a monopoly may have as little as 25% market share.

Natural monopoly

A natural monopoly is a market situation where a monopolist has overwhelming cost advantage. In theory, this can occur where a monopoly has sole ownership of a resource or where past ownership of capital resources means that it is difficult and extremely expensive for competitors to duplicate these factors of production. It would also be extremely wasteful to do so.

The natural monopoly case is one that has consistently been put forward in support of public ownership of services such as water, gas and electricity. It is also applicable to railways and inland waterways. In these cases, fixed costs are a very high percentage of total costs. As output increases, average fixed costs will decline, offering the prospect of substantial benefits to be gained from economies of scale. With a railway, for example, long-run average costs per train using the railway track will fall since the total costs are spread over an increased number of trains.

Figure 35.14 is the usual representation of a natural monopoly. It shows a falling long-run average cost curve, indicative of continuing economies of scale. A monopoly firm would set price at P, provide Q output and earn supernormal profit. If the monopoly behaved like a competitive firm, the equilibrium position would be where price equals long-run marginal cost – price would be lower at P_1, the quantity provided higher at Q_1. This is a loss-making position. The problem is that this will only happen if the government is prepared to subsidise the monopoly on the grounds that what it is providing is an essential public service. The alternative is for the service to be provided by the public sector with losses funded from within the organisation.

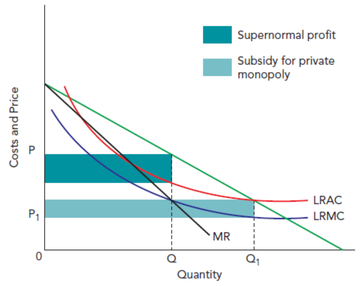


Figure 35.14: Natural monopoly

The natural monopoly case is particularly strong in the case of railways, canals, piped water supplies and electricity. There is little economic logic in having rival companies competing with each other, especially as with rail government subsidies are required to keep the system functioning at a social optimum level.

35.4 Comparison of monopoly with perfect competition

Figure 35.15 shows the equilibrium price and output of a monopolist charging a single price in a market free of government intervention, compared to what would occur in a perfectly competitive industry.

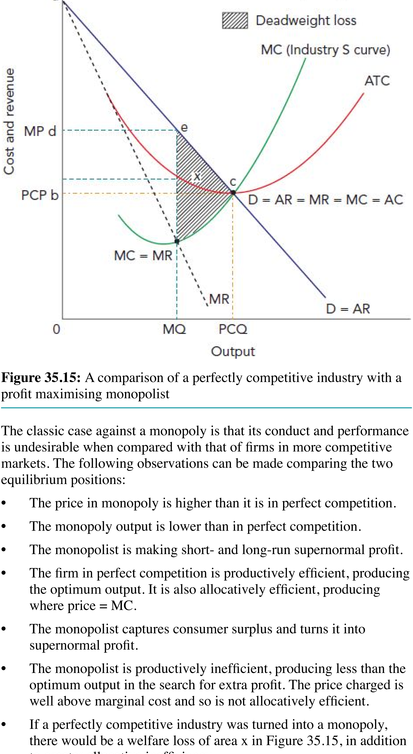


Figure 35.15: A comparison of a perfectly competitive industry with a profit maximising monopolist

The classic case against a monopoly is that its conduct and performance is undesirable when compared with that of firms in more competitive markets. The following observations can be made comparing the two equilibrium positions:

- The price in monopoly is higher than it is in perfect competition.
- The monopoly output is lower than in perfect competition.
- The monopolist is making short- and long-run supernormal profit.
- The firm in perfect competition is productively efficient, producing the optimum output. It is also allocatively efficient, producing where price = MC.
- The monopolist captures consumer surplus and turns it into supernormal profit.
- The monopolist is productively inefficient, producing less than the optimum output in the search for extra profit. The price charged is well above marginal cost and so is not allocatively efficient.
- If a perfectly competitive industry was turned into a monopoly, there would be a welfare loss of area x in Figure 35.15, in addition to greater allocative inefficiency.

Figure 35.15 also shows that there are inefficiencies when comparing the equilibrium positions of a monopoly and a perfectly competitive industry. These inefficiencies are:

- Consumer surplus in monopoly is less than in perfect competition due to the higher price that is charged by a monopolist.
- Producer surplus in monopoly is greater than in perfect competition because the monopolist's higher price and lower output has taken away some of the consumer surplus.
- The deadweight loss is the sum of the loss of the total consumer surplus and producer surplus. It is shown by the shaded area in Figure 35.15. The deadweight loss is significant because the monopolist is gaining at the expense of consumers through converting some of the consumer surplus into producer surplus.

The criticisms of real-world monopolies based on a comparison with perfect competition may not be valid for two reasons. First, perfect competition is a theoretical ideal. To have more relevance, monopoly must be compared with the more real-life models of monopolistic competition and oligopoly. These models are also characterised by productive and allocative inefficiency. They may also involve a waste of resources in competitive advertising. Secondly, Figure 35.15 is drawn on the assumption that the costs in monopoly will be the same as in perfect competition. This ignores the possibility that the monopolist can achieve internal economies of scale that would reduce unit costs. It is possible therefore that a monopolist could charge a lower price than would occur in perfect competition, making consumers better off, even though the monopolist is making supernormal profit.

However, there are positive aspects of monopoly in certain circumstances:

- A monopolist cannot always make supernormal profit – it depends how high its costs are. There may be situations where the fixed costs are so high relative to the total cost that the market price only just covers average costs. In this case the monopolist would only make normal profit.
- The concept of supernormal profit must be considered carefully. One of the criticisms of a competitive market is the uncertainty of profits in the long run. However, a monopolist can plan future investment, and finance it through what are guaranteed profits. This may offer customers better products and the workforce greater security.
- The investment may take the form of process innovation, implementing new techniques of production with the objective of lowering unit costs.
- Alternatively, the profit could be used to finance product innovation, which will add to consumer welfare in the future, either through an improvement in the product's performance or through widening consumer choice.
- If the benefits of economies of scale and greater investment are passed on to consumers, it could be argued that they have gained from the existence of supernormal profit.

A criticism of state-owned monopolies is that the absence of competition makes them less efficient. This is based on the argument that firms with a guaranteed market can be complacent. Monopolies are said to suffer from **X-inefficiency**, a type of productive inefficiency. As shown in Figure 35.16, X-inefficiency means that a firm is not producing at the lowest possible cost for a given level of output. The monopolist's cost levels are higher than they would be in competitive firms. Monopolists do not have the same control over costs, there may be too many workers or capital is not being used efficiently. It is likely that some investment may take the form of erecting barriers to maintain supernormal profit. This will add to costs in the short run and be at the expense of efficiency. There is always the possibility that these inefficiencies are outweighed by the benefits of economies of scale that lower average costs.

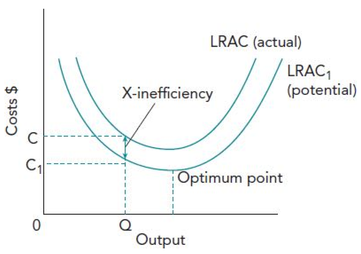


Figure 35.16: X-inefficiency

It is clear that monopolies can operate in ways that lead to inefficiency or consumer exploitation. However, it is possible to make a positive case for monopoly. This explains why the investigation of monopoly practices is difficult and each case must be judged on its own merits. It must not be assumed that monopoly is always harmful; the performance of a monopolist may be little different from that of firms in oligopolistic markets.

35.5 Contestable markets

So far, in dealing with market structures, the models shown in Table 35.1 have been analysed. A **contestable market** is not listed in this table. This is because although **contestability** increasingly features in many markets throughout the world, a contestable market is not a market structure as such. A contestable market is best seen as a set of conditions that can apply in any of the three imperfect market structures shown in Table 35.1.

The concept of contestability was developed by the economist William Baumol in the context of domestic air transport in the USA. Baumol believed that if the market was contestable rather than heavily regulated, fare levels would fall as there would be the threat of new airlines entering the market. An important consideration in this market was that airlines leased their planes; this meant that there were few if any costs involved when the planes were handed back to the leasing company. Baumol's ideas were implemented by the US federal government in 1979. New firms were quick to enter the market and fare levels fell on routes where there was competition and new services emerged.

The US experience was particularly significant for the UK where the government was implementing policies of **deregulation** and privatisation. Changes to the structure of transport and to other former public sector industries incorporated provision for contestability. The UK led the way at that time. Other countries in Europe, Southeast Asia and in a growing number of middle-income countries have applied similar policies to make their economies more competitive.

The application of contestability to the global air transport market is particularly significant. 'Open skies' policies are now the norm. Market demand has grown, particularly in Asia, and especially for short haul services that are provided by low cost carriers. Fares are competitive, smaller airports are used and new services develop. The business though is not without risks; many firms have been forced out of the market.

A market is contestable if potential competitors can influence the conduct of firms currently in the market. Potential competitors include similar firms not operating in the market or new firms that could set up if they saw an opportunity to gain market share and operate successfully. What potential firms have to assess is the extent to which the likely gains from market entry exceed the costs of entry. Barriers to entry and exit are therefore crucial in determining whether a market really is contestable.

According to the concept, a perfectly contestable market is one where entry and exit are free or costless. This has to be the case if potential competitors are not at a relative disadvantage compared with firms already operating in the market. If entry is not free, then new firms will experience higher costs, suffer from a lack of access to technology and be unable to compete effectively because of the brand loyalty that has been built up by firms already in the market. So, the fewer barriers to entry and the lower the cost of entry, the more contestable will be the market.

Exit must also be costless. This means that in a perfectly contestable market, firms will have no sunk costs (when they leave the market, they can resell any assets they have used without loss). If this were not possible, then potential entrants might be put off from entering a market. Sunk costs would therefore be seen as a barrier to entry.

The result of costless entry and exit is that contestable markets are characterised by what is known as 'hit and run' entry. A typical example would be the case of a firm attracted to enter a market due to the high level of profits being earned by existing firms. On entry, the firm would take a share of the profits but then leave once profit levels fell back to normal. In this way, firms are not able to earn supernormal profit in the long run.

A market is perfectly contestable where:

- there is a pool of potential entrants seeking to enter the market
- entry and exit are costless
- all firms are subject to the same regulations and state of technology
- mechanisms are in place to prohibit limit pricing, as existing firms have lower costs than potential entrants
- firms already in the market are vulnerable to 'hit and run' competition.

In theory, as long as entry is free and exit is costless, any market structure could meet the requirements of a perfectly contestable market. For example:

- Monopolistic competition has few barriers to entry. Due to non-price competition, it takes small firms time to build up a customer base to obtain brand loyalty. In this type of market there are barriers to entry in the form of licensing and regulatory requirements.
- In oligopolistic markets there are high barriers to entry, particularly in the form of the capital costs of entry and expenditure that is essential to build up market share.
- Monopoly power can be obtained through a patent or legal right to operate in a market. Where this is so, the market will not be at all contestable. In other monopolistic situations, though, there could be an opportunity for new firms to enter, although the cost of entry will certainly not be costless.

In each of the above market structures there could be a high degree of contestability depending on the cost of entry into and exit from the market. Figure 35.17 shows the case of a monopoly and how, if there are no barriers to entry, a new firm moving into the market can have a major effect on the monopolist's profit. The monopolist is making supernormal profit, shown by the shaded box, and selling output of Q at price P. If the market is perfectly contestable, and there are no barriers to entry or exit, these supernormal profit would be a signal for new firms to move into the market. As a result, the monopolist is forced to reduce price to P_1 while producing the same level of output in order to maximise the volume of sales. Normal profits will now be earned since average cost equals average revenue.

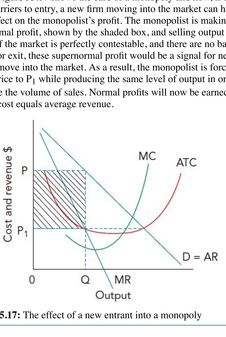


Figure 35.17: The effect of a new entrant into a monopoly

In theory, a perfectly competitive market is most similar to a perfectly contestable market because there are no barriers to entry and exit and when this is the case in a perfectly contestable market:

- only normal profits are earned in the long run
- firms are not able to apply cross-subsidisation
- prices cannot be set below average cost to deter new entrants
- allocative efficiency and productive efficiency are being achieved
- the number of firms in the market does not matter.

KEY CONCEPT LINK

Efficiency and inefficiency: The underpinning rationale for contestability in markets is that of efficiency. By opening up markets to competition, and having a situation where market entry is easy for new firms, this puts continual pressure on firms already in the market to be more efficient. Any hint of supernormal profit being made should be a signal for the entry of new firms.

ACTIVITY 35.5

1 The purpose of this activity is to consider whether a particular market is contestable. Consider the domestic airline market in your country or for a country that is known to you. Select two routes and for each, find out:

   a which airlines operate these routes
   b what is a typical fare for a single journey
   c in what other ways the airlines compete
   d whether any other airlines have operated the same routes over the last three years.

On the basis of your research, make a judgement as to whether the market you have chosen is contestable. Compare your findings with other learners in your group.

THINK LIKE AN ECONOMIST

Are all monopolies bad?

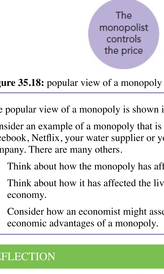


Figure 35.18: popular view of a monopoly

The popular view of a monopoly is shown in Figure 35.18.

Consider an example of a monopoly that is known to you, such as Facebook, Netflix, your water supplier or your national railway company. There are many others.

1 Think about how the monopoly has affected your life.
2 Think about how it has affected the lives of others and your economy.
3 Consider how an economist might assess the wider social and economic advantages of a monopoly.

REFLECTION

How did you choose your example of a monopoly? Explain this to another learner and see if they agree with what you have chosen. Then listen carefully to the other learner's choice and their reasons for choosing it. How could you apply any of their thinking to your own choice?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A market supply curve is only a feature in which of these market structures?

A monopolistic competition

B oligopoly

C monopoly

D perfect competition

2 What is the difference between a firm in perfect competition and one in monopolistic competition?

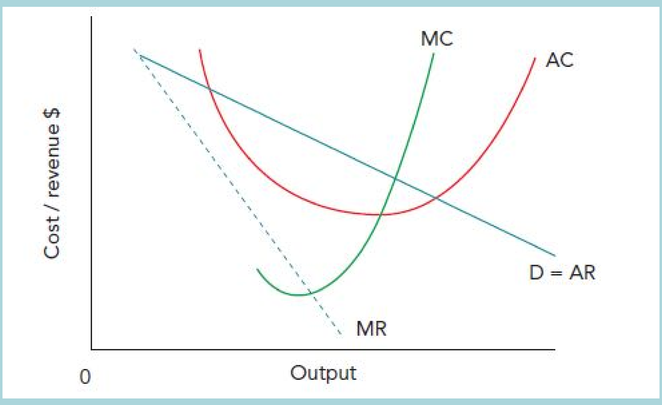
A The firm's marginal revenue is not equal to price.

B Profits are maximised when marginal cost equals marginal revenue.

C Marginal cost cuts the average cost curve at its minimum point.

D Price charged equals average revenue.

3 The diagram shows a firm in monopolistic competition in the short run. Which of the following is true?



	There is excess capacity	Supernormal profit is being made
A	no	no
B	no	yes
C	yes	yes
D	yes	no

4 What is the difference between monopoly and monopolistic competition?

A Supernormal profit is earned in the short and long run.

B There are barriers to entry.

C Firms are price makers.

D The product can be differentiated.

5 The 4 firm concentration ratio for a market is estimated to be 65%. One year ago, it was estimated to be 40%. What does this mean?

A The market is still some way off from being an oligopoly.

B The market is not competitive.

C The market is now highly oligopolistic.

D There are still opportunities for new firms to enter the market.

6 The kinked demand curve model of oligopoly shows which of these actions is most likely?

A A rival firm will leave price unchanged when a competitor increases its price.

B A rival firm will leave price unchanged when a competitor lowers its price.

C A rival firm will lower its price when a competitor lowers its price.

D A rival firm will increase its price when a competitor increases its price.

7 A cartel can only operate successfully if:

A the price elasticity of demand for the product is inelastic.

B members agree to co-operate in full.

C there are close substitute products.

D entry into the cartel is possible.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe the features of the market structures of perfect competition, monopoly, monopolistic competition, oligopoly and natural monopoly			
Explain the characteristics of market structures through the number of buyers and sellers, product differentiation, freedom of entry and exit, and availability of information			
Explain barriers to entry (legal, market, cost, physical) to and exit from an industry			
Analyse the performance of firms in different market structures in terms of their relative efficiency as determined by prices, revenue, output and profits in the short run and in the long run			
Explain and calculate a concentration ratio to measure the power of firms in a market			
Consider the relevance of the Prisoner's Dilemma in oligopolistic markets			
Explain the purpose of collusion in oligopolistic markets			
Compare monopoly with perfect competition and consider X-inefficiency in the short run and the long run			
Analyse the characteristics of contestable market			

Chapter 36

Growth and survival of firms

LEARNING intentions

In this chapter you will learn how to:

- explain reasons for the different sizes of firms
- explain the difference between internal and external growth of firms
- analyse the methods, reasons and consequences of integration (horizontal, vertical, conglomerate)
- analyse the conditions and consequences for an effective cartel
- discuss the principal–agent problem.

ECONOMICS IN CONTEXT

The Indian pharmaceutical industry

Figure 36.1: The Indian pharmaceutical industry

The Indian pharmaceutical industry is huge and projected to grow further by 2030. India is the world's largest provider of generic drugs, the term used to describe medicines that are allowed on sale after the patent on the original medicine has expired. Generic drugs have the same performance and quality as brand-name drugs but cost less and can be bought without a prescription. A typical example is ibuprofen, a pain relief medication. India supplied around 40% of generic drug demand in the US, 25% of medicine demand in the UK and over 50% of the global demand for vaccines in 2019.

The annual growth of the pharmaceutical industry has consistently outstripped India's annual rate of GDP growth. The latest estimates suggest a minimum of 7% to 8% cumulative growth to 2030, with a possibility of 11% to 12% growth if key economic drivers in the market are met. This would result in total revenue of $80bn to $120bn.

Figure 36.1 shows four reasons why the Indian pharmaceutical industry has achieved its unique position in the global market.

There are an estimated 3000 pharmaceutical companies in India, with 10 000 manufacturing plants. The top ten companies are Indian-owned and include Sun Pharmaceutical Industries, Lupin and Cipla. The sector has experienced a series of mergers and acquisitions, such as that between Sun and Ranbaxy in 2017.

The typical pharmaceutical company is a small firm, not a **conglomerate**. Small firms are able to enter the market to produce generic drugs due to low barriers to entry. Small firms can also operate in niche markets, such as in the production of specialist drugs and through providing research and development for larger firms.

Discuss in a pair or a group:

- Which market structure best describes the Indian pharmaceutical industry? Justify your answer.
- Consider some possible reasons why large and small firms operate side by side in the Indian pharmaceutical industry.

36.1 Reasons for different sizes of firms

At least 90% of businesses are small firms employing fewer than ten people. This is typical of most economies, although in low and middle-income countries the percentage will be even higher. Small firms are mainly found in the service sector, in retail, food production, automotive, personal and business services. A recent trend in many economies is for small knowledge- and research-orientated firms to provide services for much larger manufacturing companies. There are many reasons why so many small firms exist in a world where market power lies with large multinational companies (MNCs), some of which are as follows:

- There are economic activities where the size of the market is too small to support large firms.
- The firm may involve specialist skills possessed by very few people.
- Where the product is a service – such as lawyers, accountants, hairdressers, dentists and small shops – the firm will be small in order to offer the customers personal attention for which they will pay a higher price.
- Small firms may simply be the big firms of tomorrow. Although the number of small firms is huge, only a very small percentage of them will ever grow to become big businesses.
- There are particular obstacles to the growth of small firms. The main obstacle is likely to be lack of access to borrowed capital because of the perceived risk on the part of banks.
- The entrepreneur may not want the firm to get bigger because extra profit is not the only objective and growth might involve a loss of control over the running of the business.
- Recession and rising unemployment can trigger an increase in the number of business start-ups as former employees try to become self-employed.
- Small businesses may receive financial help under government enterprise schemes because of their job creation and local growth possibilities.
- The increased access to technology through the internet and electronic devices has made small businesses more efficient and more able to compete with larger ones.

Figure 36.2: A small business

For large firms, such as multinational companies, growth is strongly linked with the pursuit of profit. The motives behind a large firm's growth include the following:

- The desire to achieve a reduction in long-run average costs through the benefits of economies of scale. This allows firms to compete more effectively with rivals because they can afford to cut prices without sacrificing profits. This has often been the main motive for mergers and acquisitions for large corporations. Typical examples can be found in food processing, vehicle production, hotels and airlines. By bulk purchasing, joint distribution and marketing and product development, companies are able to gain competitive edge in global markets.
- To achieve a bigger market share to boost sales revenue and profits. This is sometimes referred to as the monopoly motive, but it could be a defensive strategy to maintain market share in anticipation of action by rivals. In the global economy, there is a strong argument that only big firms can compete in markets where multinationals are present.
- To diversify the product range. A multi-product firm has the advantage of being able to spread business risks. If one branch of its activity is stagnating or going into decline, there will still be the revenue from others to keep the firm afloat. Firms often see new business opportunities in related areas. This is at the heart of successful entrepreneurship. Sometimes large firms can use the same production facilities, so keeping the costs down. These benefits are called **economies of scope**.
- To capture the resources of another business. Sometimes, firms may realise that resources are being under-utilised in another firm and that the real value of the firm is currently above its accounting valuation. The resulting takeovers and mergers can lead to the firm being brought back into profit or being broken up. This is because the sum of the parts sold separately is greater than the current valuation of the whole enterprise. It is sometimes called 'asset stripping' and the cash received from the sale can be put into improving the core business.

TIP

A common error is to confuse economies of scope with economies of scale. Economies of scope occur when a firm changes the *scope* of its production in terms of what it produces; economies of scale apply when the firm changes its *scale* of production in terms of the capacity of what it produces.

36.2 Internal and external growth of firms

Firms can grow in two main ways. Firms can grow through:

- Internal growth: A firm decides to retain some of the profit rather than pay it out to the owners. It is put back into the business in the form of new investment in order to increase the productive capacity. This is most likely to occur in capital-intensive activities where the market is expanding. The timing will be influenced by the stage of the business cycle, most investment occurring when the national economy is approaching a boom period.
- External growth: The business expands by joining with others via takeovers or mergers. The objective in a takeover bid is to buy sufficient shares from the owners of the firm to get 51% of the total and therefore have control of the business. A merger often has the same result, a new larger legal entity, but the word 'merger' implies less of a struggle and that both parties have agreed to the action. Mergers may be more numerous when there is a downturn in the economy or where there is a shrinking market and firms are left with excess productive capacity.

In practice, both types of growth can be taking place at the same time. External growth may be a quicker and cheaper route for firms than internal growth, especially when there are high fixed costs. For example, it may be cheaper for one oil company to buy the assets of another than to expand existing operations. This is likely to involve less risk than if the oil company pursues internal growth as it may be uncertain as to what reserves it has available.

Another common way in which firms grow is through **diversification**. This is where a firm produces or sells a range of different products. The reasons behind this tend to be to spread risk or to exploit an opportunity in the market. Diversification can be seen in conglomerates such as Unilever, Nestlé, Bosch and Tata Group. For example, Nestlé, a Swiss-based global brand, produces a wide range of consumer goods such as coffee, bottled water, chocolate and confectionery, baby foods and ice cream. The Indian-owned Tata Group has even more diversified business interests in steel production, vehicle manufacturing, tea growing and packing, and luxury hotels.

ACTIVITY 36.1

Figure 36.3: Concerns about air quality are making electric vehicles increasingly popular

After failing to merge with Renault a few months earlier, the Italian–US company Fiat Chrysler announced in October 2019 that it had agreed to merge with the French car and van maker PSA whose makes include Peugeot, Citroen and Vauxhall. The merger means that the new company will be the fourth largest global producer.

There are many benefits from the merger. An obvious one is cost savings through economies of scale.

1. Identify the likely benefits from economies of scale and other sources to the merged company.
2. In a pair, research news stories about the merger. What benefits to the merged company did the news stories identify? Compare your list of benefits with the benefits identified by the news stories. Were there any economics aspects that you did not consider? Why do you think this is?
3. In a group, research another merger, either in your own country or abroad. Prepare a short article on the benefits of the merger that might be published in the business section of a national newspaper.

36.3 Integration

Integration is a term that is widely used in economics. In this context, integration refers to the ways in which the individual parts of a firm have come together. This could be through:

- a merger whereby two firms agree to join up with each other, or
- an acquisition or purchase whereby one firm takes over control of another.

Theoretical examples of integration are shown in Figure 36.4. Three methods of integration can be identified.

- **Horizontal integration** is a process or strategy used by firms to strengthen their position in an industry. It involves the merger or acquisition of a business that is in the same sector of an industry. Typical examples are Air France's merger with Dutch airline KLM, Kraft Foods (now Mondelez International) taking over Cadbury and in 2018, Coca Cola's purchase of UK-owned Costa Coffee which at the time had almost 4000 coffee shops and outlets in the UK and a growing presence in 31 overseas markets. In such cases, the outcome is one of expansion. The prime motive for this growth is to reap the benefits of economies of scale. Research and development costs can be pooled, production plants can be rationalised, marketing costs reduced and so on. Horizontal integration can also lead to access to new markets, increased market power and, by reducing competition, the opportunity to make abnormal profits. The danger is that this sort of growth may sometimes be blocked by governments who are concerned about possible monopoly abuse.
- **Vertical integration** is different. This is where a firm grows by moving into a forward or backward stage of its production process or supply chain, such as a manufacturer moving into retail (forward) or taking control over some of its supplies (backward). Nestlé, the Swiss multinational company, is involved in the production of coffee beans, cocoa and milk as well as in their processing and distribution to retailers and other consumers. Apple Inc. is involved in product design, manufacturing, software and retail. An interesting example is that of V.S. Industry in Malaysia. This company is involved in the design, manufacture and managing the supply chain for customers in the electronics sector. Vertical integration has various benefits including improved security and quality of supplies and reduced supply chain costs. There are, however, disadvantages, such as higher costs if the newly acquired businesses are not effectively integrated. This can also be a major problem with any merged operation.
- The external growth of a conglomerate differs from the two forms of integration in so far as growth comes from the purchase of unrelated businesses. The rationale is to spread risk. Each of the companies in a conglomerate is independent with its own board of directors. Many conglomerates are multinational companies, the Indian-owned Tata Group being a long-established example. One benefit of a conglomerate is that losses from poorly performing subsidiaries can be offset by profits from elsewhere in the group. If losses persist then the subsidiary can always be sold. A criticism is that the diversity of a conglomerate means that the group can be difficult to manage strategically.

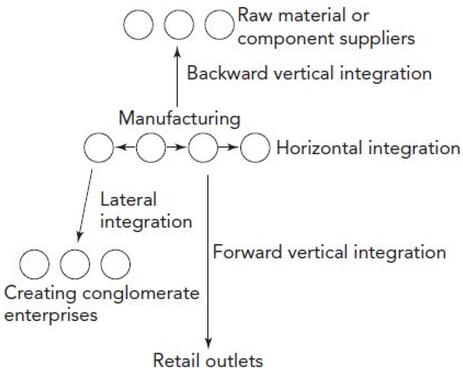


Figure 36.4: The routes to integration

TIP

To avoid any confusion, think about the two types of integration in terms of the meaning of horizontal (across) and vertical (up and down).

ACTIVITY 36.2

Figure 36.5 is a template showing the process by which a firm can expand through horizontal and vertical integration.

1. Select a multinational company that is based in your country or one that is known to you.
2. Copy and complete the template in Figure 36.5 to show some possible ways in which the company might be able to apply methods of horizontal and vertical integration.
3. Look at the company's website and consider the extent to which your ideas match what the company has actually done.

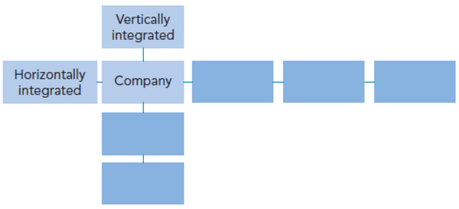


Figure 36.5: A template showing the process of horizontal and vertical integration

REFLECTION

Activity 36.2 requires you to select a multinational company that is known to you. How did you make your selection? How has the completion of the template enhanced your understanding of integration?

36.4 Cartels

In Section 35.3, you learned that a cartel is a formal agreement between member firms in an industry to limit competition. The agreement may involve fixing the quantity to be produced by each cartel member or by fixing the price for which the product is sold. Other restrictions may also be applied. A cartel maximises profits in the same way as a monopolist (see Figure 35.13).

OPEC (Organization of the Petroleum Exporting Countries) is the best known, long-standing example of a cartel. It currently has 13 members and membership is open to any countries that are substantial net exporters of crude petroleum. The last member to join was Congo in 2018, but Qatar withdrew in 2019 and Ecuador in 2020. The organisation has strengthened its market power by seeking to control the price of oil from non-members such as Russia and Kazakhstan, and is known as OPEC+.

As a cartel, OPEC is widely criticised. Members of the two organisations produce about 50% of the world's oil yet own around 80% percentage of known crude oil reserves as well as substantial reserves of natural gas. This shown in Figure 36.7.

OPEC and OPEC+ clearly have considerable power in the market to determine not only current but, significantly, future prices. OPEC's power in the market is far less than it was in the 1970s when it had a near monopoly hold over the global supply of oil. Saudi Arabia was and still is a powerful voice in the organisation.

OPEC's power has decreased as other countries, especially the USA, have obtained oil from shale and from off-shore drilling. The USA is now the world's biggest oil producer by volume and can clearly use this to offset OPEC's power. OPEC's economic power will also weaken if new suppliers emerge from outside of the cartel or consumers take action that will reduce consumption. Technology may provide alternatives to oil such as electric vehicles and solar powered aircraft.

The cartel will weaken if there is disagreement over the target price or the production quotas allocated to each member country. OPEC denies that it is acting as a single monopoly, cutting output in order to charge high prices to consumers and it points out that Western governments make more money from the tax on oil than the producing countries receive in revenues from selling the oil.

At the retailing end of the industry, the supply is in the hands of an oligopoly of oil companies who deny that they are charging too much, insisting that their profit margin is low because of fierce competition. Total profits are only high because of the large turnover.

Some analysts predict that there will be further horizontal integration between oil companies that are already vertically integrated. The oil industry will continue to be dominated by a few big players, mainly because of the high fixed cost and risks associated with exploration and drilling. If their controversial attempts to find oil in areas like the Arctic and Antarctic are successful, then OPEC's power could diminish.

The long-term survival of a cartel depends upon the high barriers to entry. However, there are threats to a cartel, such as:

- the possibility of a price war, whereby one firm breaks rank to capture a bigger market share
- if some members have higher costs than others, resulting in fewer profits due to the agreed fixed price
- if there is no dominant member that has the power to control others
- legal obstacles such as in the EU and USA where cartels are illegal since they restrict competition and do not act in the best interests of consumers.

ACTIVITY 36.3

Using the information in Figure 36.6:

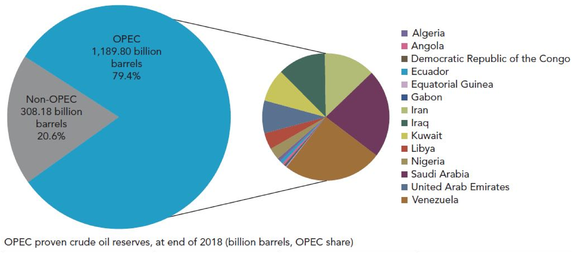
1. Summarise the data.
2. Discuss the implications of OPEC's share of world crude oil reserves for:
   a. low middle-income countries
   b. high-income countries.

TIP

When writing about a cartel, remember that OPEC is the only remaining example of a cartel and that its power has been severely reduced in recent years. Other cartels which were set up in agricultural markets have collapsed.

KEY CONCEPT LINK

Time: It is clear from OPEC's experience that the economic conditions that gave the cartel huge market power have changed. It is a matter of debate whether OPEC can survive.



OPEC proven crude oil reserves, at end of 2018 (billion barrels, OPEC share)

Venezuela	302.81	25.5%	Kuwait	101.50	8.5%	Algeria	12.20	1.0%	Gabon	2.00	0.2%
Saudi Arabia	267.03	22.4%	UAE	97.80	8.2%	Ecuador	8.27	0.7%	Equatorial Guinea	1.10	0.1%
Iran	155.60	13.1%	Libya	48.36	4.1%	Angola	8.16	0.7%			
Iraq	145.02	12.2%	Nigeria	36.97	3.1%	Democratic Republic of the Congo	2.98	0.3%			

Figure 36.6: OPEC share of world crude oil reserves, 2018

36.5 The principal–agent problem

In making decisions about the growth of firms, it is assumed that those who make the decisions have the authority to do so. In small firms, this is most likely to be the owner or partners who agree on how growth might or might not occur. They have the authority to act. In large firms, especially those with shareholders, this is not always the case. What can arise is a gulf in decision-making between the firm's management and ownership, This is known as the **principal–agent problem**.

The principal–agent problem occurs when one person (the agent) makes decisions on behalf of another person (the principal). The agent, through a day-to-day involvement in the firm, has more information than the principal. This difference is an example of asymmetric information and moral hazard (see Section 33.4). The problem is that the principal does not know how the agent will act; the principal is also not sure that the agent will act in the principal's best interests.

In the case of a firm's growth, the agent may have plans and a strategy that differ from those of the principal. The agents may decide to act in their own interest. If successful, the agents stand to gain prestige and enhance their own career development. The principal is not fully aware of what the growth plans involve. This is called the agency cost.

The principal–agent problem is an example of market failure that occurs because of information failure. The principals should be the ones in the best position to determine a firm's future growth. This is often not so and leads to a misallocation of resources.

THINK LIKE AN ECONOMIST

How can I become an entrepreneur as well as an economist?

Once you have an A Level in economics (perhaps even a degree), you ought to be in a good position to consider setting up your own business. Most entrepreneurs start out in a small way and have few funds to invest in their ideas.

Figure 36.7: Mushroom production in Pakistan

Below are some examples that have been suggested as possible business start-ups in Pakistan. The list can apply in most other lower middle-income countries.

- Agriculture: bee-keeping, mushroom farming, poultry farming, fish farming.
- Manufacturing: garments, detergents, toothpaste.
- Retail: coffee shop, beauty salon, pharmacy.
- Services: adventure tourism, computer training, road transport.

1. What is the connection between studying economics and your possible future employment?
2. Select one of the business opportunities from the list or a business opportunity that you believe in. Consider how you might set up this business.
3. What are the possible risks? Might you be better off as an economist?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which of these is the most likely reason why small firms are able to compete with larger firms in the same industry?

A Small firms produce the same product as larger firms.

B Small firms are able to supply a highly differentiated product.

C Small firms can easily enter the industry.

D Small firms are prepared to take risks.

2 Which of these is the most likely reason for the survival of small firms in a lower middle-income country?

A Small firms pay low wages.

B Small firms have low profit margins.

C Small firms find it difficult to get loans from commercial banks.

D Small firms provide a high level of service to their customers.

3 A firm has grown in size when:

A its sales have increased.

B its pre-tax profit has increased.

C its post-tax profit has increased.

D its net capital employed has increased.

4 Which of these is an example of forward vertical integration?

A a coffee processing company buying a coffee plantation

B a car manufacturer buying a car dealership

C a Chinese restaurant owner buying a Thai restaurant

D two Indian restaurants agreeing to merge into a single business

5 Why are small firms less likely to experience the principal–agent problem?

A Managers in small firms are not expected to make decisions.

B Small firms have no shareholders to satisfy.

C Managers in small firms are paid less than those in large firms.

D In most small firms the owner makes the decisions.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain the reasons for different sizes of firms			
Understand that firms may grow internally or externally			
Analyse the methods, reasons and consequences of integration for firms: horizontal, vertical, conglomerate			
Explain the purpose and consequences of cartels			
Discuss the principal–agent problem and the impact this may have on the firm			

Chapter 37

Differing objectives and policies of firms

LEARNING INTENTIONS

In this chapter you will learn how to:

- analyse the traditional profit-maximising objective of firms
- explain other objectives of firms, including survival, profit satisficing, sales maximisation and revenue maximisation
- analyse price discrimination, including the conditions for effective price discrimination and the consequences of price discrimination
- evaluate other pricing policies, including limit pricing, predatory pricing and price leadership
- explain the relationship between price elasticity of demand and a firm's revenue for a downward sloping demand curve and a kinked demand curve.

ECONOMICS IN CONTEXT

Do high sales mean high profits for global vehicle manufacturers?

Economic theory assumes that firms have an objective of profit maximisation. This is fine in theory but can you imagine asking the chief executive of the VW group or Ford if their profits are maximised? If they were economists, they would know what you meant, otherwise it might be a difficult question for them to answer.

Revenue and profitability are not necessarily related. It does not follow that firms with a high turnover are making huge profits. In fact, they could be making a loss and struggling to survive.

Figure 37.1 shows the total revenue and estimated profits for the eight largest global vehicle manufacturers in 2018.

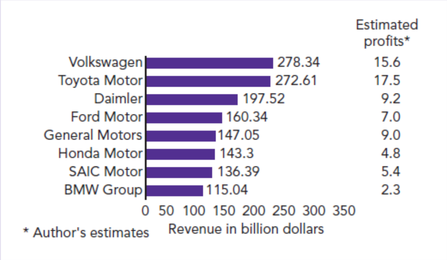


Figure 37.1: The total revenue and estimated profits for the eight largest global vehicle manufacturers, 2018 (in billion dollars)

All the manufacturers were profitable in 2018. This may seem surprising given challenging market conditions and the very competitive nature of this industry. For example, Ford and Daimler reported that their sales had been affected by slowing market growth in China. Volkswagen's profits had been hit through bad publicity from the emissions test scandal. General Motors had seen its profits hit by strike action in the USA. Other manufacturers reported poor market conditions in their domestic markets.

Profits or net income is a valuable statistic for investors in a firm. What is also important is whether funds are being set aside for new projects. This need is very relevant in motor vehicle manufacturing where the global companies are throwing billions of dollars at developing autonomous vehicles, hybrids and electric vehicles.

Discuss in a pair or a group:

- How might you be able to improve the presentation of the data in Figure 37.1?
- Comment on whether high sales mean high profits for global vehicle manufacturers.

Firms may have a range of economic objectives. In theory, the overriding objective is that of profit maximisation. In reality, there are others as shown in Figure 37.2. These other objectives are not always discrete; a firm may pursue more than one objective or have different objectives for different parts of its business.

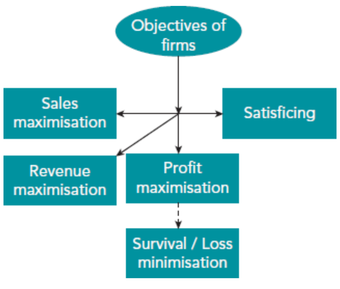


Figure 37.2: Objectives of firms

Figure 37.2 has an objective of survival or loss minimisation. This objective can often be the most realistic objective where a firm is facing intense competition or volatile market conditions. There would be no point in pursuing any other objectives.

37.1 The traditional profit maximising objective

Economists generally assume that firms will seek to maximise their profits. Profit maximisation involves achieving the greatest difference between the total revenue and total cost (including normal profit). A firm making the minimum level of normal profit is said to be producing at break-even output. No supernormal profit is being made. Most firms, though, will seek to make supernormal profit as a reward for taking risks, even if it is only in the short run.

If the firm produces up to the point where the cost of making the last unit is just covered by the revenue from selling it, then the profit margin will have fallen to zero and total profits will be at their greatest. In Figure 37.3, a firm producing an output to the left of Q is sacrificing potential profit. It can raise total profit by increasing its output, because each further unit sold adds more to revenue than it does to costs. A firm producing to the right of Q is making a loss on each successive unit, which will lower the total profit. It would be better off cutting output back to Q where MC = MR where normal profit is being earned.

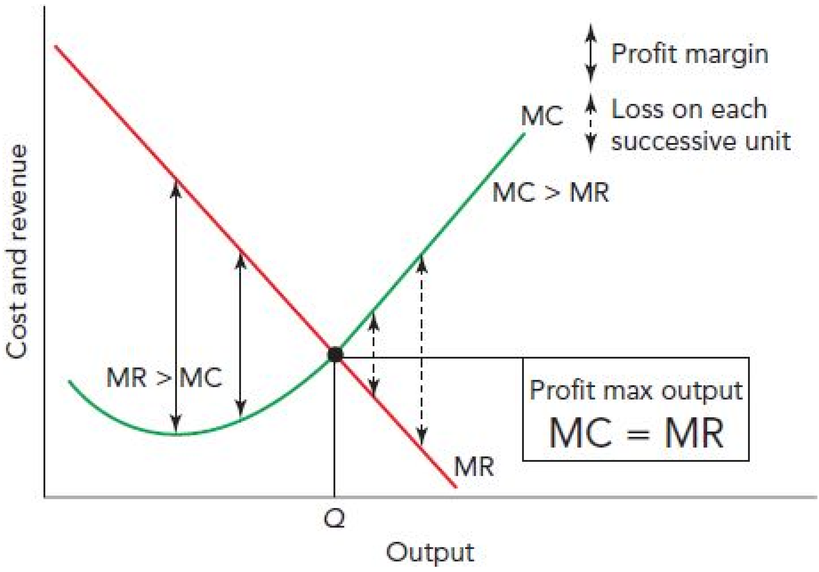


Figure 37.3: The profit maximisation rule

There are several reasons why firms do not operate at the profit maximisation level of output:

- It is difficult to identify this output. The firm may simply work out the average total cost and then add on a standard profit margin in order to determine the selling price. This cost-plus pricing technique is unlikely to result in maximum profit.
- Short-term profit maximisation may not be in the long-term interest of the firm, since firms with large market shares may wish to avoid the attention of government regulatory bodies, such as the Competition and Markets Authority in the UK and the US Justice Department.
- Large supernormal profit may attract new entrants into the industry, especially where there are low barriers to entry.
- High profits may damage the relationship between the firm and its stakeholders, such as its consumers and the firm's workforce, as they may see senior managers and shareholders earning large returns.
- Profit maximisation may not appeal to the management, who may have different objectives to the shareholders – high profits might trigger action by the firm's rivals and the firm could become a target for a takeover bid. This is another example of the principal–agent problem.

KEY CONCEPT LINK

The margin and decision-making: In a perfectly competitive market, firms will produce up to the point where the revenue generated by an extra unit of output is equal to the cost of producing it.

37.2 Other objectives of firms

Dissatisfaction with the traditional assumption of profit maximisation has led to a number of alternative objectives being put forward to explain how firms behave. These are invariably based on empirical or real world investigation. These other objectives are known as managerial or behavioural objectives of firms.

Survival

In some situations, firms may have a short-term objective of survival. This involves minimising losses. This is most likely to be where a firm is facing serious unexpected external threats such as the loss of its best customer or a downturn in the economy due to some external shock like the COVID-19 pandemic. Survival in such circumstances becomes a priority in order to allow the firm to develop a revised strategy to stay in business.

There is, however, a limit to the time and to the scale of losses that can be tolerated. If a firm is not covering its variable costs, then closure would seem to be the only sensible outcome. If variable costs (but not total costs) are being recouped, then it is possible for the firm to continue in business a little longer so that it can try to map out a retrieval strategy. In many countries, retailers of fashion clothes, electrical goods, books and music products have been badly affected by the growth of online sales. Not all have been able to implement a successful retrieval strategy.

Profit satisficing

Profit satisficing occurs when a firm seeks to make a reasonable or minimum level of profit, sufficient to satisfy the shareholders but also to keep the stakeholders happy, such as the workforce and consumers. The firm is seen as a set of interest groups, each with its own objectives, which may change over time. Workers will expect pay rises and improvements in working conditions which may raise costs. Consumers may expect to see prices falling, particularly if there are rival producers. This is a long way from the simple profit-maximising theory as firms may choose to sacrifice some potential short-term profits to satisfy these expectations.

Where the firm's shareholders are divorced from control of the firm, there may be a conflict of interests. The management's motives may be concerned with growth rather than profit. Managers may place a lot of importance on comfortable working conditions, job security, status and fringe benefits, such as company cars, private health care and pension rights. Time and money spent on these issues can raise costs. If the firm has close rivals, it may make management more cautious because the risk of failure will threaten their job security and career advancement prospects.

Profit satisficing can also be a feature of firms that have enjoyed a high market share over a long period of time. Complacency can lead to firms losing focus on their cost structure or failing to devote resources to either product or process innovation. Either of these situations can lead to a loss of profits. It could in the extreme lead to a firm having to exit the market. An example could be a firm that produces music CDs. With the switch to streaming music, the business quickly finds its core product in danger of becoming obsolete.

Sales maximisation

This objective is to maximise the *volume* of sales rather than the total revenue from sales. **Sales maximisation** will lead to greater output than in the case of revenue maximisation. With sales maximisation, the firm would increase output up to the break-even output where the total revenue just covered the total cost. A higher output than this implies loss-making behaviour. The only situation where loss making would be possible is where the firm could use the profit from one part of the firm to offset losses made elsewhere. This is referred to as **cross-subsidisation**. It could be that a state-owned firm, such as one running local bus services, uses the profits from city services to retain lower density routes that are loss-making. In this case, there are social objectives lying behind price and output decisions. The company might be instructed to keep prices down, to cover their ATC, or to make sufficient profit to be self-financing when it comes to new investment.

Sales can also be maximised where a firm follows an objective of growth maximisation through increasing market share. The benefits of economies of scale can apply when a firm acquires or merges with a competitor.

Figure 37.4: Will CDs become obsolete?

The deliberate cutting of price to make a loss might be a strategy to deter new entrants into the market. This was referred to earlier (see Section 35.2) as predatory pricing. Predatory pricing can also be used to force a rival firm out of the market. The legality of predatory pricing is questionable.

Revenue maximisation

Revenue maximisation is an alternative theory of a firm's behaviour, related to the principal–agent problem. The separation of management from ownership, especially in large firms, can result in a firm's objective changing. Senior managers tend to be more interested in increasing sales and maximising revenue from sales.

Managerial salaries and bonuses are usually based on total revenue, not profits. Sales can be easily and regularly monitored; it is much more difficult to measure profits. In principle, production will continue to the point where MR = 0. This means that a firm with a revenue maximising objective will produce a higher output than a firm with a profit maximising objective. The firm may produce where MC > MR provided MR > 0 since total revenue will increase.

TIP

Learners often confuse revenue maximisation and sales maximisation. The clue to their difference is in revenue (total money received from sales) and sales (a measure of the physical amount that has been sold).

ACTIVITY 37.1

1. With reference to your own country or one that is known to you, give examples of firms that appear to follow each of the four managerial or behavioural objectives of firms.
2. Share your examples with your group. Create a wall poster.

REFLECTION

How did you find out the objectives of firms? What additional information would you have liked to have in order to carry out this activity more effectively?

37.3 Price discrimination

Price discrimination was mentioned previously in the context of a monopolist. As a pricing policy, price discrimination can also be used by any firm to increase its profits by reducing consumer surplus and converting this into producer surplus. The only exception is in perfect competition. To price discriminate, the firm must have some control over price; in other words, its demand curve must be downward-sloping.

Conditions for effective price discrimination

There are three recognised types of price discrimination:

- First degree: This is a situation where the firm sells each unit of a product to a different consumer, charging each the price (ideally the maximum) that they are willing to pay. In practice, this is difficult. Most examples are in the service sector. A private doctor may charge each patient what the doctor believes that person can afford to pay. If the doctor is feeling public-spirited, richer patients might be charged more than those on low incomes. A car dealer is likely to weigh up just what a potential customer might be willing to pay for a second-hand car, as might an estate agent selling a property. In each case, the price is unique to that transaction. There is also no immediate chance of a resale. The demand curve in all such cases is the same as the marginal revenue curve; this indicates that the marginal revenue is equal to the price.
- Second degree: This type of price discrimination is where consumers are only willing to purchase more of a product if price falls as more and more units are bought. This means that a higher price is charged for the first unit followed by a lower price as successive units are purchased. A type of discounting takes place as the quantity purchased increases. A good example is where progressive discounts are offered as more is purchased. This often occurs with certain food items, car tyres or season tickets to watch a Premier League football team in the UK. The consumer benefits, as does the firm whose output, total revenue and profit can be expected to increase.
- Third degree: This is the most common form of price discrimination. It requires firms to actively discriminate between consumers and is based on the presumption that groups of consumers have a different price elasticity of demand for the product. So, where consumers have a low inelastic demand, this demand is not price sensitive.

Consumers with a low price elasticity of demand need the product and can be expected to pay a higher price for it than consumers whose demand is more price elastic. A good example is with air fares – flights booked earlier tend to have a lower price than those booked closer to departure. The nature of the product is no different. Another interesting case is where learners may be given a discount at a food stall or the cinema. The overall outcome is not entirely predictable. The firm's revenue and profits should increase, otherwise there is no point in discriminating. The problem is that some consumer groups benefit yet others do not because of the higher prices they have to pay.

Consequences of price discrimination

It may be possible for a monopolist to use price discrimination to produce at a profit when competitive firms or a monopoly charging a single price could not cover costs. Figure 37.5 shows that at the profit maximisation output, the total revenue would be $3 \times 40 = 120$; the total cost would be $3 \times 45 = 135$, giving a loss of 15. If the output was sold separately for a price consumers would pay for each individual unit, the revenue would be $60 + 50 + 40 = 150$, giving a supernormal profit of 15. The monopolist has effectively taken the consumer surplus and turned it into producer surplus or profit. If triangle A in the diagram is the same size as triangle B, the shortfall in cost, the firm will break even; but if triangle A is larger than triangle B, the monopolist makes supernormal profit. As long as the consumers are prepared to pay the higher price, there is no consumer exploitation. The competitive market price would generate losses and therefore there would be zero output in the long run.

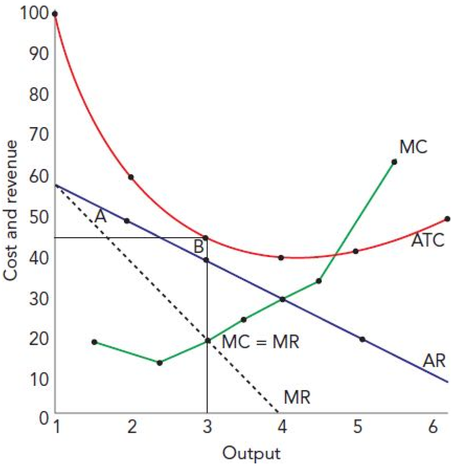


Figure 37.5: A price discriminating monopolist

If a firm wishes to split the market up into different segments and charge different prices, it must have a mechanism for keeping the markets separate. It must also avoid the possibility of consumers buying at a cheap price and then selling on the product at a higher price. Price discrimination will only work where consumers have a different willingness to purchase or have different price elasticities of demand for the product.

Price discrimination has certain advantages and disadvantages for firms and consumers. It results in an improvement in allocative efficiency but this is often achieved by converting consumer surplus into profit. From an equity standpoint this is a disadvantage to consumers.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Price discrimination favours producers at the expense of consumers. Government regulation is often necessary to avoid consumers being exploited.

ACTIVITY 37.2

1. For each of the three types of price discrimination, give examples of each from your own country. Justify your choices with evidence.
2. In a group, discuss who you believe may be benefiting from price discrimination.

37.4 Other pricing policies

Other types of pricing policies may be used within specific market structures.

Limit pricing

Limit pricing is a pricing policy that is applied in monopolies and oligopolies. It involves firms setting a lower short-run price to deter new firms from entering their market. This market may even be contestable. These firms might have been attracted by the supernormal profits that were being earned. At this new price, the established firm no longer maximises profits, but this is only to be expected for a short period of time. The lower price effectively acts as a barrier to entry. To work, a monopolist or oligopolist needs to increase output or the services provided to such a level that a new firm is not in a position to make a profit. An example might be in an unregulated taxi market where a firm might reduce rates and at the same time increase the number of its vehicles so making it impossible for a new entrant to make an impact. The likelihood is that these tactics will deter the new firm from trying to enter the taxi market.

Predatory pricing

Predatory pricing occurs when a firm feels threatened when a new firm enters a market. The established firm responds by setting a price that is so low that the new firm has no alternative but to match it. The new firm cannot make a profit; in time, the new firm will be forced out of the market. When this happens, the established firm will put its prices back to their former level.

Predatory pricing can also be applied by two established firms in a market. If one firm believes its rival is gaining market share, it can cut prices to protect its own market share. If these cuts are deep enough and sustained over time, the rival firm may be forced to leave the market.

TIP

Remember that price leadership can also be explained by the kinked demand curve model. The firm taking the first step to alter price is the price leader.

Price leadership

Price leadership is a common feature of oligopolistic markets. All firms in the market accept the price that is set by the leading firm, which is often the firm with the largest market share or is the brand leader. They then alter their own prices in line with those of the leader. It is seen as a way of avoiding price competition yet maximising total profits for all firms while allowing various forms of non-price competition to prevail. A good example in many countries is petroleum retailing, where the market leader is a well-known multinational company. Other examples are in the markets for certain types of retail goods or branded fast food.

When the leading firm announces a price increase, all others quickly follow, sometimes in just a matter of hours. It is the same when a price fall is announced; smaller rivals are forced to follow the fall in price to retain market share. However, the downside is that since their costs are higher, matching a price decrease could result in sustained losses and the eventual exit of smaller rivals from the market.

Figure 37.6 shows a simple representation of price leadership. It assumes there are two firms in the market, A and B. D is their demand curve. Firm A is the lower cost producer and price leader. It maximises its profits at point A where MC = MR. Its output O_A is sold at price P_A. Firm B's ideal price is at P_B, but if it fixes price here, it will not be able to compete with A's lower price. It is therefore compelled to lower its price to P_A with lower profits due to its higher costs of production.

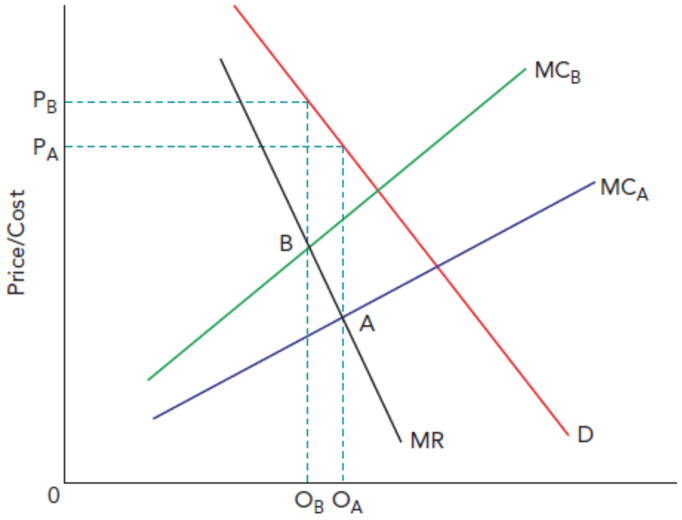


Figure 37.6: Price leadership under oligopoly

37.5 Relationship between price elasticity of demand and a firm's revenue

When a firm decides to change its price, the price elasticity of demand for its product is the most important factor in estimating the consequent change in output and sales revenue. The success of the price change depends on whether the price elasticity of demand is elastic or inelastic.

Downward sloping demand curve

Table 37.1 shows the number of units of output sold when price ranges from \$10 to \$1 per unit. Figure 37.7, which is derived from the data in Table 37.1, illustrates that when the price changes from \$9 to \$8, the marginal revenue is \$7. The addition to total revenue is gradually falling as the price falls, until when five units are sold MR = 0. At this point total revenue is maximised as referred to earlier when describing a firm's objectives.

Price (\$)	Units sold	TR	MR
(P)	(Q)	(P x Q)	
10	0	0	
			9
9	1	9	
			7
8	2	16	
			5
7	3	21	
			3
6	4	24	
			1
5	5	25	
			0
4	6.25	25	
			−2.5
3	7.5	22.5	
			−4
2	9.25	18.5	
			−7.5
1	11	11	

Table 37.1: Price, quantity, total revenue and marginal revenue

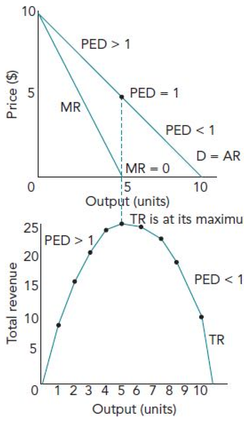


Figure 37.7: Relationship between average revenue, marginal revenue and total revenue

In this example, the firm would be facing a straight-line demand curve. The consumers' reaction to a price change varies at different prices since the price elasticity of demand (PED) varies along the demand curve.

As the price falls in steps from \$10, sales increase more than proportionally, giving PED a value greater than 1, until the output of 5 when total revenue is unchanged. This gives a PED value of 1. Beyond this output PED has a value less than 1; further price cuts will reduce total revenue.

A relationship between price elasticity and marginal revenue can also be seen. In the elastic part of the demand curve where PED > 1, the marginal revenue is positive and total revenue will be increasing as output increases. When the PED = 1, MR will be zero and total revenue will be maximised. When PED < 1, MR will be negative, reducing the total revenue.

The most important thing about the concept of price elasticity from the firm's point of view is that it determines what happens to total revenue when the price is altered. It would make sense for any firm operating in the elastic part of the demand curve to reduce price and boost total revenue. Conversely, in the inelastic part, the firm should raise its price if it wants to see higher revenue. In this example, revenue is maximised at five units of output with a price of \$5. This in itself is a reasonable objective for a firm to have; it is, however, not the same as profit maximisation.

A firm may be prepared to accept a lower price and produce above the profit-maximising output in order to increase its market share in a growing market. This is a penetration pricing policy. A firm choosing to maximise its revenue would raise output beyond MC = MR until MR had fallen to zero. Extra sales after this would contribute nothing to total revenue; therefore revenue is at its maximum. There may still be supernormal profit if total revenue is higher than total cost but this is not always the case.

Kinked demand curve model

There is a different relationship between price elasticity of demand and a firm's revenue in the case of the kinked demand curve model of oligopoly (see Figure 35.12).

The oligopolist's demand curve is relatively elastic above point K. If the firm increases its price above K, there will be a relatively large decrease in sales and total revenue. Consumers will switch to competitors' products whose price has not changed. Profits may fall. Below K, the demand curve is relatively inelastic. This is because when the firm decreases its price, there will only be a very small increase in sales and revenue. If one firm does decrease price, others will follow. As before, profits may fall.

The obvious strategy is to 'leave price at P'. This means that revenue will be maximised at P × Q. There is no cause for a firm to change its price; firms could remain at point K for a considerable length of time.

THINK LIKE AN ECONOMIST

Forex: a perfectly competitive market?

A question many learners ask is: 'If perfect competition is so important, why are there no real world examples that we can refer to?' One example of a market that is close to perfect competition is the global market for foreign exchange (Forex). Reasons that are sometimes given are:

- the market is open 24 hours a day
- foreign currency is an homogenous good
- buying and selling prices are always available
- anyone can trade foreign exchange.

Figure 37.8: Foreign exchange traders

1 Consider whether it matters that there are no real-world examples of perfect competition.

2 Using further information, discuss the extent to which the foreign exchange market is a perfectly competitive market.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 The principal–agent problem can be applied to the objectives of a firm where:

A the entrepreneur makes all the decisions.

B managers are left to manage without any interference from a firm's owner.

C external management consultants make all the decisions.

D there are a large number of shareholders in a firm run by salaried managers.

2 A firm is able to produce at five different levels of output. The table below shows the total cost and the total revenue of producing at each of these five output levels.

Output (units)	Total cost ($)	Total revenue ($)
10	10 000	12 000
20	11 000	16 000
30	19 000	19 000
40	24 000	24 000
50	30 000	30 000

The firm elects to produce 40 units of output as it knows it can sell this quantity. Which of these is the firm's aim in making this decision?

A profit maximisation

B sales maximisation

C minimising average costs

D revenue maximisation

3 Which of these is an example of limit pricing?

A where a firm fixes a minimum price

B where a firm is prepared to sell at a price within a limited range of prices

C where a firm sets a lower short-run price to stop new firms entering the market

D where a firm has permanently low prices

4 Which of these is an essential requirement for third-degree price discrimination?

A At least one group of consumers must benefit.

B It must be possible to divide the market into different segments.

C The monopolist can charge any price.

D The product must not be perishable.

5 A firm is facing a downward sloping demand curve for its products. The firm has an objective of maximising revenue for its sales. Which of these explains when this objective is achieved?

	Marginal revenue	Price elasticity of demand
A	positive	elastic
B	zero	unitary
C	zero	zero
D	negative	inelastic

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain why profit-maximising is the traditional objective of a firm			
Explain how firms may have other behavioural objectives such as survival, profit satisficing, sales maximisation and revenue maximisation			
Consider how price discrimination is used by monopolists to increase profits			
Analyse the conditions for effective price discrimination (first degree, second degree, third degree) and the consequences of price discrimination			
Evaluate other pricing policies: limit pricing, predatory pricing, price leadership			
Explain the relationship between price elasticity of demand and a firm's revenue: downward sloping demand curve and the kinked demand curve model			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 The global problem of plastic waste disposal

One of the world's most pressing environmental issues is how to tackle the growing problem of the safe disposal of plastic waste. There is no denying that plastic packaging is a valuable resource in many industries yet its safe disposal causes endless problems worldwide. There is no simple or easy solution to what is an ever more serious global problem.

Figure 1 shows which countries were the biggest exporters of plastic waste and plastic scrap in 2018. The countries were largely high-income countries.

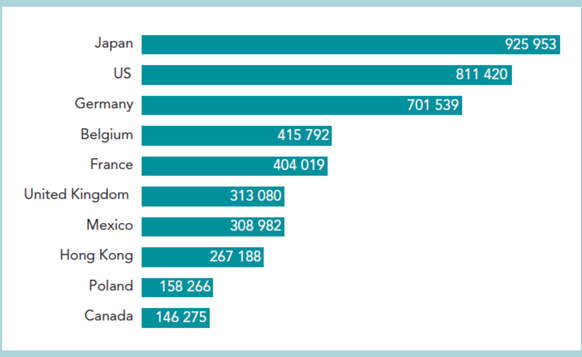


Figure 1: The biggest exporters of plastic waste and plastic scrap in 2018 (in tonnes)

Until recently, countries such as China, Malaysia and the Philippines seemed more than happy to recycle other country's plastic waste. There is though growing opposition in these countries to the environmental problems associated with the recycling process. China has now banned all imports of plastic waste; the Malaysian government is doing its best to discourage any more imports. In May 2019, for example, the Malaysian authorities sent back 60 shipping containers with 3000 tons of plastic waste to several countries. The waste was rejected because it was classed as contaminated under a new law that had just been passed.

There are local problems of plastic waste disposal everywhere. Beaches on the Indonesian island of Bali, for example, suffer from plastics that are washed up daily. Much of this pollution has been attributed to local people fly-tipping domestic rubbish into the sea. The authorities in Bali are concerned about the negative publicity that this pollution is having on the tourist trade.

In January 2020, China announced new restrictions on the production, sale and use of disposable plastic products. By the end of that year, plastic bags are to be banned in all major cities; by the end of 2022, the ban will be extended to all other cities and towns. Other plastic items such as cutlery from fast food outlets and packaging used by courier services are to be phased out.

China's response is similar to that in India's capital, Delhi, where single-use plastic is now banned. This ban was introduced after complaints about the burning of plastic at rubbish dumps. This burning only served to worsen Delhi's toxic air pollution.

a Using evidence from the data provided, explain the external costs associated with the illegal disposal of plastic waste. **[4]**

b Explain the deadweight welfare loss arising from the illegal dumping of plastic waste. **[4]**

c Explain what methods might be applied to reduce the use of disposable plastics in cities in China and in Delhi other than a ban. **[5]**

d Discuss the criteria that a country might use when deciding whether to accept shipments of plastic waste for recycling. **[7]**

Essays

2 Assess the view that the kinked demand curve has no relevance in explaining the behaviour of firms in present day oligopolistic markets. **[20]**

3 Evaluate the extent to which the traditional profit maximisation aim enhances understanding of the different aims of firms. **[20]**

› **Unit 8**

Government microeconomic intervention (A Level)

UNIT INTRODUCTION

Your study of government intervention is developed in this unit. Methods of government intervention are discussed and their effectiveness is assessed in cases where markets fail. This discussion is built around real world examples and also considers why policies that governments pursue may not always achieve what they were intended to achieve. There is an analysis of how governments try to reduce poverty and a further explanation of how governments try to achieve a more equitable distribution of income and wealth. The unit concludes with an analysis of labour markets. Issues such as wage determination and government intervention are considered.

Chapter 38

Government policies to achieve efficient resource allocation and correct market failure

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain how a range of tools can be used to correct the different forms of market failure, including specific and *ad valorem* indirect taxes, subsidies, price controls, production quotas, prohibitions and licences, regulation and deregulation, direct provision, pollution permits, property rights, nationalisation and privatisation, provision of information and behavioural insights and 'nudge' theory
- evaluate the effectiveness of the tools used to correct market failure
- define the meaning of government failure in microeconomic intervention
- explain the causes and consequences of government failure.

ECONOMICS IN CONTEXT

What can be done about New Delhi's air quality?

It is well-known that the Indian capital, New Delhi, has some of the worst air quality of any city in the world. The low lying smog tends to be worst in late autumn and is caused by a range of factors. These factors include high humidity, crop burning in neighbouring states and smoke from fireworks let off for Diwali. There are additional contributors from factory emissions, pollution from old vehicles, two-wheeled motor cycles and scooters.

Figure 38.1: Smog in New Delhi

Delhi's excessive pollution has led to a growing number of residents suffering from respiratory difficulties. This growth has been particularly significant among young children. There has also been an increase in the number of deaths related to poor air quality, a wider issue in Indian cities, not just Delhi. Poor air quality has a negative impact on the urban environment.

The big question is: what can be done? Various policies, mainly controversial, for dealing specifically with New Delhi's congestion include:

- banning all vehicles that are more than 15 years old; this includes two-wheeled motor cycles and auto rickshaws
- improve Delhi's public transport system by extending the Metro and adding even more buses
- ration road use by allowing odd- and even-plated vehicles on alternate days of the week
- plant more trees throughout the city and along its main road network
- provide free face masks for residents.

The big issue in New Delhi is the scale of the problem. The city has over 10m vehicles, 7m of which are auto rickshaws. Total numbers of vehicles are increasing daily.

Discuss in a pair or a group:

Suppose you are an economic adviser to Delhi's chief minister. You have been asked to advise the minister on what is the best policy to use to combat New Delhi's poor air quality.

- Appraise the five policies referred to in the information above.
- Consider any other policies that might be used.
- Outline an action plan for tackling the city's poor air quality, identifying the main benefits and costs.

Some methods of government intervention and their effects on markets were introduced in Sections 13.1 to 13.6. The meaning of market failure and the nature of negative and positive externalities were explained in Sections 32.6 and 33.3. This chapter builds upon this content; its focus is to explain and evaluate the tools that governments use to correct market failure in order to achieve an efficient allocation of resources.

In principle, the free market mechanism should produce the best allocation of resources. The reality is that, increasingly, this is not so. Consequently, the market mechanism needs to be supported by many forms of government intervention in order to correct its failings.

38.1 Government policies to correct negative and positive externalities

Many government interventions are used to correct market failure due to externalities. The main interventions include:

- specific and *ad valorem* indirect taxes
- subsidies
- regulations
- pollution permits
- property rights
- provision of information.

These are just some of the ever-increasing ways that governments are using to correct market failures due to externalities.

Negative production externalities

A common situation of market failure is where there are negative production externalities. An example of a negative production externality is where a firm illegally disposes of toxic waste, emitting toxic fumes into the atmosphere. Another example is where the over-use of pesticides by farmers contaminates water supplies. If this water is then untreated and consumed by local people, its consumption could cause cholera and possible loss of life. A third example of negative production externalities is the effects of urban road traffic congestion on third parties. Slow-moving and stationary traffic emit a high concentration of greenhouse gases into the urban environment. Exposure to these gases can have an adverse impact on the health of people who regularly breathe in the polluted air.

Specific *ad valorem* indirect taxes

One way to correct for this type of externality is that the government should tax those activities where too much is being produced. An indirect tax should be imposed on the individual or on the firm that has caused the negative externality. The tax should ideally be equal to the marginal external cost. This tax, which is often referred to as a Pigouvian tax, is designed to internalise the externality – this means that firms pay the cost of the externalities that they have caused to third parties.

Figure 38.2 shows the effects of imposing an *ad valorem* green or pollution tax on the firm whose actions have caused the discharge of toxic waste. (MPC and MSC diverge as output increases since the tax is levied on the quantity of output.) The tax is added to the cost of producing the product; the supply curve MSC is now equal to the MPC plus this tax. Figure 38.2 shows that the price at which the product is sold has increased from P to P_1. This is less than the tax applied by the government. At first sight this may appear illogical, but the producer has accepted a cut in the price received from P to P_2. The producer has borne the burden of part of the tax. The total tax paid is equal to the area P_2P_1yz, of which the consumer's share of the burden is PP_1yx and the producer's share is P_2PXz. The effect of the negative externality is now internalised within the market. This is an ideal situation.

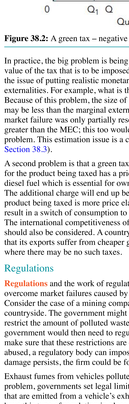


Figure 38.2: A green tax – negative production externalities

In practice, the big problem is being able to know or estimate the exact value of the tax that is to be imposed. This problem arises because of the issue of putting realistic monetary values on the costs of externalities. For example, what is the price of clean, unpolluted air? Because of this problem, the size of the pollution tax that is imposed may be less than the marginal external cost. This would mean that the market failure was only partially resolved. The tax could even be greater than the MEC; this too would not be an efficient solution to the problem. This estimation issue is a cause of government failure (see Section 38.3).

A second problem is that a green tax will not be effective if the demand for the product being taxed has a price inelastic demand. An example is diesel fuel which is essential for owners of vehicles with diesel engines. The additional charge will end up being paid for by consumers. If the product being taxed is more price elastic, the green tax is more likely to result in a switch of consumption to the products of less polluting firms. The international competitiveness of products subjected to green taxes should also be considered. A country with high green taxes may find that its exports suffer from cheaper goods that are produced elsewhere where there may be no such taxes.

Regulations

Regulations and the work of regulatory bodies is another way to overcome market failures caused by negative production externalities. Consider the case of a mining company that pollutes the surrounding countryside. The government might intervene by setting standards that restrict the amount of pollution that can be legally discharged. The government would then need to regulate and inspect the company to make sure that these restrictions are enforced. If regulations are being abused, a regulatory body can impose large fines on the company. If the damage persists, the firm could be forced to close.

Exhaust fumes from vehicles pollute the atmosphere and, to reduce this problem, governments set legal limits on the amount of carbon particles that are emitted from a vehicle's exhaust system. Virtually all countries have this type of regulation in place. Collectively, this type of regulation is sometimes referred to as a 'command and control' approach.

Deregulation involves the removal of any regulations that act as barriers to entry for new firms seeking to enter a market (see Section 35.2). The purpose of deregulation is to encourage competition between new firms and those that are established in an industry. New firms are likely to be more efficient; prices will fall and the polluting firms are likely to be forced to exit the industry as they are unable to compete.

Property rights

This is a further way in which a market-based solution can be used to correct negative production externalities. It involves **property rights**, the term used to indicate how owners can use their assets. If a property right can be established, a market solution can usually be reached through agreement to exchange property rights to those causing the negative externality. In many cases, property rights cannot be established, such as in cases involving the air and sea. The result is that either no action can be taken or government intervention corrects the market failure.

The absence of property rights leads to negative externalities of production. By changing or extending property rights, owners of property can prevent others from imposing costs on their property or they could charge them if they do impose costs.

Two possibilities can occur:

- If a polluting firm has property rights, then those who are affected by its activities could pay the polluter to reduce the scale of activity and therefore the pollution. In principle the polluter would require payment equal to the loss of profit. An example of this might be a situation where a long-established but polluting firm is asked to relocate as its emissions are affecting people who live in the surrounding area. The firm has property rights, so why should it move? If it does move, the firm could argue that it should not have to pay the cost of a move as it could stay where it has always been. The government could threaten to use new regulations, so bargaining is likely to take place until a solution is reached.
- If those affected by negative externalities are assigned property rights, then a polluting firm may be sued and obliged to compensate them in some way. In principle the charge would be equal to the marginal external cost. There is likely to be a difference in the bargaining power of the two parties. An individual with property rights is likely to experience problems if taking on a powerful multinational company. The chance of success will be greater if others with property rights join the action against the polluting firm.

Pollution permits

A fourth form of intervention is through **pollution permits**, or tradable permits, whereby polluting firms are provided with a permit to produce a given level of pollution. This can apply to polluting the air or water. Unlike indirect taxation and regulations, pollution permits are a market-based solution as they can be bought and sold. The permits are also subjected to a given level of allowable pollution. The system is referred to as a 'cap and trade' system.

A recent example of a 'cap and trade' system is China's Emission Trading Scheme (ETS). China is the world's largest emitter of greenhouse gases. Much of these emissions are carbon dioxide from coal energy production and heavy industry. In 2017, China began implementing pilot carbon markets in seven key economic regions: Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin. The scheme covers around 25% of China's GDP. The key features of this innovative scheme is that it controls emissions by providing an incentive to reduce overall emissions. The government 'caps' the total amount of carbon which can be emitted by industry in each region; it then creates a carbon market ('trade') where emitters can buy and sell emission credits. A firm that reduces its emissions will have spare credits which it can then sell to other firms who have exceeded their carbon allowance. China's ETS scheme is being extended to other regions and a wider range of industries. Similar schemes operate in Australia, Singapore, the EU and the USA.

Figure 38.3 shows how the 'cap and trade' system operates. When introduced, the supply of pollution permits is S with a demand of D. The market price is therefore P. Assume over time that demand increases to D_1 (more pollutants are being emitted due to production growth). With supply fixed at S, the price rises to P_1, giving every incentive to polluting firms to be more environmentally efficient. A more ambitious approach, as being applied in the US, is to reduce the number of permits available over time. Hence, the supply curve shifts left to S_1, with the price of permits rising to P_2. This puts even more financial pressure on firms to invest in cleaner technologies, so cutting down on greenhouse gas emissions.

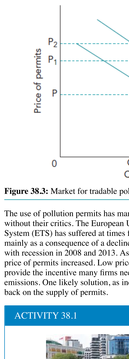


Figure 38.3: Market for tradable pollution permits

The use of pollution permits has many attractions but they are not without their critics. The European Union's (EU) Emissions Trading System (ETS) has suffered at times from an oversupply of permits, mainly as a consequence of a decline in industrial production coincident with recession in 2008 and 2013. As the EU moved out of recession, the price of permits increased. Low prices for permits are unlikely to provide the incentive many firms need to reduce their greenhouse gas emissions. One likely solution, as indicated in Figure 38.3, is to cut back on the supply of permits.

ACTIVITY 38.1

Figure 38.4: Overhead gantries monitor the flow of traffic in central Singapore

Singapore has the most comprehensive road pricing system of anywhere in the world. The road pricing system broadly operates on a 'pay as you go' basis for private road vehicles; users of these vehicles are charged on when and where they are used and in relation to traffic volumes. All vehicles are fitted with a unit that is inside the vehicle. Drivers buy units for a smart card that is inserted in the unit. Overhead gantries on roads in the central area of the city monitor the traffic flow and deduct the charge from the unit. The system is due to be replaced by a GPS satellite system which will remove the need for the gantries.

Charges tend to be at their peak between 08.30 and 09.00 in the central business area when traffic flows are at their highest. There are no charges when there are low volumes of traffic during off-peak periods. The ERP system continues to be successful in controlling traffic volumes and vehicle speeds.

The effectiveness of the ERP system has also been due to the innovative integrated transport policy of Singapore. The policy has:

- a modern mass rail transit system, with heavily subsidised fares
- inter-connecting bus services
- other policies that discourage private car ownership including a vehicle quota system and area licensing charges
- a compulsory scrappage scheme for all vehicles over 10 years old.

1 With the help of diagrams, explain how:
   a the ERP applies to the market when the charge is exactly equal to the MEC
   b the ERP is less than the MEC.

2 In pairs:
   a discuss the circumstances when each of these situations apply
   b discuss why the ERP system has been successful.

Produce a poster or podcast which includes details of the theory and your assessment of whether the ERP system has been successful.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Negative production externalities are a common form of market failure. The challenge for governments is to use various forms of regulation and control without unduly restricting firms in their operations.

Negative consumption externalities

These externalities are the spillover costs caused by the consumption of demerit goods. An example is the case of passive smoking and its effects on non-smokers; there is also the problem of aircraft noise, which can seriously affect the lifestyles of people who live close to a major airport, many of whom may never travel by air. Road congestion is another example. As individual road users 'consume' road space, this reduces the amount of road space that is available to other vehicles. Traffic speeds fall with a consequent increase in journey times and fuel costs for all road users.

Specific indirect taxes

Negative consumption externalities created by one group of consumers reduce the private benefit of others. One remedy is to impose an indirect tax, usually a specific tax, on consumers of demerit goods. Figure 38.5 shows this situation. Due to external costs in the market, MSB is below MPB. The market equilibrium is at P and Q where MPB equals MPC. The social optimum output is below Q at Q_1 where MSB and MSC intersect. This case of market failure can be corrected by imposing an indirect tax equal to yz on those responsible for the negative consumption externality. The supply curve then shifts to the left: the market price increases to P_1 resulting in a fall in quantity consumed to Q_1. This now gives a socially efficient allocation of resources.

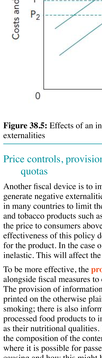


Figure 38.5: Effects of an indirect tax – negative consumption externalities

Price controls, provision of information and production quotas

Another fiscal device is to impose a minimum price on products that generate negative externalities of consumption. This intervention occurs in many countries to limit the consumption of high-sugar energy drinks and tobacco products such as cigarettes. The minimum price increases the price to consumers above the point where MPB = MSC. The effectiveness of this policy depends upon the price elasticity of demand for the product. In the case of demerit goods, demand is invariably price inelastic. This will affect the success of a minimum price scheme.

To be more effective, the **provision of information** can operate alongside fiscal measures to decrease consumption of demerit goods. The provision of information includes warnings and photographs printed on the otherwise plain packets of tobacco products to deter smoking; there is also information provided on the packaging of many processed food products to indicate their sugar and salt content as well as their nutritional qualities. Bottled water usually contains details of the composition of the contents. Another example is for air travel, where it is possible for passengers to know the carbon footprint they are causing and how this might be offset.

Regulations are in place in many countries to restrict the consumption of demerit goods. These regulations usually specify a minimum age limit for consumption. Another way of restricting consumption is through **production quotas**. This involves limiting the quantity of goods that is produced. If the quota is set at a low level, the price of the product is likely to rise, reducing the amount consumed. Licensing suppliers is also used to control supply. One problem of such measures is that they can lead to informal market dealings.

ACTIVITY 38.2

1 Re-draw Figure 38.5 to show the effects on the market of a minimum price on a product with negative consumption externalities.

2 Explain the difference between your new diagram and Figure 38.5.

TIP

When writing about how to correct for market failure through the use of indirect taxation, try to be clear when it is preferable to apply a specific tax and when an *ad valorem* tax would be better. Many learners just write about 'taxes' in a general sense.

Positive production externalities

Positive production externalities occur when producers create positive spillover benefits to third parties. For example, inoculations; vaccines that have been developed to combat serious medical conditions like polio, cholera and smallpox benefit not only those receiving them but also the community as a whole. The same is true in other fields of research and technological development. Initially the inventor but subsequently many others are able to benefit from the private costs that have been spent by a firm. The universal use of the internet is an example how hundreds of millions of people benefit from this invention.

Subsidies and provision of information

Figure 38.6 shows how a subsidy to the firm generating these benefits can correct market failure. MSC is below MPC. The market equilibrium is at PQ; the market under allocates resources at this point. It is implied that the government should provide a subsidy to the firm equal to the external benefit. As a result, there will be an increase in the quantity produced to Q_1 and a lower price at P_1. Allocative efficiency is now being achieved. The size of the subsidy paid by the government is P_1P_2 yz.

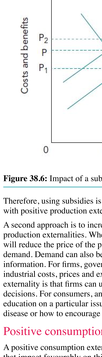


Figure 38.6: Impact of a subsidy – positive production externalities

Therefore, using subsidies is a way of increasing the supply of products with positive production externalities.

A second approach is to increase demand for products with positive production externalities. Where a price is paid for a product, the subsidy will reduce the price of the product and, in turn, lead to an increase in demand. Demand can also be increased through the provision of information. For firms, governments produce a host of statistics on industrial costs, prices and export opportunities. The positive production externality is that firms can use this information when making business decisions. For consumers, an information campaign can improve education on a particular issue, such as how to avoid spreading a disease or how to encourage more recycling of household waste.

Positive consumption externalities

A positive consumption externality occurs as a result of decisions taken that impact favourably on third-party consumers.

Direct provision and subsidies

The provision of secondary education is a good example of a positive consumption externality. Being educated not only benefits the individual; it produces other spillover benefits for the economy in the form of a better educated workforce that is likely to be more productive and able to provide an important source of future economic growth.

A further case of positive consumption externalities is when governments subsidise their rail networks. Governments in all types of economy subsidise their rail networks on account of the wider social benefits that lower fares bring to travellers and to the economy. In 2019, the governments of India and Pakistan respectively funded a huge 47% and 43% of rail operating costs through subsidies. The cost to the Indian government is now so great that better-off commuters are being asked if they are willing to forego 50% or 100% of the subsidy by paying the true cost of their fare to Indian Railways.

The effect of a subsidy where there are positive consumption externalities is shown in Figure 38.7. The equilibrium without government intervention is at point x where MPC = MPB. The marginal external benefit MEB is added to the MPB curve to give the MSB, the marginal social benefit. The MSB represents society's demand curve for the product.

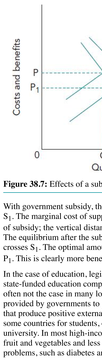


Figure 38.7: Effects of a subsidy – positive consumption externalities

With government subsidy, the supply curve shifts to the right from S to S_1. The marginal cost of supplying the good is reduced by the amount of subsidy; the vertical distance yz is equal to the value of the subsidy. The equilibrium after the subsidy is at point z, which is where MPB crosses S_1. The optimal amount of goods Q_1 is sold at the lower price of P_1. This is clearly more beneficial for consumers.

In the case of education, legislation is used in some countries to make state-funded education compulsory up to a certain age. Sadly, this is often not the case in many low-income countries. Information is also provided by governments to persuade consumers to buy more goods that produce positive externalities. Government grants are available in some countries for students, often from low-income families, to go to university. In most high-income countries, people are urged to eat more fruit and vegetables and less meat to reduce the possible risk of health problems, such as diabetes and obesity.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Effective government intervention can produce not only a more efficient allocation of resources but can, by correcting market failure, result in greater social equality and equity.

TIP

Learners sometimes find it difficult to distinguish between a production and consumption externality as an action may involve both. A typical example is that of traffic congestion in a city. Try to put yourself in the position of the third party. This may help you to distinguish between the two types of externality.

38.2 Other tools to correct market failure

So far in this chapter, the emphasis has been on policies that have required deliberate government intervention in markets. This section explains other types of policies that governments use to correct market failure.

Behavioural insights and 'nudge' theory

In Section 31.3, behavioural approaches to decision-making were referred to. By way of correcting market failure, there is growing interest in how **'nudge' theory** might lead to a more efficient allocation of resources.

The basis of nudge theory lies in the provision of information. It is argued that by presenting choices in a better way, people make better decisions. This avoids the need for more formal government intervention since, when applied, individuals retain their freedom to choose. In some respects, it is a form of paternalism whereby governments or individuals interfere with the affairs of people against their will, yet with their best interests in mind.

Therefore, nudge theory is a way of achieving beneficial economic and social outcomes without the need for regulations. In the case of market failure, it can be applied through social media, letters, emails or personal communications. A typical example is in the case of a free inoculation (merit good) that is available to all people over 60 years old. These people can be targeted by a simple letter that makes them fully aware of the benefits of having the inoculation and how they can get one. In this way, they are 'nudged'; without such a nudge, take up would likely be less and, over time, involve greater costs to the health service.

A second example is in the case of a city that is seeking to reduce the number of cars on its roads (negative externality). There could be a media campaign that focuses on the benefits of cycling or of using other more environmentally acceptable forms of transport like buses. This campaign could nudge motorists into using another form of urban transport.

There is also growing pressure on getting travellers to be more responsible in their use of air transport. Low cost flights seem attractive to customers but invariably they generate much non-essential travel. This travel increases global emissions. A nudge approach would be for a government or even airlines to make these consumers aware of the damage their flights are causing. Alternatives, like rail or the benefits of staying at home, could be highlighted.

Figure 38.8: A cycle street in Malmo, Sweden

In early 2020, in response to the COVID-19 pandemic, many governments produced a regular series of media features advising people what to do to slow down the spread of the disease. Sweden, for example, concentrated on 'nudging' people to be responsible to delay the spread of the virus.

The key question is 'Does nudge work?' The answer is that it does, but to only a limited extent. Nudge is best used and most effective when used alongside other policies that are already dealing with market failure.

ACTIVITY 38.3

The idea of 'nudge' theory has been advocated by the American Nobel Memorial Prize winning economist Richard H. Thaler. In the UK, there is a government department that promotes 'nudge' initiatives in support of government policy.

1. Discuss in a pair, how might you investigate the possibilities for this 'nudge' approach to be used by your own government to correct an example of market failure?

REFLECTION

How did your investigation help you to fully understand the different ways to tackle market failure?

Direct provision of goods and services

In Section 12.1, the non-provision of public goods was given as an example of market failure. This non-provision was the main reason for government intervention. Even if it were possible to charge for public goods, it would not be socially desirable. Direct provision by the government is the only possibility.

The case of merit goods such as healthcare and education is different. The government provides these goods and services free of charge or at subsidised prices, particularly for low-income families. The reasons for this include:

- Positive externalities. Third parties may benefit if someone is treated for an infectious disease. Family members and others in the community benefit through not being infected. Treatment may not occur if a charge is made.
- Imperfect information. Many people do not appreciate how they can benefit from a good education. Families who have limited incomes and who have to pay for education may choose to go without. Providing education free of charge may increase uptake. Similar arguments apply for providing free healthcare.
- Wider economic benefits. Government provision of merit goods can add to an economy's quality of human capital. A healthy well-educated population can have a positive impact of the rate of economic growth.

The direct provision of public goods and merit goods is therefore a very relevant and widely applied way of correcting market failure.

Nationalisation and privatisation

Governments can take an industry into public ownership as a means of correcting market failure. This is known as **nationalisation**. The market failure arises when the industry is not being run in the public interest. It is argued that problems of externalities, for example, can be best dealt with if a given industry is being managed by the public sector.

One such type of industry is where there is a natural monopoly. In terms of efficiency, it makes no sense to have more than one provider of rail services or water supply. Duplication only leads to inefficiency, higher prices and less provision.

Take the case of railways. An effective rail network produces external benefits that are not recognized by the market mechanism. Railways provide urban commuters with better access to employment, especially for those who have no other means of transport. Mass transit systems in crowded cities such as New Delhi, Hong Kong and Kuala Lumpur have an essential function in easing road traffic congestion. There are also positive externalities from local rail services for people living in rural areas.

Other nationalised industries may generate negative externalities. Typical examples are coal production, electricity generation and water provision. It is claimed that these strategic industries and their externalities can be best managed under state ownership.

A problem faced by some nationalised industries, rail especially, is that the structure of their costs means that they are loss-making. Government subsidies are needed to maintain service levels.

An alternative set of arguments favour privatisation as a way for governments to intervene when there is market failure. Privatisation is the process whereby there is a change of ownership from the nationalised public sector to the private sector. With the UK leading the way in the mid-1980s, privatisation has been widely applied in many economies. These economies include other high-income countries, emerging economies in central and Eastern Europe and many middle-income countries including China, Malaysia and Pakistan.

There are various perceived benefits of privatisation. It is maintained that breaking up a state monopoly will produce a better, more efficient allocation of resources. Moreover, managers of private companies will be accountable to shareholders. With state ownership, the public have only limited property rights over a nationalised company. It is also believed that costs and consumer prices will be lower due to competition in the market. Not all would agree. It is argued that privatisation can often result in a private monopoly replacing the former public monopoly. There will be few, if any, benefits for consumers. The private monopolist has market power to raise prices and restrict output.

Nationalisation and privatisation in certain situations can correct for market failure. It is difficult to say which is best. Globally, though, there has not been an overwhelming move back to nationalisation. The focus of government policies to control privatised industries has tended to be to use the range of methods of intervention identified in Section 38.1.

ACTIVITY 38.4

In a group, for your own country or for one with which you are familiar:

1. Research examples of industries that have been privatised or nationalised over the last 15 years.
2. For each industry, find evidence to determine whether the change of ownership has been successful. You may be able to allocate one industry to each member of the group.
3. When you have completed your research, discuss your findings in the group, indicating why the change in ownership has not been successful.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Privatisation allows firms a greater freedom to operate in the market; government regulation is invariably necessary to ensure that consumers are not exploited and that social equity is not compromised.

38.3 Government failure in microeconomic intervention

In principle, government policies to correct market failures make economic sense. They increase economic efficiency in markets and are judged to be economically desirable. In practice, however, not all government policies work out as planned. This is known as **government failure**.

Causes and consequences of government failure

There are three main causes of government failure: imperfect information, unintended consequences and policy conflict.

Imperfect information

Once the government starts to intervene in the running of markets, it needs information. The correct policies can only be introduced if governments have the correct information. The problem is that governments may have inaccurate or incomplete information. Consequently, they may introduce policies that lead to economic inefficiency. Some examples of this problem are:

- There is a lack of information about the true cost or value of a negative externality. It is often very difficult to give an accurate figure for the cost of a negative externality, such as air pollution. It is also likely to be difficult to trace the source of the pollution. The problem is that it becomes very difficult to impose the correct value of a tax that attempts to reduce production of a polluting firm, for example. The wrong level of tax will lead to the wrong level of production and an even greater inefficiency in the use of resources.
- A similar example is in the case of road pricing charges. There are many economists who advocate road pricing; but there are few real world examples that economists can draw upon to be certain about what the charge should be. If the charge is set too high or too low then there will be a misallocation of resources.
- Governments may lack information about the consumer demand for a merit good such as free healthcare. This is usually because they have no precedent to draw upon. If the government is providing a product free of charge to the consumer, some estimation of the level of consumer demand is required. This is necessary in order to establish the cost of the intervention. This problem also occurs with the provision of public goods. The government must try to provide the right amount of such goods. If it does not estimate the level of demand accurately, then the wrong amount will be produced or funded; this is another case of an inefficient allocation of resources.

Unintended consequences

A further problem that arises with government intervention is that there can be unintended consequences. These undesirable intentions can create inefficiencies. Some examples of the ways in which this can happen are:

- The imposition of taxes can distort incentives. High marginal rates of income tax can create disincentives for people to work harder and so gain more income. If this happens, then scarce resources are not being used to their best effect and there is inefficiency. Another similar example is where a government pays benefits to unemployed workers. An unintended consequence is that if the benefits paid are too high, there may be no incentive for the unemployed to look for work.
- Politicians are often seen as being motivated by the desire to remain in government. If this is so, then economic policies may be designed by governments to try to retain power rather than to try to ensure maximum economic efficiency. For example, road pricing is a very unpopular tax in the eyes of car users, despite its tremendous potential to reduce congestion and hence correct market failure. It is likely to be avoided due to a government's fears that its introduction could lead to a loss of electoral votes.

Policy conflict

Government intervention in the running of the economy is often justified by the need to reduce inequality. However, it is possible that government intervention might sometimes increase existing inequality. This is simply understood by recognising that the imposition of any tax will have a distributional impact. For example, a tax on energy use that aims to reduce harmful emissions of greenhouse gases will have different effects on different groups of people. If the tax is on domestic fuel, then older members of society may bear the greatest effect as they use proportionately more fuel for heating than others in society. This could be seen as unfair and increasing inequality in society.

It is also possible to see how government failure can occur in the case of subsidies on the costs of fossil fuels. These encourage production and their use in coal-fired power stations, both of which contribute increased environmental pollution. The subsidies might enhance competitiveness of manufacturing industries and keep workers in jobs, but they are completely inconsistent with the need for more sustainable development policies.

When high-income countries pay subsidies to their farmers, this can unwittingly lead to government failure. The effect of the subsidies is to increase the price of agricultural goods to consumers. These agricultural goods could often be bought more cheaply on the world market with lower prices for consumers.

Another example is the case of air transport. Deregulation of markets in the US, EU and in many parts of Asia has seen a large number of new firms enter the market. Fares are very competitive and encourage many more people to travel by air. There are personal benefits for these people; however, there is clear conflict with the need to conserve non-renewable resources and cut back on air transport's emissions of greenhouse gases.

ACTIVITY 38.5

Work in pairs or groups of four. Each member of the group takes one of the examples of government failure below and explains why it is an example of government failure.

1. An underestimation of the benefits of public transport that means only a small subsidy is being provided by the government.
2. The building of a new road that has unclear benefits in an area where the government fears that it could lose votes at the next election.
3. A high tax on health care, which forms a significant part of the budget of many low-income people.
4. A high level of income support benefit that means that people can sometimes have more income by being unemployed.

As a group, consider if there were any common reasons for the government failures.

THINK LIKE AN ECONOMIST

Who owns the train operating companies in the UK?

In March 2020, the UK had 28 different train operating companies, 25 of which were in private ownership. Of these, 19 were owned or part-owned by businesses from outside the UK. These non-UK companies were state-backed or owned by governments in France, Germany, Hong Kong, Italy and the Netherlands.

Figure 38.9: A high-speed train travelling across the UK

1. Discuss whether the UK government should be concerned that this important industry is:
   a. in private ownership
   b. has a majority of its ownership with companies that are based outside the UK.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A factory discharges chemical waste into a nearby river. Marginal social costs (MSC) are greater than marginal private costs (MPC).

The table below shows how costs and revenue for the factory vary with the level of output. Assume that the marginal private benefit is equal to the price (AR) and that there are no consumption externalities.

Output	1	2	3	4	5	6
MC	25	23	25	28	30	35
MSC	35	34	38	40	45	53
AR	55	48	43	40	37	35
MR	55	45	39	34	30	27

What is the difference in output between the profit maximisation and the socially efficient level of output?

A 1

B 3

C 4

D 5

2 Which of these is a valid reason for a green tax to be levied on a polluting industry?

A Customers of the firm will no longer buy the firm's products.

B The polluting firm pays for the pollution that it has caused.

C The level of charge can be easily determined.

D A green tax will lower the level of pollution.

3 Suppose you have been offered two new jobs. Before accepting one of them, you would like to know which one would give you most satisfaction. How might you get this information?

A by buying perfect information

B by buying imperfect information

C by obtaining freely available information

D no information is available

4 Which of these is a reason for a government subsidising goods with consumption externalities?

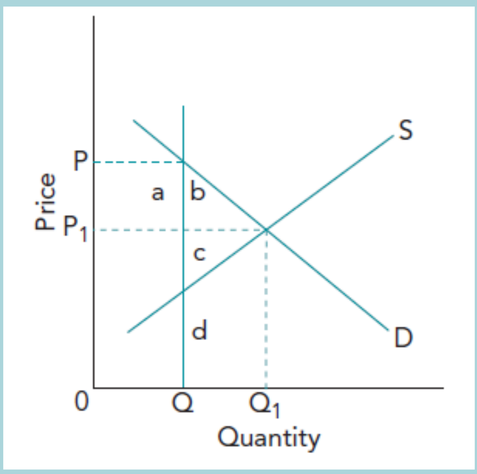
A The government has a budget surplus.

B There are wider economic benefits.

C The consumption of demerit goods will fall.

D The price of merit goods will be reduced.

5 The diagram below shows the supply and demand curves for the car industry in an economy which has restricted output of cars to Q.



If the government removes the output quota, what is the net social welfare gain?

A a

B d

C b + c

D b + c + d

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Evaluate the effectiveness of government policy tools that can be used to correct market failure due to negative production externalities: specific and *ad valorem* indirect taxes, regulations, pollution permits, property rights			
Evaluate the effectiveness of government policy tools that can be used to correct market failure due to negative consumption externalities: specific indirect taxes, price controls, provision of information, production quotas			
Evaluate the effectiveness of government policy tools that may be used to correct market failure due to positive production externalities: subsidies, provision of information			
Evaluate the effectiveness of government policy tools that may be used to correct market failure due to positive consumption externalities: direct provision, subsidies			
Evaluate the effectiveness of other tools to correct market failure: behavioural insights and 'nudge' theory, direct provision of goods and services, nationalisation and privatisation,			
Discuss the causes and consequences of government failure: imperfect information, unintended consequences and policy conflict			

Chapter 39

Equity and redistribution of income and wealth

LEARNING intentions

In this chapter you will learn how to:

- explain the difference between equity and equality
- explain the difference between equity and efficiency
- analyse the distinction between absolute poverty and relative poverty
- describe the poverty trap
- evaluate policies towards equity and equality such as negative income tax, universal benefits and means-tested benefits and universal basic income.

ECONOMICS IN CONTEXT

Indians need to pay more taxes

India is typical of most lower middle-income countries. There is a need for the government to increase its revenue from taxation. Just 2.5% of the population pays income tax. Less than 4% of these taxpayers contribute 60% of the tax revenue; only 4.2% of the population completes a tax return. Although this last figure has increased, there is a rising percentage of the population who are able to prove that they have no taxable income.

Figure 39.1: Paying taxes can help to combat income inequality

The consequence when all taxes are taken into account is that the Indian government's tax revenue is just 17% of GDP. This is about the same percentage as in Burkina Faso and Honduras. India desperately needs more tax revenue to fund new infrastructure projects to keep up momentum of its economic growth; more tax revenue is also required to produce a more equitable distribution of income.

In 2016, the government made a surprise move when it authorised the almost immediate withdrawal of 500 Indian rupee ($7) and 1000 rupee ($14) notes from circulation. People holding these notes could exchange a maximum sum at banks. Known as demonetarisation, it confirmed what most Indians already knew: that some citizens were hoarding huge stocks of currency to avoid paying income tax. Since then, the government has been trying out new ways to make more people file tax returns. One such policy has been to apply spending filters. This policy gives the tax authorities access to household bills and foreign travel expenses as a way to identify high spenders.

The challenge of combating income inequality is a complex issue for the Indian government. With a more efficient tax collection system, a lot more could be done. Raising tax rates is not the solution.

Discuss in a pair or a group:

- In what ways, apart from income tax, might the Indian government get Indians to pay more taxes?
- Discuss some possible ways how an increase in tax revenue might reduce income inequality.

39.1 Equity, equality and efficiency

Equity occurs if a society distributes its resources *fairly* among its people. The distribution could be of income, government benefits and even wealth. Equity has two aspects:

- horizontal equity where consumers and others with the same circumstances should pay the same level of taxation
- vertical equity where taxes should be fairly apportioned between the rich and poor in a society.

Equality is not the same as equity, Equality is about treating *everyone* in the same way. Equality aims to promote fairness, but it can only work if everyone starts from the same position and needs the same help. It is the ideal of everyone being truly equal.

Efficiency was discussed in Section 32.1. It is where scarce resources are being used to produce maximum output. Economic efficiency requires firms to produce at the lowest possible cost; it also applies where firms produce goods and services that are most wanted by consumers. The problem is that markets fail to produce the best allocation of resources and require government intervention to correct for this failure.

Government failure occurs when policies used to promote efficiency do so, but also increase inequality. This situation can be found in markets where there are negative production and consumption externalities. A road pricing charge, for example, will reduce congestion but it increases inequality due to its regressive nature – a person on a low wage driving to work pays the same level of charge as a well-paid executive.

TIP

Learners often confuse equity and equality. Remember that governments have had only limited success over many years in reducing inequality in the distribution of income. They must ensure that the policies applied to reduce inequality are equitable to all of the population.

39.2 Absolute and relative poverty

Poverty exists when families do not have enough money or access to resources to be able to experience a reasonable standard of living. This includes not only having food and housing, but also access to decent education, healthcare, water supply and sanitation. Although global poverty is falling, it is still the case that people born in poverty are much more likely to remain poor. A few may escape the so-called 'cycle of poverty' but these are the exception.

There are various definitions of poverty, economic and more wide ranging. **Extreme poverty** is defined by the World Bank as 'the international poverty line of living on less than $1.90 per day'. Figure 39.2 shows the estimated global population living in extreme poverty forecast to 2030. This date is particularly significant as it is the target date for the UN's Sustainable Development Goal (SDG 1) for eradicating extreme poverty.

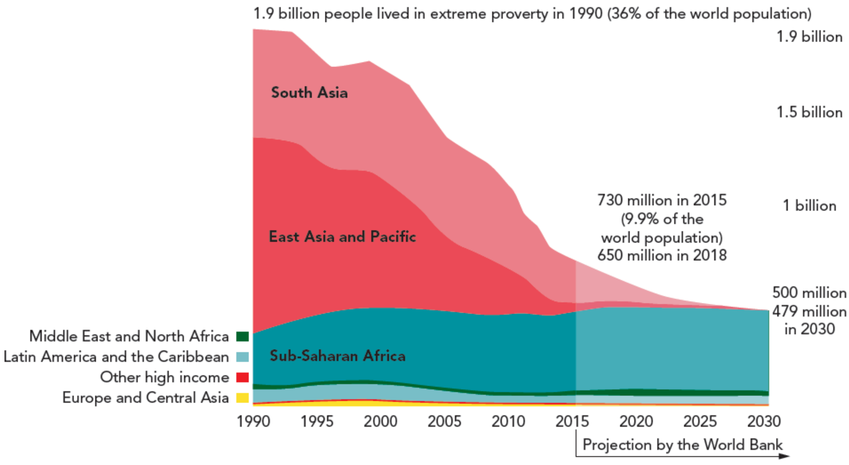


Figure 39.2: The estimated global population living in extreme poverty forecast to 2030

Figure 39.2 shows that the number of people living in extreme poverty has fallen since 1990 and is projected to fall further by 2030. The main reason for the fall is projected economic growth, particularly in China, India, Indonesia, Ethiopia and Ghana. These are all economies where continued economic growth has seen extreme poverty halved over the past twenty years. The biggest problem is that the world's poorest are now concentrated in Sub-Saharan Africa. This concentration is forecast to persist, although substantial reductions are forecast for Kenya and Côte d'Ivoire.

Absolute poverty is defined by economists as being when household income is below a certain level that makes it impossible for a person or family to meet the basic needs of life such as food, housing, water, healthcare and education. In this state of poverty, those affected are unable to benefit from economic growth and rising living standards. They are trapped in a cycle of poverty. It is not possible to put a given global value on the income level of absolute poverty since this varies from one country to another.

Relative poverty, as the term indicates, compares the income of a household with the average income for their country. Typically, where this is 50% or less than the average, the household is said to be in relative poverty. Households have money, but only sufficient to meet basic needs. Their members are not able to enjoy the same standard and quality of life as the rest of the population with incomes above 50% of the average. Access to consumer goods, housing and education is limited by a low income. For a household in this type of poverty, change can come about as family members get jobs or better paid jobs, sometimes due to better education. Economic growth is an important factor that can determine whether a household moves out of relative poverty.

TIP

When writing about poverty, it is good practice to be clear which of the levels of poverty you are writing about as the policies to relieve the poverty will vary.

39.3 Policies towards equity and equality

Section 14.4 provided an analysis of how fiscal policies and state provision can attempt to redistribute income and wealth. Additional fiscal policies are discussed below.

The poverty trap, benefits and universal basic income

One way to redistribute income is to pay benefits out of government spending to those on low incomes. Money raised through the tax system is then paid to low-income persons and families in order to increase their disposable income. There are three types of such benefits:

- **Means-tested benefits**: These benefits are only paid to those on low incomes. They are targeted directly at those who are seen to be most in need. An example would be income support or unemployment benefit. What is available varies between countries. In general, more is likely to be provided in high-income countries since there is a more robust tax base to draw upon. However, such benefits are not always claimed by those for whom they are designed. They can also create a disincentive to work. This is called the **poverty trap** and is where a person or family is financially worse off when one or more of members are working rather than living off the range of benefits available to them. Such a situation can occur where there is a low income tax threshold paired with generous means-tested benefits up to a certain level of income.
- **Universal benefits**: These are paid out to everyone in certain categories, often age-related, regardless of their income or wealth. Examples include universal state pensions and child benefit. Such benefits overcome the two problems associated with means-tested benefits. However, they imply paying out money to many who do not need it and therefore tend to be expensive to operate.
- **Universal basic income**: This is a relatively new form of benefit. It is an unconditional cash payment made at regular intervals by the government, regardless of earnings or employment status. There are just a few examples of where this has been tried and include Brazil, Canada, Finland, Kenya, Namibia and the USA. The principal advantage of this approach is that it reduces poverty and income inequality while encouraging those receiving the benefit to enter or stay in employment. It also recognises the roles of individuals managing families and caring for older people. Critics argue that like transfer payments, universal payments are given to those who do not need them, so depriving others who might need additional assistance.

Negative income tax

Negative income tax is a way of dealing with the weaknesses of means-tested and universal benefits. Under such a tax regime, there would be a flat rate of taxation (say 25%). Every person or family would receive a fixed annual benefit (say $4000). If the tax paid on earnings is less than this annual benefit, then the person will receive the difference from the government. This is why it is called a *negative* income tax. Where the difference is positive, such as with high-income earners, then this is the amount of tax that has to be paid to the government. Economists have long argued for this approach; as yet there are no particular examples due to perceived practical problems of implementation.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: This chapter has shown that there is a growing range of opportunities for governments to achieve greater equality and equity. The reality is that few such opportunities are being applied, mainly due to problems of implementation.

ACTIVITY 39.1

In a radical response to the COVID-19 pandemic, the Hong Kong government gave HK$10 000 ($950) to each resident. In the US, the President sent each American citizen two $1 200 cheques. This so-called 'helicopter money' was not targeted nor means-tested. It is certainly not cheap to implement.

1. Explain the economic rationale that lay behind these payments.
2. Discuss why the payments may not necessarily relieve poverty. Write your answer in the form of a short (around 250 words) article that could be published on the website or in the print copy of a local newspaper.

REFLECTION

It is good to remember that economics is a social science. This chapter covers a range of social issues that are of relevance to economists. How does reflecting on social matters affect your study of economics? Are you able to think of other examples of economics topics where a social focus helps your understanding?

THINK LIKE AN ECONOMIST

The urban water crisis in the global south

Figure 39.3: A water tanker delivers to residents in Karachi

Research from the World Resources Institute found that in 15 major cities in the global south (low and middle-income countries in Africa, Asia, Latin America and the Caribbean), almost half of all households do not have access to piped water. In Karachi, Pakistan, for example, even households that have access to piped water do not always receive a regular supply. In Dar es Salaam, Tanzania, there are good supplies of water, yet daily access to clean, reliable and affordable water is a problem.

In many countries in the global south, households often buy water from the private sector. Not only has this made piped water supplies expensive, it has meant that many residents have had to pay for water at very inflated prices from privately-owned water tankers. In Karachi, for example, one tanker truck of water is 29 times more expensive than piped water.

Many economists argue that water is a social good and should be provided to all who need it as a human right. It should not be controlled by profit-driven businesses in the private sector.

1. How might governments and other organisations, such as UNICEF and the World Health Organization, improve the supply of clean water?
2. How might government provision make clean water more affordable?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 When does a society believe that the distribution of income is fair?

A when all workers receive the same income

B when workers receive what society thinks they are worth

C when everyone has equal job prospects

D when the distribution of income is equitable

2 Which of the following changes in taxation is likely to reduce inequality in the distribution of income?

	Income tax	General sales tax
A	fall	rise
B	fall	no change
C	rise	fall
D	rise	no change

3 Which of these combinations best describes the objectives of a negative income tax policy?

	Distribution of income	Incentive to work
A	more equal	positive
B	more equal	uncertain
C	less equal	positive
D	less equal	uncertain

4 A government is implementing a policy to redistribute income from the richest to the poorest families in the economy. Which combination of government interventions is most likely to achieve this objective?

	Means-tested benefits	Universal benefits	Universal basic income
A	increase	decrease	decrease
B	increase	decrease	increase
C	decrease	increase	decrease
D	decrease	increase	increase

5 Which of these is an unintended consequence of a large increase in means-tested benefits?

A Some people will now have a disincentive to want to work.

B Less funding is available for other areas of government spending.

C Fewer people may pay income tax.

D More families will move out of poverty.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain the difference between equity and equality			
Explain the difference between equity and efficiency			
Explain the difference between absolute poverty and relative poverty			
Understand the significance of the poverty trap			
Evaluate how the government can use additional fiscal policies to attempt to redistribute income and wealth: means-tested and universal benefits, universal basic income, negative income tax			

Chapter 40

Labour market forces and government intervention

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain why the demand for labour is a derived demand
- define the meaning of marginal revenue product (MRP)
- calculate the marginal revenue product of labour and use marginal revenue product to derive an individual firm's demand for labour
- analyse the factors affecting demand for labour in a firm or in an occupation
- analyse the causes of shifts in the demand curve and movements along the demand curve for labour in a firm or in an occupation
- analyse the factors affecting the supply of labour in a firm or in an occupation, including wage and non-wage factors
- analyse the causes of shifts in the supply curve and movements along the supply curve for labour in a firm or in an occupation
- analyse wage determination in perfect markets, including equilibrium wage rate and employment in a labour market
- evaluate wage determination in imperfect markets, including the influence of trade unions, government and monopsony employers
- explain the determinants of wage differentials by labour market forces
- define the meaning of transfer earnings and economic rent
- evaluate the factors that affect transfer earnings and economic rent in an occupation.

ECONOMICS IN CONTEXT

Oman's migrant workers

Oman is one of the six Gulf States – the others are Bahrain, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates. All of these countries have an overriding economic dependence on migrant workers. A migrant worker is any person who moves across an international border in search of a livelihood or a job that will generate income. The objective for most migrant workers is to send money back to their home countries.

As Figure 40.1 shows, 44% of Oman's total population consists of migrants. Migrants make up almost 80% of the total workforce, despite Oman's limited range of industries and services. 87% of migrants work in the private sector.

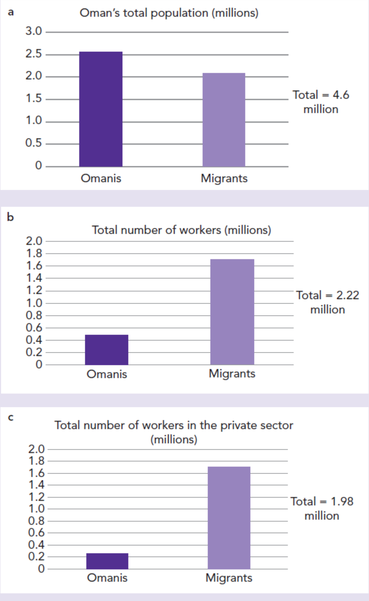


Figure 40.1: Total population of Oman and Oman's migrant workforce: **a** Total population of Oman (millions) **b** Total number of migrant workers (millions) **c** Total number of migrant workers in the private sector (millions)

Today's pattern of migration began during the oil boom of the 1970s when OPEC controlled virtually all of the world's oil supply. The revenue from oil was used to fund infrastructure projects and to modernise Oman's economy. Oman's population was too small and lacked the skills needed to modernise the country. The answer was to recruit more migrant workers, as had occurred earlier in places such as Hong Kong and Singapore.

There are two main types of migrant workers. Most male workers are from South Asia (India, Bangladesh, Pakistan and Sri Lanka), and the majority work in construction and other blue-collar industries and services. Many of the migrant female workers work in domestic service and also originate from Asia. Those working in higher-tech positions are mostly male, and originate from higher income countries.

Discuss in a pair or a group:

- Explain the benefits to Oman's economy of its migrant workforce.
- Discuss the benefits and costs to migrant workers of their employment in Oman.

When you leave school or college, the wage or salary you are paid will be determined largely by what type of job you take. If you took a job as a junior office worker, you would probably earn more than if you became a street cleaner. Equally, if you go on to university and become a teacher, you will get paid more than an office worker. In turn, the manager of a multinational company will probably get paid more than a teacher. So why is it that some workers get paid more than others? Why is it that some people with exceptional talent – for example, footballer Lionel Messi, and actress and singer Fan Bingbing – are so highly paid? The answer to these questions, like many such questions in economics, is that it all depends on supply and demand.

40.1 The demand for labour

Many of the principles introduced in Unit 2 can be applied to the labour market. There is, however, one fundamental difference. The demand for labour is a derived demand. This means that a firm's demand for labour is due to its decision to produce certain goods or services. Labour is therefore demanded not for its own sake, but because it is essential for the production of goods or services. Clerks are employed because they are necessary for a firm to carry out its day-to-day business; the streets need cleaning, therefore street cleaners are employed; young people need education so teachers are required; and firms need managers to meet their corporate objectives. These examples may seem obvious but it does underpin the whole basis of labour economics. A small number of film stars, pop stars and sports personalities have exceptional talents – the demand for their services is high and they can command a high fee for their services.

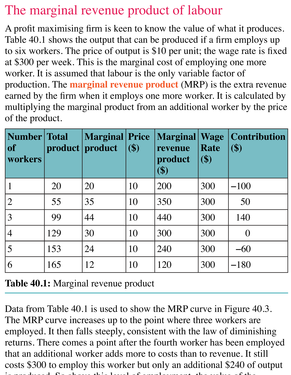


Figure 40.2: An office worker

The marginal revenue product of labour

A profit maximising firm is keen to know the value of what it produces. Table 40.1 shows the output that can be produced if a firm employs up to six workers. The price of output is $10 per unit; the wage rate is fixed at $300 per week. This is the marginal cost of employing one more worker. It is assumed that labour is the only variable factor of production. The **marginal revenue product** (MRP) is the extra revenue earned by the firm when it employs one more worker. It is calculated by multiplying the marginal product from an additional worker by the price of the product.

Number of workers	Total product	Marginal product	Price ($)	Marginal revenue product ($)	Wage Rate ($)	Contribution ($)
1	20	20	10	200	300	–100
2	55	35	10	350	300	50
3	99	44	10	440	300	140
4	129	30	10	300	300	0
5	153	24	10	240	300	–60
6	165	12	10	120	300	–180

Table 40.1: Marginal revenue product

Data from Table 40.1 is used to show the MRP curve in Figure 40.3. The MRP curve increases up to the point where three workers are employed. It then falls steeply, consistent with the law of diminishing returns. There comes a point after the fourth worker has been employed that an additional worker adds more to costs than to revenue. It still costs $300 to employ this worker but only an additional $240 of output is produced. So above this level of employment, the value of the marginal product is less than the wage being paid. This clearly makes no sense to the firm. It can therefore be deduced that the firm should hire workers up to the point where the value of the MRP equals the wage rate that is being paid. This point is where four workers are employed. The MRP curve is therefore the demand curve for labour. Therefore, a firm should continue to hire labour as long as the additional worker adds more to revenue than to the firm's costs.

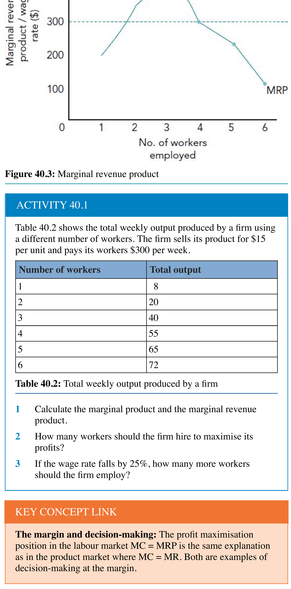


Figure 40.3: Marginal revenue product

ACTIVITY 40.1

Table 40.2 shows the total weekly output produced by a firm using a different number of workers. The firm sells its product for $15 per unit and pays its workers $300 per week.

Number of workers	Total output
1	8
2	20
3	40
4	55
5	65
6	72

Table 40.2: Total weekly output produced by a firm

1. Calculate the marginal product and the marginal revenue product.
2. How many workers should the firm hire to maximise its profits?
3. If the wage rate falls by 25%, how many more workers should the firm employ?

KEY CONCEPT LINK

The margin and decision-making: The profit maximisation position in the labour market MC = MRP is the same explanation as in the product market where MC = MR. Both are examples of decision-making at the margin.

Demand for labour in a firm or in an occupation

The demand for labour by a firm is based on two assumptions:

- The firm wishing to hire labour is operating in a perfectly competitive market. There are many buyers and sellers of labour, and no single firm or worker can affect the wage that is paid.
- The firm is a profit maximiser. Its demand for labour is based on it maximising the difference between total revenue and total costs.

There are three main factors that determine the demand for labour in a firm or in an occupation:

- Wage rate. A wage rate is a type of price. It determines the quantity of labour demanded by a firm. A rise in the wage rate will increase labour costs and is likely to lead to a fall in the quantity of labour demanded by a firm. This is shown in Figure 40.4. At a wage rate of W, the quantity of workers demanded by the firm is Q. When the wage rate increases to W_1, the quantity of workers demanded falls to Q_1. A further increase in the wage rate to W_2 reduces the quantity of workers employed to Q_2. This process is used to derive a firm's demand curve for labour. In Figure 40.4, this is shown for the three different wage rates between z and x.
- Productivity. A change in the marginal productivity of labour affects the position of the demand curve for labour. If workers are more productive, output increases. Labour becomes a more attractive resource for a firm and there is an increase in the firm's demand for workers. If productivity drops then a firm will be forced to employ less labour. The demand curve for labour will shift to the left.
- Demand for the product. Given the derived demand for labour, it follows that a change in demand for a firm's products will affect its demand for labour. When demand for a product is high or is projected to increase, a firm will take on more workers. The demand curve for labour will shift to the right. At a time of downturn in the economy, demand for a firm's products is expected to fall. In this case, the firm's demand for labour will also fall. The demand curve for labour will shift to the left.

TIP

A change in the wage rate is represented by a movement up or down the demand curve for labour; a change in factors such as productivity or demand for a firm's product lead to a shift in the demand curve for labour to the right or left. The principle is the same as for the product market.

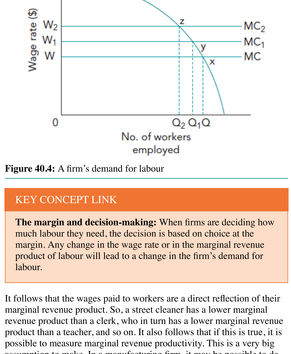


Figure 40.4: A firm's demand for labour

KEY CONCEPT LINK

The margin and decision-making: When firms are deciding how much labour they need, the decision is based on choice at the margin. Any change in the wage rate or in the marginal revenue product of labour will lead to a change in the firm's demand for labour.

It follows that the wages paid to workers are a direct reflection of their marginal revenue product. So, a street cleaner has a lower marginal revenue product than a clerk, who in turn has a lower marginal revenue product than a teacher, and so on. It also follows that if this is true, it is possible to measure marginal revenue productivity. This is a very big assumption to make. In a manufacturing firm, it may be possible to do this, but in many occupations it is not possible to measure marginal revenue productivity. How, for example, can we measure the marginal revenue product of a teacher? The answer is 'With great difficulty'. Therefore, it is necessary to consider the other side of the labour market – that involving the supply of labour – in order to give a fuller explanation of how wages are actually determined.

40.2 The supply of labour

The supply of labour is the total number of hours that labour is able and willing to work for a particular wage rate. The general principles of supply introduced in Section 7.4 apply to the labour market. It should be remembered that the labour market involves people and their willingness to participate (or otherwise) in the labour market. This decision usually depends upon the wage rate that they are offered for their services, although for some workers the wage rate has only a minor influence on their decision of whether to work – other behavioural factors have a stronger influence.

It is useful to consider labour supply at three levels: that of the individual worker, that of a firm or industry and that of the economy as a whole. Different factors affect labour supply depending upon which of these levels is being considered.

The individual's supply of labour

As with any supply, price (or wage in this case) has an important influence on the decision of any individual worker to enter the labour market. If the wage is too low, an individual may determine that it is not worth the effort of going to work and will decide to stay at home. Not many people are in this position – most of us need to work to live. Economic theory assumes that there is a positive relationship between labour supply and the wage rate. So, as the wage rate increases, more people are willing to offer their services to employers. This is represented by the individual's labour supply curve, which mainly slopes upwards (see Figure 40.5).

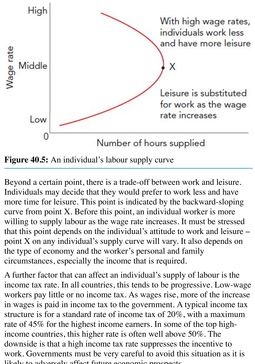


Figure 40.5: An individual's labour supply curve

Beyond a certain point, there is a trade-off between work and leisure. Individuals may decide that they would prefer to work less and have more time for leisure. This point is indicated by the backward-sloping curve from point X. Before this point, an individual worker is more willing to supply labour as the wage rate increases. It must be stressed that this point depends on the individual's attitude to work and leisure – point X on any individual's supply curve may vary. It also depends on the type of economy and the worker's personal and family circumstances, especially the income that is required.

A further factor that can affect an individual's supply of labour is the income tax rate. In all countries, the tax is to be progressive. Low-wage workers pay little or no income tax. As wages rise, more of the increase in wages is paid in income tax to the government. A typical income tax structure is for a standard rate of income tax of 20%, with a maximum rate of 45% for the highest income earners. In some of the top high-income countries, this higher rate is often well above 50%. The downside is that a high income tax rate suppresses the incentive to work. Governments must be very careful to avoid this situation as it is likely to adversely affect future economic prospects.

TIP

Some learners believe that all individuals have a labour supply curve identical to that in Figure 40.5. This is not true. The slope of an individual's labour supply curve depends on the trade-off between wages and the hours that an individual is prepared to work.

Labour supply to a firm or industry

The supply curve of labour to a firm or industry consists of the sum of the individual supply curves of all workers employed in a firm or industry. It is usually upward sloping throughout (see Figure 40.6). As with an individual worker, the number of workers wanting to supply their labour increases with the wage rate that is offered. The slope of this supply curve is measured by the elasticity of supply of labour, the extent to which labour supply responds to a change in the wage rate. Figure 40.6 shows two different supply curves – one inelastic (L_1) and the other (L_2) elastic – with respect to the wages being paid.

There are various reasons for this difference. An obvious one is the skills required to carry out a particular occupation. In general, the more skills required, the more inelastic will be the supply of labour. This argument also applies to the amount of education and training that is required to carry out a particular job. Normally, a teacher has to spend four years after college to obtain the necessary qualifications. This means that the supply of teachers is more inelastic than, for example, to street cleaners where little education or training is required.

The supply curve L_2 in Figure 40.6 is therefore likely to be that for an industry where wages are low and where there is a plentiful supply of labour with no particular skills or training.

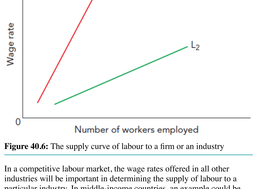


Figure 40.6: The supply curve of labour to a firm or an industry

In a competitive labour market, the wage rates offered in all other industries will be important in determining the supply of labour to a particular industry. In middle-income countries, an example could be the difference between wage rates in agriculture and wage rates in manufacturing or food-processing industries, which usually pay more to their workers.

ACTIVITY 40.2

A firm employs two different types of labour. The supply curves for each are shown in Figure 40.6. The firm is experiencing a shortage of both types of worker. It decides to spend money on retraining unemployed skilled workers and to increase the wage rate for unemployed unskilled workers.

1. With the help of demand and supply diagrams, compare the effects of these policies on the firm's market for each type of worker.
2. In a pair, discuss whether the firm's strategy is likely to be successful.

The long-run supply of labour

The long-run supply of labour is of particular significance for the economy as a whole. There are contrasts between lower middle-income countries and high-income countries, involving wider economic factors. These factors include:

- The size of the population. In some high-income countries, the total population is relatively stable; in others it is increasing at a modest rate mainly due to increasing immigration. In contrast, the populations of Italy and Russia are actually declining quite markedly. With life expectancy increasing, there are relatively fewer people of working age. In contrast, in most low-income and lower middle-income countries, there is an increase in the overall supply of labour mainly due to higher birth rates and improved medical care for young children. Consequently, increasing numbers of young people join the labour market. This means the long-run supply curve for labour shifts to the right, indicating that more workers are willing to supply their labour at a given wage rate.
- The labour participation rate. This term is used to describe the proportion of the population of working age actually in employment. In some high-income countries, workers often choose to leave the labour market by taking 'early retirement'. This is before the normal age for retirement, so reducing the labour participation rate. More students are continuing their studies at university, a further cause of a declining labour participation rate. A reduction in the labour participation rate will shift the long-run labour supply curve to the left.
- The tax and benefits levels. As shown in Figure 40.5, there comes a point where the work–leisure trade-off affects an individual's labour supply. This also affects the supply of labour for the economy, particularly in high-income countries. Governments have to be very careful in their taxation and benefits policies to ensure that the long-run supply of labour is not adversely affected through a reduction in the willingness of people to work. In the UK, the top rate of income tax was reduced from 50% to 45% in 2013 – 20 years earlier it was much more progressive, with marginal tax rates as high as 80% of the increase in income for the highest-paid. In such circumstances, there is clearly a huge incentive for an individual to choose to withdraw from the labour market. The level of unemployment and benefits payments can also affect the long-run supply of labour in a similar way as it can affect an individual's supply of labour. Through their supply-side policies, governments seek to provide incentives for certain types of labour to remain active in the labour market.
- Immigration and emigration. Immigration and emigration affect the long-run supply of labour in an economy. Where there are labour shortages, as was the case in the UK during the late 1950s and early 1960s, migrants moved from Commonwealth countries such as Barbados, Jamaica, Bangladesh, India and Pakistan, often to work in relatively low-pay industries and the public services. This increased the supply of labour. Emigration from these countries, in turn, relieved pressures in their home labour markets. In the past, the UK has faced labour shortages in nursing, teaching and 'high-tech' industries as well as in other skilled manual occupations. Since 2004, the geographical enlargement of the EU has seen a huge influx of around two million migrant workers to the UK. These workers are from the new member states in Central and Eastern Europe. Prior to the UK's withdrawal from the EU, there were around one million Polish workers in the UK. This flow seems likely to fall steeply following the UK's withdrawal.

The above factors determine the long-run supply of labour. Shifts to the left and to the right in the long-run supply of labour are shown in Figure 40.7.

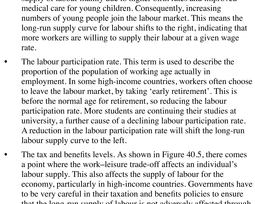


Figure 40.7: Shifts in the long-run supply of labour

In the long run, the supply of labour to a particular firm, as distinct from the economy, is influenced by the net advantages of a job. These include monetary and non-monetary advantages. For most workers, the weekly wage or monthly salary is the most important reason for supplying labour. Other monetary factors that can be considered are bonus payments, opportunities to work longer hours and pension arrangements. Top executives in particular will be attracted to jobs that promise huge bonuses if they are successful. The same can also apply to top sporting professionals.

Non-monetary advantages are numerous and wide ranging. These advantages tend to be taken into account if an individual is considering whether to remain in a particular job or planning a move to a different firm or occupation. Non-monetary advantages include hours of work, job security, holiday entitlement, promotion prospects, location of the workplace, job satisfaction and whether the work can be done from home.

A rational worker is likely to take both types of advantage into account before making a decision on whether to supply labour. For many workers, the non-monetary advantages tend to have a substantial influence on their choice of occupation.

KEY CONCEPT LINK

Time: The long-run supply of labour is essential for an economy's future economic growth. It depends on many factors, not all of which can be easily forecast by economists.

ACTIVITY 40.3

1. With the help of diagrams, explain the effect on a labour market when:

a there is an influx of migrant workers

b a large number of migrant workers return to their home country.

2 In a pair, discuss the costs and benefits to the Polish economy of the labour migration trends referred to above.

40.3 Wage determination in perfect markets

Two important features of the workings of labour markets have now been established.

These are:

- the wage paid to labour equals the value of the marginal product of labour, the marginal revenue product
- the willingness of labour to supply their services to the labour market is dependent upon the wage rate that is being offered.

In some respects, it might seem surprising that the wage can do both of these things at the same time. This is due to how wages are determined in a competitive labour market.

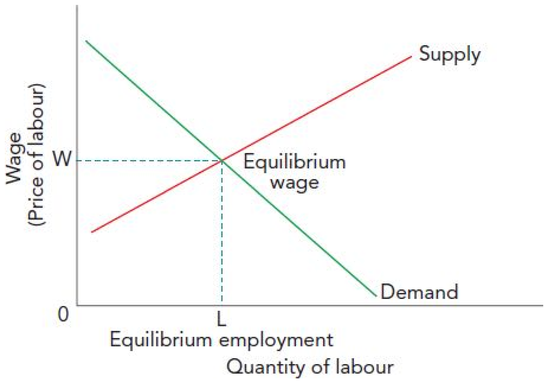


Figure 40.8: Equilibrium in the labour market

The price of labour, the wage, is no different from any other price in so far as it depends on demand and supply. Figure 40.8 shows how the wage and quantity of labour adjust to balance demand and supply. The demand curve reflects the value of the marginal productivity of labour. In equilibrium, workers receive the value of their contribution to the production of goods and services. Each firm therefore purchases labour until the value of the marginal revenue product equals the wage rate. Therefore, the wage paid in the market must equal the value of the marginal revenue product of labour once it has brought demand and supply into equilibrium. The market therefore clears at the equilibrium wage.

The labour market is dynamic like any market – any change in the demand or the supply of labour will change the equilibrium wage. The value of the marginal revenue product of labour will also change by the same amount as, by definition, it must always equal the wage rate.

Take the case of the clothing industry. An increase in the disposable income of consumers in high-income countries will shift the demand curve for clothing to the right, indicating that more will be demanded at any price. In turn, this affects demand for workers producing clothing – this is shown in Figure 40.9 by a shift to the right of the demand curve for labour. The outcome is that the equilibrium wage rises from W to W_1, and employment increases from L to L_1. The change in the wage rate therefore reflects a change in the value of the marginal productivity of labour.

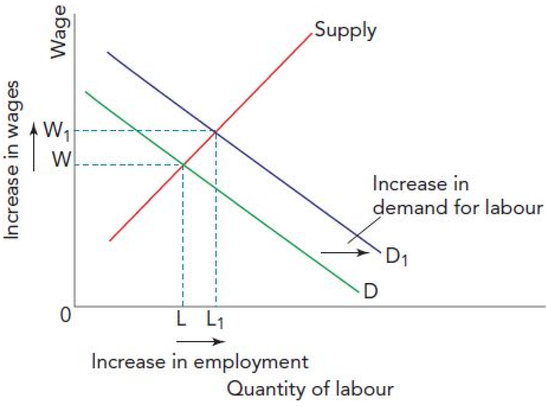


Figure 40.9: Effects of an increase in demand for labour

A change in the labour supply will also affect the market equilibrium. Suppose that there is an increase in the number of migrant workers and that this increases the number of workers who are able to produce clothing. When this happens, the labour supply curve shifts to the right. The increased supply of labour has a downward effect on wages, making it more profitable for firms producing clothing to hire more labour. As the number of workers increases, so their marginal productivity falls, as does the value of their marginal revenue product. The outcome in this case is that wages are reduced for *all* workers, although the level of employment rises. This is shown in Figure 40.10.

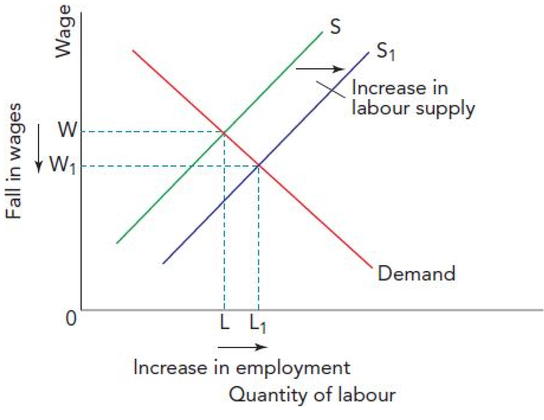


Figure 40.10: Effects of an increase in supply of labour

40.4 Wage determination in imperfect markets

So far, the analysis of how wages are determined has assumed that the respective forces of demand and supply operate freely with no intervention. This is an unrealistic assumption as in many labour markets, the demand and supply of labour are affected by the actions of **trade unions** and governments. Such interventions produce what are sometimes referred to as imperfections in the labour market.

Influence of trade unions on wage determination and employment

Trade unions are organisations that seek to represent labour in their place of work. They were set up and continue to exist because individuals (labour) have very little power to influence conditions of employment, including wages. Through collective bargaining, where trade union representatives get together with employers, trade unions aim to:

- increase the wages of their members
- improve working conditions
- maintain pay differentials between skilled and unskilled workers
- fight job losses
- provide a safe working environment
- secure additional working benefits
- prevent unfair dismissals.

Traditionally, trade unions have been strong in the public sector and most types of manufacturing; trade unions are less important in the service sector. Trade unions are particularly strong in the transport industry and in occupations where specialist skills are required. Trade unions tend to have most bargaining power where labour has specialist skills or is in short supply.

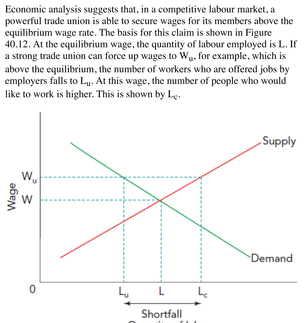


Figure 40.11: Trade union members protesting over job cuts

Economic analysis suggests that, in a competitive labour market, a powerful trade union is able to secure wages for its members above the equilibrium wage rate. The basis for this claim is shown in Figure 40.12. At the equilibrium wage, the quantity of labour employed is L. If a strong trade union can force up wages to W_u, for example, which is above the equilibrium, the number of workers who are offered jobs by employers falls to L_u. At this wage, the number of people who would like to work is higher. This is shown by L_c.

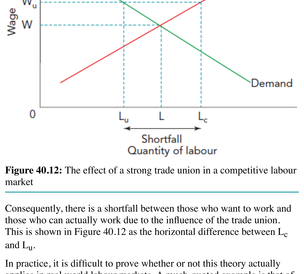


Figure 40.12: The effect of a strong trade union in a competitive labour market

Consequently, there is a shortfall between those who want to work and those who can actually work due to the influence of the trade union. This is shown in Figure 40.12 as the horizontal difference between L_c and L_u.

In practice, it is difficult to prove whether or not this theory actually applies in real world labour markets. A much-quoted example is that of actors in the UK and USA, where there are very strong unions that restrict the numbers able to work in films, television and theatres. The wages of trade union members are supposedly supported in this way. Other examples are likely to be in labour markets where a trade union has a monopoly over workers with a particular type of skill. In many countries, such practices have been made illegal, so restricting their powers to act in this way.

Trade unions that try to behave in this way are accused of playing a dangerous game with employers. The fear is that because of high labour costs and restrictive practices, employers will go out of business or transfer production to countries where wage levels are lower. This threat has been particularly severe for some European and US car manufacturers – production has been switched from France and Germany to other EU countries, such as Czech Republic, Poland, Romania and Slovakia, where labour costs can be as little as one-fifth of those in higher-income countries. Trade unions would appear to have had very little real influence in these circumstances.

Influence of government on wage determination and employment where there is a minimum wage

The labour market has seen explicit government intervention through the introduction of a minimum wage. In the UK, for example, a minimum wage has applied from early 1999 for all workers above the age of 21. Minimum wages have also been adopted in most high-income countries and parts of South America. In the US, each state sets its own minimum wage. There are no examples in Africa and Asia. The aim of a minimum wage is to reduce poverty and the exploitation of workers who have little or no bargaining power with their employers. In particular, many women employed in shops, small businesses and low-skill jobs, such as home working and cleaning, have been paid very low wages. The introduction of a minimum wage has been of particular significance for them.

Whether there should be a minimum wage is controversial. It is argued that the amount of state benefits being paid to low-income families is reduced with the introduction of a minimum wage. There might also be a small increase in tax revenue. Those against a minimum wage are not convinced by these arguments; they believe that jobs are being lost and that other low-paid workers seek increased pay to maintain their differential with the lowest paid. Cost-push inflation can occur when a minimum wage is implemented, affecting the economy as a whole.

The economics of a minimum wage are shown in Figure 40.13. The effect on an industry is particularly dependent upon the elasticities of demand and supply for labour in that industry. Figure 40.13a shows the effects when there is an inelastic demand for labour. The loss of jobs is less than shown in Figure 40.13b where the demand for labour is more wage elastic. In both cases there is an excess supply of labour at the higher minimum wage. This excess is more pronounced in Figure 40.13b where both the demand for and supply of labour are relatively elastic. It can also be seen that the higher the minimum wage rate is set above the competitive equilibrium of $2.50, the greater will be the excess supply of labour willing to work at the minimum wage.

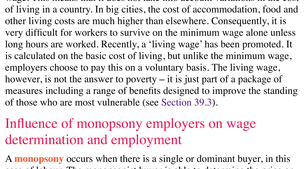


Figure 40.13: The effects of the introduction of a minimum wage

A problem is that sometimes a minimum wage is a national minimum wage. This means that it does not take into account variations in the cost of living in a country. In big cities, the cost of accommodation, food and other living costs are much higher than elsewhere. Consequently, it is very difficult for workers to survive on the minimum wage alone unless long hours are worked. Recently, a 'living wage' has been promoted. It is calculated on the basic cost of living, but unlike the minimum wage, employers choose to pay this on a voluntary basis. The living wage, however, is not the answer to poverty – it is just part of a package of measures including a range of benefits designed to improve the standing of those who are most vulnerable (see Section 39.3).

Influence of monopsony employers on wage determination and employment

A **monopsony** occurs when there is a single or dominant buyer, in this case of labour. The monopsonist buyer is able to determine the price or wage that is paid for the workers who are employed. This is clearly an imperfect market situation.

Figure 40.14 shows how the monopsonist can affect the market equilibrium. The monopsonist will hire workers by equating the marginal cost paid to employ a worker with the marginal revenue product gained from this employment. This is the profit-maximising position. The wage that the monopsonist pays to hire labour is W_m. This wage rate is below what the employer should pay if workers are paid the full value of their marginal revenue product, W_{mrp}. The level of employment is L_m.

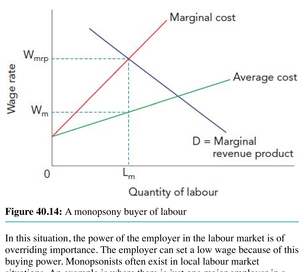


Figure 40.14: A monopsony buyer of labour

In this situation, the power of the employer in the labour market is of overriding importance. The employer can set a low wage because of this buying power. Monopsonists often exist in local labour market situations. An example is where there is just one major employer in a town or where workers may be employed in an extractive industry located well away from where they normally live. In this way, the employer dominates the labour market, setting down wages and all other conditions of employment.

40.5 Wage differentials

It is very clear that in any economy there are differences in wages between occupations. An airline pilot, for example, will be paid more than a cabin attendant; in turn the cabin attendant will be paid more than the worker who cleans the cabin after a flight. **Wage differentials** occur between industries, between firms in the same industry and between different regions of a country. To some extent, wage differences can be explained in terms of demand and supply. An occupation that is in high demand and low supply will pay a higher wage rate than one where there is an abundant supply of workers.

As well as the market forces of demand and supply, other causes of wage differentials are:

- Bargaining strength. Most airline pilots are likely to be members of a strong professional organisation or trade union. Any industrial action by pilots would have a substantial impact on an airline's revenue and future viability. To some extent, this could apply to cabin attendants. However, cleaners have little or no bargaining power and can easily be replaced.
- Education and training. Some occupations, especially those in healthcare, legal services and teaching, require workers to undergo a long period of training. It is only fair that this is reflected in the differential in pay compared to other occupations where this is not a requirement.
- Skilled and unskilled workers. Skilled workers are likely to be paid more than unskilled workers because demand for skilled workers is higher and their supply is often less. The MRP of skilled workers is higher because the skills they possess will lead to higher output per worker. It is also more difficult to substitute skilled workers with capital equipment, such as machinery. This substitution is more feasible where the work tasks are repetitive and are done by unskilled workers.
- Male and female workers. Despite equal pay legislation in many countries, men are still paid more than women in many occupations. A plausible explanation is that on average the MRP of women is lower than that of men. The MRP is lower because there are more women in low-paid occupations that generate low marginal revenue to a firm.
- Hours of work. Part-time workers on average are paid lower wage rates than full-time workers. One reason is that there is usually a large pool of part-time workers in a local labour market. Many part-time workers are women.
- Government policy. There are many examples of how government policy indirectly influences occupational choice. In many high-income countries, there is a shortage of healthcare workers, often due to an ageing population. Governments try to recruit more doctors and nurses to fill in for the increased demand for such professionals. This shortage of supply widens the differential between these workers and others in similar occupations. The minimum wage, referred to earlier, can reduce wage differentials for low paid workers.

40.6 Transfer earnings and economic rent

In the introduction to this chapter, the question was asked: 'Why is it that some people with exceptional talent are so highly paid?'

The answer is in part the same as to why a teacher is paid more than a street cleaner – supply and demand. In order to explain why differences in earnings occur, economists find it useful to split earnings into two elements:

- **transfer earnings**: this is the minimum payment necessary to keep labour in its present use.
- **economic rent**: any payment to labour which is over and above transfer earnings.

Transfer earnings and economic rent are shown in Figure 40.15(a). Transfer earnings are indicated by the area under the labour supply curve which is upward sloping. Although the equilibrium wage is W, at wage rates below this there are workers who are willing to offer their services to employers. In fact, at any wage rate from zero upwards, workers will join the labour market, until at wage W, L quantity of labour is available. In all cases up to W, the wage that a worker receives is their best alternative. For those workers willing to work for less than W, then any wages they get over and above what they will accept is their economic rent. This is shown by the triangular area in Figure 40.15(a).

Different workers receive different amounts of transfer earnings and economic rent even in the same job. Take a bus driver as an example. Some people are very willing to drive buses for a low wage. These workers have low transfer earnings and some economic rent. Other workers will be attracted only by the equilibrium wage paid to bus drivers. These workers have no economic rent; the wage consists only of transfer payments.

The case of superstars can be explained using Figure 40.15(b). Such people have a scarce unique talent. Their labour supply curve is perfectly inelastic; their earnings consist entirely of economic rent. In contrast, workers with a perfectly elastic supply, such as many unskilled workers and others in menial jobs, have no economic rent as their earnings consist entirely of transfer earnings. Employers can hire an infinite supply of labour at the market wage W. This situation is shown in Figure 40.15(c).

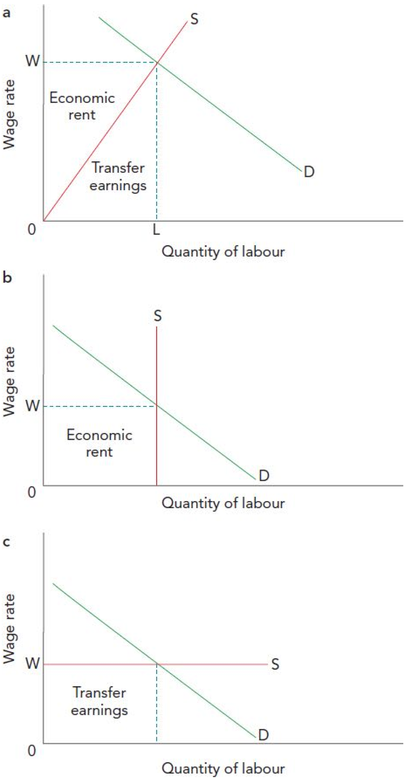


Figure 40.15: Transfer earnings and economic rent in the labour market

ACTIVITY 40.4

The top earning Premier League footballers earn millions of dollars a year. The equivalent female footballers earn around $60 000 a year.

Use the concepts of transfer earnings and economic rent to explain this difference.

See if you can find any data to enhance the quality of your explanation.

REFLECTION

This chapter is the final one in the microeconomics section of the coursebook. It is now a good time to reflect on what you feel are the main differences between the study of microeconomics at AS Level and A Level. How has your understanding of the content developed? Think about what you can do to improve your understanding. What additional help might you need?

THINK LIKE AN ECONOMIST

What can be done to reduce skill shortages?

Skill shortages are a growing problem for employers. The scale of the problem varies between countries as Figure 40.16 shows.

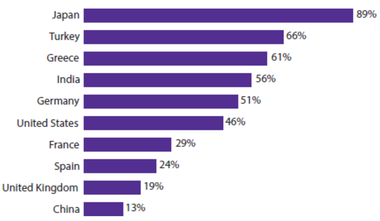


Figure 40.16: Percentage of firms with skills shortages in selected countries, 2018

The skill shortage in Japanese companies is particularly serious given Japan's poor economic performance over many years. In 2018, 89% of companies believed that their businesses had been adversely affected by skill shortages. The nature of work has changed; there is a need for workers with improved technological skills. In Japan, this is only one part of the problem – a fast ageing population and a decline in the size of the workforce have exaggerated the problem that Japanese companies are facing.

In contrast, skill shortages in China have halved since the previous survey in 2014.

1. Why should employers and governments be concerned about skill shortages?
2. Think about your own country – what skill shortages are there? How might these shortages be overcome?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 In a competitive market, the demand curve for labour is given by which of the following?

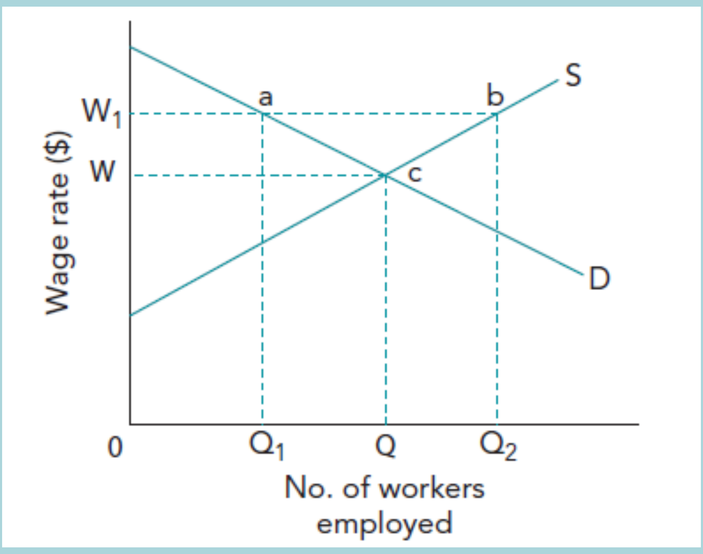
A marginal cost

B marginal physical product

C total revenue product

D marginal revenue product

2 The equilibrium wage rate in a market is W. A trade union has negotiated a higher wage rate of W_1 with an employer. Which of these is the new supply curve for labour?



A DcbS

B QcbS

C W_1abS

D Q_1ab

3 A minimum wage above the equilibrium wage rate has been introduced in an economy. Which of these is the most likely effect on the economy's labour market?

A All workers who were employed before the introduction of the minimum wage will be employed.

B There will be fewer jobs for those who were paid at the former equilibrium wage rate.

C There will be more jobs for those who were paid at the former equilibrium wage rate.

D More workers will withdraw from the labour market and claim benefits.

4 Which of these describes the effect of a monopsony buyer of labour compared to a competitive labour market?

	Quantity of labour employed	Wage rate
A	higher	higher
B	higher	lower
C	lower	higher
D	lower	lower

5 Which of these is a definition of the transfer earnings paid to labour?

A the minimum payment needed to keep a worker in present employment

B the first week's wage when a worker starts a new job

C the reward for an entrepreneur setting up a new business

D a payment that is made above what is necessary to keep a worker in current employment

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain why the demand for labour is a derived demand			
Understand that the marginal revenue product of labour (MRP) is the extra revenue earned by the firm when it employs one more worker			
Calculate the MRP of a firm and use MRP to derive a firm's demand for labour			
Analyse the factors affecting the demand for labour in a firm or occupation: wage rate, productivity, demand for product			
Analyse the causes of shifts in the demand curve and movements along the demand curve for labour in a firm or in an occupation			
Analyse the factors affecting the supply of labour in a firm or occupation: wage rate and other non-monetary factors			
Analyse the causes of shifts in the supply curve and movements along the supply curve for labour in a firm or in an occupation			
Analyse wage determination in perfect markets: equilibrium wage rate, employment in a labour market			
Analyse the influence of trade unions, government and monopsony employers on wage determination and employment in imperfect markets			
Define the meaning of transfer earnings and economic rent			
Evaluate the factors that influence transfer earnings and economic rent in an occupation			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 First steps towards the privatisation of India's railways

Indian Railways (IR) is a huge undertaking. It employs 1.3m people and is the eighth largest employer in India. The IR network carries 23m passengers a day, 55% of whom travel on suburban trains. These passengers contribute just over 5% of total revenue. IR's passenger services are loss-making: a massive $5bn in 2019. Freight services do generate revenue for IR but their market share has been falling due to the expansion of road freight services. IR urgently needs to further upgrade and expand the rail network. The system is clogged, with 80% of the traffic concentrated on 40% of the network. Most of the track, signalling and rolling stock need to be replaced.

It is against this background that the Indian government is pressing ahead with its plans for privatisation. In doing this though the government has made it clear that full privatisation is not on the agenda; instead it is hoping for partial privatisation to give the railways a makeover. The first step is to allow private companies to run passenger trains on 100 routes that link cities. These routes include Delhi to Mumbai, Delhi to Kolkata and Bengaluru to Chennai.

The privatisation plans are designed to attract private domestic and foreign investment. The plans come with a warning: there is a danger that low-income groups will be compromised through higher fares that are likely to be demanded by private investors offering better services for those who are prepared to pay a higher fare. These investors will undoubtedly be seeking a reasonable return on their investment.

IR's plans are not supported by all. The trade unions are against the very idea of private sector involvement. More specifically, they are against a plan to split IR's manufacturing plants from the rest of the business; this is seen as preparation for privatisation. There is also opposition from some economists. The root of this opposition is the traditional natural monopoly argument which supports the idea of just one company, private or public sector, running the railways. In India's case this argument is enhanced by the wider social and economic benefits that come from the railways. Perhaps the government has made the right decision in taking one step at a time.

a Explain the natural monopoly case for restricting ownership of a railway to just one firm. **[4]**

b Explain the advantages of the partial privatisation to Indian Railways and to the Indian government. **[4]**

c Consider whether it is good for Indian Railways to face more competition. **[5]**

d Discuss whether the annual subsidy paid to Indian Railways should be reduced. **[7]**

Essays

2 Evaluate the view that policies used to reduce income and wealth inequality in high-income countries are unlikely to be effective in other countries. **[20]**

3 Assess how the payment of a minimum wage is indicative of an imperfect labour market and whether a national minimum wage benefits those who receive it. **[20]**

Unit 9

The macroeconomy (A Level)

UNIT INTRODUCTION

In this unit, you will examine further some of the topics covered in Unit 4 and you will be introduced to new topics. You will examine why changes in spending can lead to larger changes in aggregate demand and why an economy can operate below or above its full capacity level of output. You will look at why economies may experience fluctuations in economic activity and consider whether economic growth benefits everyone in the country. You will explore the nature of employment and the policies a government can use to reduce the number of workers without jobs. Finally, you will investigate the role of money and banking and the policies a government can use to reduce inflation.

Chapter 41

The circular flow of income

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the meaning of the multiplier
- calculate the multiplier using formulae in a closed economy without a government sector, a closed economy with a government sector and an open economy with a government sector
- calculate the average and marginal propensities to save, consume and import
- calculate the average and marginal rates of tax
- analyse how national income is determined, using aggregate demand and income approach
- calculate the effect of changing aggregate demand on national income using the multiplier
- describe the determinants of aggregate demand
- explain the consumption function: autonomous and induced consumer expenditure
- explain the savings function: autonomous and induced savings
- explain the determinants of investment
- explain the difference between autonomous and induced investment
- explain the meaning of the accelerator
- analyse the determinants of government spending
- describe the determinants of net exports
- explain the relationship between the full employment level of national income and the equilibrium level of national income
- analyse inflationary and deflationary gaps.

ECONOMICS IN CONTEXT

The recovery of Puerto Rico

Puerto Rico is a Caribbean island with a population of 3.5 million. In September 2017, Hurricane Maria caused widespread devastation and loss of life. Most of the island's houses and much of its infrastructure were seriously damaged.

Figure 41.1: The devastation caused by Hurricane Maria

By 2019, the economy of the island was improving. Electricity had been largely restored and most of the schools, hospitals and firms were working again. In 2019, the island's firms spent $160m on investment, a rise of $110m on the year before. The higher investment first created jobs in firms making capital goods. Those owning and working in the capital goods firms then spent more on consumer goods, creating even more jobs, incomes and spending. Employment rose by nearly 7000 and the unemployment rate fell to 8%, the lowest rate for more than 70 years.

Economists estimated that the $160m spending on investment resulted in a final rise in spending of $240m. Figure 41.2 shows the stages of the rise in spending on domestically produced products that occurred.

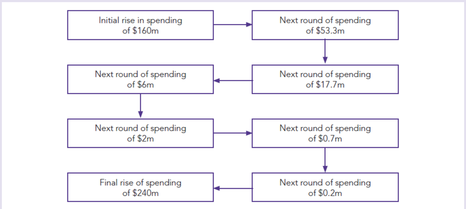


Figure 41.2: How a rise in spending leads to a greater final rise in spending

Discuss in a pair or a group:

- Investment is an injection into the circular flow of income. What are the other two injections?
- Why might improvements in infrastructure encourage firms to invest more?
- Why does a rise in spending come to an end?

41.1 The multiplier

The **multiplier** shows the relationship between an initial change in spending and the final rise in GDP. The multiplier is also known as the national income multiplier. The multiplier effect occurs because a rise in expenditure will create incomes, some of which will, in turn, be spent and thereby will create more incomes. For example, if people spend 80% of any extra income, an increase of government spending of $20 billion will cause a final rise in GDP of $100 billion. This is because the initial $20 billion spent will create higher incomes. People will spend $16 billion of these extra incomes, thereby generating a further rise of incomes. Of the $16 billion, $12.8 billion will be spent. This process will continue until incomes increase to $100 billion and the change in injections is matched by the change in withdrawals:

$$\text{multiplier}: \frac{\text{change in income}}{\text{change in injection}} = \frac{\Delta Y}{\Delta J}$$

In the example above, GDP rises until the $20 billion of extra government spending is matched by withdrawals of $20 billion. The value of the multiplier is calculated after the injection. In this example, the multiplier is $\frac{\$100\text{bn}}{\$20\text{bn}} = 5$ The multiplier can also be estimated in advance of the change by using the formula:

$$\text{multiplier}: \frac{1}{\text{marginal propensity to withdraw}}$$

KEY CONCEPT LINK

Equilibrium and disequilibrium: The greater the size of the multiplier, the greater the change in national income as a result of an injection.

The multiplier and equilibrium national income in a closed economy, a closed economy with a government sector and an open economy with a government sector

As seen with the circular flow, economists often seek to explain their analysis first in a simplified model and then go on to include more variables. This is also the case with the multiplier where economists start with a simple model of the economy, which only includes two sectors, and then move on to a model that includes three sectors and then finally one that includes all four sectors.

Closed economy

In a closed economy, there are two sectors: households and firms. There is only one withdrawal (saving) (S) and one injection (investment). In such an economy, the multiplier can be found by using the formula:

$$\frac{1}{\text{mpc}}$$

where mps is the **marginal propensity to save**. It can also be calculated by using the formula:

$$\frac{1}{1 - \text{mpc}}$$

where mpc is the **marginal propensity to consume**, that is the proportion of extra income that is spent:

$$\text{mpc}: \frac{\text{change in consumption}}{\text{change in income}} = \frac{\Delta C}{\Delta Y}$$

It can also be found by 1 – mps.

This is because in this model, income is either spent or saved. For example, if a person receives an extra £100 of income and spends £70, mpc will be 0.7 and mps will be 1 – 0.7 = 0.3. Equilibrium income will occur where **aggregate expenditure** equals output, which in this case is where C + I = Y and injections equal withdrawals, I = S.

Closed economy with a government sector

The additional sector in this model is the government. This gives an extra injection, G (government spending) and an extra withdrawal, T (taxation). The multiplier is now:

$$\frac{1}{\text{mps} + \text{mrt}}$$

where mrt is the marginal rate of tax (the proportion of extra income which is taxed). This is also sometimes called the marginal propensity to tax. Equilibrium income is achieved where aggregate expenditure equals output, C + I + G = Y and injections equals withdrawals, I + G = S + T.

Open economy with a government sector

This is the most realistic model as it includes all four possible sectors (households, firms, the government and the foreign trade sector) and is an open economy. Again, equilibrium income is where aggregate expenditure equals output, but this is now where C + I + G + (X – M) = Y, and injections equal withdrawals, which is now where I + G + X = S + T + M. The full multiplier is:

$$\frac{1}{\text{mps} + \text{mrt} + \text{mpm}}$$

where mpm is the **marginal propensity to import** (the proportion of extra income that is spent on imports).

Having three proportions to withdraw is likely to mean that the multiplier will be smaller in this model. There will, however, be three injections and so more opportunities for GDP to change.

KEY CONCEPT LINK

The margin and decision making: The multiplier is calculated using marginal concepts which can change over time. For example, if the government raises the marginal rate of tax, the size of the multiplier will fall.

TIP

In giving a numerical example of the multiplier, keep the figures simple, for example an mps of 0.2 rather than 0.235. You need to show your understanding of the concept rather than your ability to manipulate difficult figures.

ACTIVITY 41.1

1 In an economy, mps is 0.2, mrt is 0.1 and mpm is 0.2. GDP is $300 billion. The government raises its spending by $66 billion in a bid to close a deflationary gap of $200 billion. Calculate:

a the value of the multiplier

b the increase in GDP

c whether the injection of extra government spending is sufficient, too high or too low to close the deflationary gap.

Compare your answers with another learner.

The average and marginal propensities to save

When an individual or a country has a low income, most if not all disposable income has to be spent to meet current needs. Indeed, **consumption** may exceed income with people or countries drawing on past savings or borrowing. This situation can be referred to as dissaving. However, when income rises, some of it can be saved. Saving is defined as disposable income minus consumption. The average propensity to save (aps) is the proportion of disposable income which is saved and is equal to 1 minus apc.

$$\text{aps}: \frac{\text{saving}}{\text{income}} = \frac{S}{Y}$$

As income rises, the actual amount saved and aps tend to increase. The rich usually have a higher aps than those with low incomes. It is possible to calculate the marginal propensity to save (mps).

$$\text{mps}: \frac{\text{change in saving}}{\text{change in income}} = \frac{\Delta S}{\Delta Y}$$

Again, as income rises, mps also tends to increase. If a rich person receives a rise in disposable income of $50 a week, the person may save a relatively high proportion of the extra income.

The average and marginal propensities to consume

The main influence on consumption is the level of disposable income. When income rises, total spending also usually rises with the rich spending more than those on low incomes. However, while total spending rises with income, the proportion of disposable income that is spent tends to fall. Economists refer to this proportion as the **average propensity to consume (apc)**:

$$\text{apc}: \frac{\text{consumption}}{\text{income}} = \frac{C}{Y}$$

As people and countries can either spend or save their income, apc is equal to 1 minus aps. The rich also have a lower marginal propensity to consume (mpc) and a higher marginal propensity to save (mps) than those with a low income. The mpc is the proportion of extra income which is spent.

The average and marginal rates of tax

The average and marginal rate to tax are often referred to as the average and marginal tax rate. The average rate of tax (art) is the proportion of income taken in tax:

$$\text{art}: \frac{T}{Y}$$

The marginal rate of tax (mrt) is the proportion of extra income that is paid in tax:

$$\text{mrt}: \frac{\Delta T}{\Delta Y}$$

The average and marginal propensities to import

The **average propensity to import** is the proportion of income spent on imports. This can vary quite significantly between countries. For instance, in 2018, people in the UK spent $630bn on imports out of a national income of $3200bn. This gave an apm of 0.23. In contrast, Brazil had an apm of 0.08 with Brazilians spending $1155 billion on imports out of a national income of $2000bn.

The marginal propensity to import also varies between countries and over time. It is calculated by dividing the change in spending on imports by the change in income:

$$\text{mpm}: \frac{\Delta M}{\Delta Y}$$

TIP

In answering questions, be careful to avoid confusing average and marginal propensities. Remember that marginal propensities are used in calculating the multiplier.

ACTIVITY 41.2

In a pair, produce five cards. On each card, state a different mps, mrt and mpm. In each case, ask other learners to calculate the multiplier, how much GDP would increase if there is an injection of $100m and how much saving will rise. Ask pairs or groups to select a card to undertake the calculations. Check their answers. When you are happy they are correct, ask them to write up their answers on a flipchart to the second and third questions. On the basis of these answers, ask the rest of the group what the multiplier and mps must be.

National income determination

The level of national income in an economy is determined where aggregate demand equals aggregate supply. This is also where **aggregate expenditure** is equal to output. Aggregate expenditure is the total amount that will be spent at different levels of GDP in a given time period. It is made up of consumption (C), investment (I), government spending (G) and net exports; that is, exports minus imports (X – M).

If aggregate expenditure exceeds current output, firms will seek to produce more. They will employ more factors of production and GDP will rise. Whereas if aggregate expenditure is below current output, firms will reduce production. So, output will change until it matches expenditure as shown in Figure 41.3.

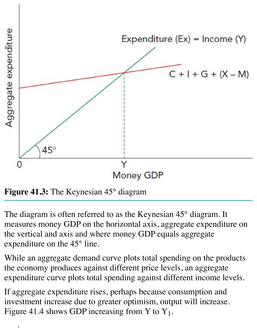


Figure 41.3: The Keynesian 45° diagram

The diagram is often referred to as the Keynesian 45° diagram. It measures money GDP on the horizontal axis, aggregate expenditure on the vertical and axis and where money GDP equals aggregate expenditure on the 45° line.

While an aggregate demand curve plots total spending on the products the economy produces against different price levels, an aggregate expenditure curve plots total spending against different income levels.

If aggregate expenditure rises, perhaps because consumption and investment increase due to greater optimism, output will increase. Figure 41.4 shows GDP increasing from Y to Y_1.

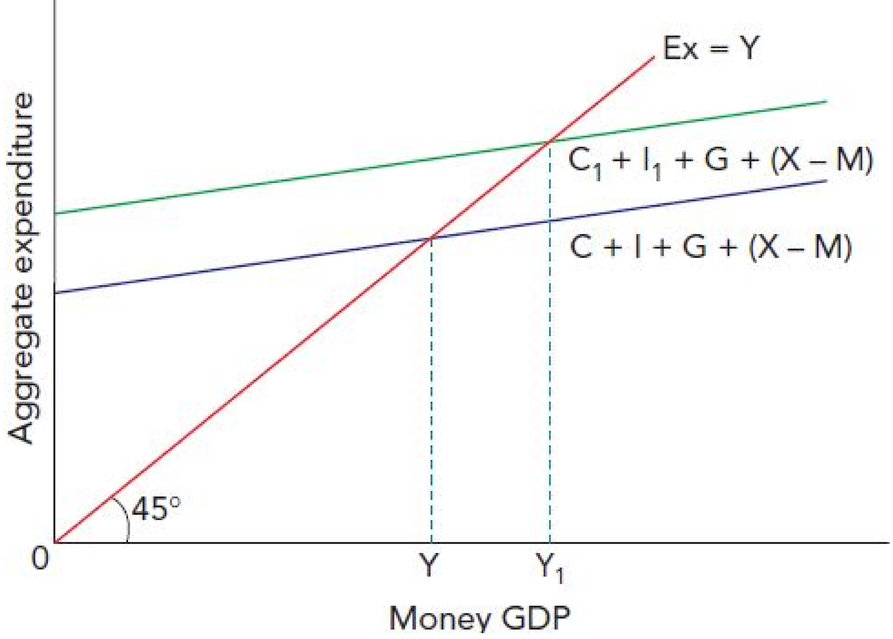


Figure 41.4: Impact of a rise in aggregate expenditure

TIP

Remember that, while an aggregate demand curve shows total spending at different price levels, an aggregate expenditure curve shows total spending at different income levels.

The effect of changing aggregate demand on national income

A change in the total spending on a country's goods and services will result in national income changing by the size of the injection times the multiplier. For example, if government spending rises by $500m and the multiplier is 2.5, national income will rise by $1250m. The rise occurs in stages, with those who receive higher incomes from the increase in government spending purchasing goods and services from others. These other people who, in turn, gain more income will spend more and so on until leakages from the circular flow equal the initial injection. Figure 41.5 shows how a rise in AD results in a final multiple increase in AD.

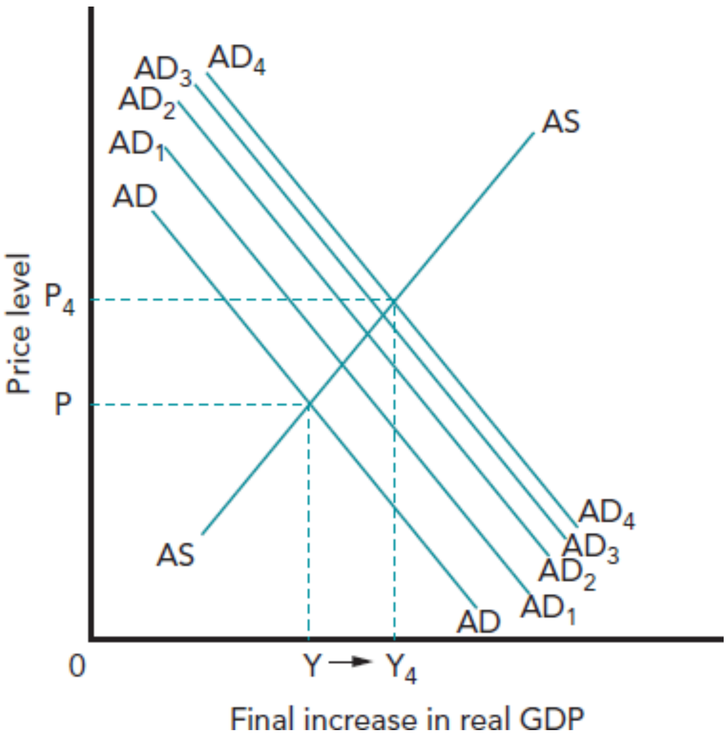


Figure 41.5: A rise in AD results in a final multiple increase in AD

A rise in saving will cause GDP to fall. Indeed, a decision by households to save more can actually result in them saving less. This is because higher saving can reduce income and hence the ability of households to save.

41.2 Components of aggregate demand and their determinants

As explained in Section 17.3, there is a range of influences on how much households spend. The main influence is usually income and this is why economists study it in depth. The rate of interest can affect how much households spend. A rise in the rate of interest will increase the opportunity cost of spending as households would now gain more by saving. Fewer expensive goods and services, for example cars and foreign holidays, may be purchased as borrowing will be more expensive. Households may not be able to borrow as much if commercial banks reduce the amount they are willing to lend. Expectations can play a role almost as important as income. If households think their income will rise in the future, they may adjust their spending now. Households are likely to spend more if they become wealthier. They can sell some of their assets to purchase, for example, a car. They can also use their wealth as security for repayment of a loan. The distribution of income also influences consumption. If income becomes more unevenly distributed, consumption may fall as the rich spend a smaller proportion of their income.

The consumption function: autonomous and induced consumer expenditure

The relationship between consumption and income and saving and income can also be investigated by using the consumption function. The **consumption function** indicates how much will be spent at different levels of income. It is given by the equation: C = a + bY, where C is consumption, a is autonomous consumption (that is the amount spent even when income is zero and which does not vary with income), b is the marginal propensity to consume and Y is disposable income. bY can also be defined as induced consumption because it is spending that is dependent on income. For example, if C = \$100 + 0.8Y and income is \$1000, the amount spent will be \$100 + 0.8 × £1000 = \$900.

ACTIVITY 41.3

Figure 41.6: A shopper in a department store in Mumbai

India's economic growth rate has fluctuated in recent years. In 2018, it was 8%, but in 2019, it had fallen to 4.8%. The main reason for this was a slowdown in the growth of consumption. Indian households' confidence was not as strong in 2019 as in 2018. The Indian government hoped that consumption would rise more rapidly in the future.

1. In a group, suggest four reasons, apart from an increase in confidence, why consumption may rise in your country in the future. Make these reasons specific. For instance, a specific reason why consumer confidence may rise is a fall in unemployment.
2. Produce a wall chart to show the reasons you have identified. Leave space on the wall chart where you can review whether the possible changes you have identified have occurred.

The savings function: autonomous and induced saving

The **savings function** is, in effect, the reverse of the consumption function and is given by the equation: S = –a + sY, where S is saving, s is the marginal propensity to save, Y is income and a is autonomous dissaving (that is, how much of their savings people will draw on when their income is zero; this amount does not change as income changes). sY is induced saving (that is, saving that is determined by the level of income). The saving function can be used to work out how much and what proportion households will save at different income levels. For example, if S = –\$200 + 0.2 × \$4000 = \$600.

The average propensity to save will be $\frac{\$\,600}{\$\,4000} = 0.15$.

This will also mean that apc = 1 – 0.15 = 0.85.

TIP

Be careful not to confuse saving and investment. Saving is a leakage and is income that is not spent now but is set aside for future use. Investment, in contrast, is an injection and is spending on capital goods.

Investment, autonomous and induced investment

As discussed in Section 17.3, investment is influenced by changes in income and so consumer demand, the rate of interest, technology, the cost of capital goods, expectations and government policy. Investment can alter quickly and by significant amounts. Change in consumer demand is a very important influence on investment. Firms buy capital goods in order to produce goods and services. If households are buying more consumer goods, firms are likely to want to expand their output and they may need more capital goods to do this.

The rate of interest influences investment in a number of ways. A higher interest rate may discourage investment. Firms will find it more expensive to borrow to buy capital goods. They may get a higher return from saving any funds they have instead of using them to buy capital goods. In addition, a higher interest rate is likely to reduce consumer expenditure and so the profits that can be earned.

Advances in technology introduce new products and new capital goods which have higher productivity. Such changes encourage firms to buy new machines. In contrast, a rise in the price of capital goods is likely to reduce investment.

Expectations are a key influence on investment and a major reason why investment is unstable. If there is, for instance, a report from a well-respected source that there will be a recession, firms may cut their spending on capital goods by a significant amount.

Government policy can influence investment in a number of ways. As well as changing the rate of corporate tax and giving subsidies, the government could cut income tax. This would increase disposable income, which is likely to encourage people to spend more which can encourage firms to expand their output.

Investment that is undertaken independently of changes in income is known as **autonomous investment**. For example, a firm may buy more capital goods because it is more optimistic about the future or because the rate of interest has fallen. In this case, the aggregate expenditure line will shift upwards as shown in Figure 41.7.

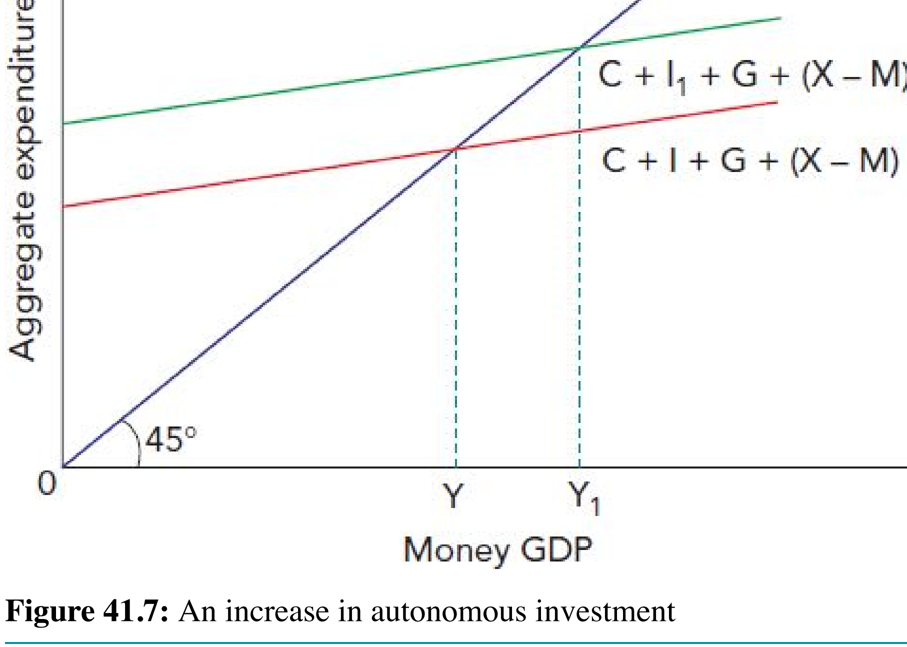


Figure 41.7: An increase in autonomous investment

As a result of an increase in investment from I to I_1, GDP rises by a multiple amount from Y to Y_1.

In contrast to autonomous investment, **induced investment** is illustrated by a movement along the expenditure line. This is because induced investment is investment that is influenced by changes in income. If income and hence demand increases, firms will be likely to buy more capital equipment. However, they will only continue to add to their capital stock if GDP continues to rise.

ACTIVITY 41.4

In pairs, assume you are senior executives in a major manufacturing firm in your country. Research changes that have occurred in your country in the last year and are forecast to occur in the next five years that may affect your firm. Give a presentation to the rest of the class on whether you would increase investment, keep investment at the same level or reduce it.

REFLECTION

How do you think the decision you made in Activity 41.4 would have differed if you had selected a firm in a different industry? How did having to make a decision, and needing to justify your decision to others, help you assess the influences on investment?

The accelerator

The **accelerator theory** focuses on induced investment and emphasises the volatility of investment. It states that investment depends on the rate of changes in income (and therefore consumer demand), and that a change in GDP will cause a greater proportionate change in investment. If a \$1 million increase in GDP causes induced investment to rise by \$3 million, the accelerator coefficient is said to be 3.

If GDP is rising, but at a constant rate, induced investment will not change. This is because firms can continue to buy the same number of machines each year to expand capacity. However, a change in the rate of growth of income can have a very significant influence on investment.

Table 41.1 provides an example. It is assumed that the firm starts the period with eight machines, that one machine wears out each year and that each machine can produce 100 units of output per year.

Year	Consumer demand	Machines at start of period	Number of machines required	Replacement investment (depreciation)	Induced investment	Total investment
1	800	8	8	1	0	1
2	1000	8	10	1	2	3
3	1600	10	16	1	6	7
4	1800	16	18	1	2	3
5	1800	18	18	1	0	1
6	1700	18	17	0	0	0

Table 41.1: Changes in investment

The table shows that when demand for consumer goods rises by 25% (from 800 to 1000) in the second year, demand for capital goods rises by 200% (from 1 to 3). When the rate of growth in demand for consumer goods slows in year 4, demand for capital goods falls. By year 6, investment falls to zero with the worn-out machine not being replaced, and so productive capacity is reduced.

However, an increase in demand for consumer goods does not always result in a greater percentage change in demand for capital goods. For instance, firms will not buy more capital goods if they have spare capacity or if they do not expect the rise in consumer demand to last. It may also not be possible for firms to buy many capital goods if the capital goods industries are working close to capacity. In addition, with advances in technology, the **capital-output ratio** may change, with fewer machines being needed to produce a given output.

TIP

It is often useful in essays on changes in economic activity to bring out the link between the multiplier and the accelerator and how they tend to reinforce each other. If investment increases, real GDP is likely to increase by a multiple amount which in turn will increase investment.

Government spending

Government spending may increase during an economic downturn in the hope that it might prevent the economy from experiencing a recession. A government may inject extra spending into the circular flow to ensure that aggregate demand is sufficient to achieve a high level of employment and an increase in the country's output.

Government spending as a percentage of GDP is likely to be higher in countries where the government thinks there is significant risk of market failure. In such countries, governments are likely to provide, for example, state-financed education and healthcare. In these cases, advances in technology can put upward pressure on government spending. Schools may want to update their IT facilities and hospitals may want to buy new equipment that can be used in more complex operations that will also require more expensive aftercare.

Increases in population size also put upward pressure on government spending. A fall in the death rate, for example, would increase demand for medical care for the elderly. Net immigration may increase the need to provide state-financed housing. It will also, however, provide more

tax revenue to finance the spending if some of the immigrants gain jobs in the country.

A government will usually spend more after natural disasters, such as damage caused by a hurricane. It will also spend more during a military conflict.

ACTIVITY 41.5

In September 2019, the Mexican government announced its 2020 budget. It stated its intention to increase its spending including on social welfare. It also predicted that it would have a budget surplus. In drawing up its budget, the Mexican government, like other governments, relied on information and advice provided by its economists.

In pairs, identify four pieces of information the Mexican government would need to help it to decide how much to spend next year. Share your findings with the rest of the group and produce a handout with your joint findings.

Net exports

The key influences on net exports are the relative price and quality competitiveness of the country's products and incomes at home and abroad. The relative price competitiveness is, in turn, influenced by the country's relative productivity, relative inflation rate and its exchange rate. A country with productivity rising more rapidly than its competitors, a lower inflation rate and an exchange rate falling in value is likely to experience an increase in its price competitiveness. As a result, it is likely to see an increase in its net exports. Quality competitiveness will usually rise if there is an increase in net investment and an improvement in educational standards.

A country will usually be able to sell more exports if other countries experience a rise in their GDP. This is because the countries' purchasing power will increase. A country is particularly likely to benefit if its firms produce products with a high income elasticity of demand. As the country's own income increases, its households and firms are likely to buy more imports.

Figure 41.8: The New Greater Accra Regional Hospital, a modern healthcare facility in Ghana, was built with government funds

ACTIVITY 41.6

Government spending in both Thailand and the USA increased in 2019. The final effects of such spending were expected to be different in the two economies because of differences in the size of the multiplier in the two countries.

In pairs, produce a leaflet on why the size of the multiplier can vary between countries and the policy implications of these differences.

41.3 Full employment level of national income and equilibrium level of national income

Economies do not often operate at the full employment level of national income. At any particular time, they may be producing where total spending is above or below that needed for national income to equal potential output.

Inflationary and deflationary gaps

In the short run, and Keynesians argue also possibly in the long run, an economy may not achieve full employment. An **inflationary gap** will occur if aggregate expenditure exceeds the potential output of the economy. In such a situation, not all demand can be met, as there are not enough resources to do so. As a result, the excess demand drives up the price level. Figure 41.9 shows that an economy is in equilibrium at a GDP of Y, which is above the level of output, X, that could be achieved with the full employment of resources. The distance ab represents the inflationary gap.

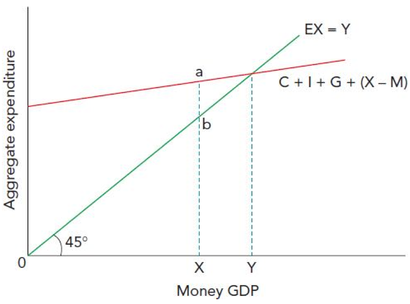


Figure 41.9: An inflationary gap

A government may seek to reduce an inflationary gap by cutting its own spending and/or raising taxation in order to reduce aggregate expenditure. Figure 41.10 shows a reduction in government spending moving the economy back to the full employment level.

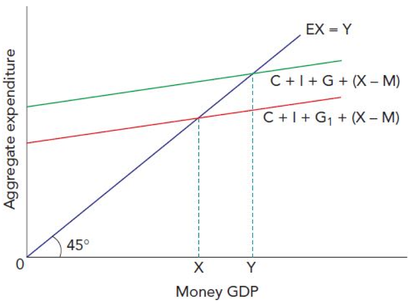


Figure 41.10: Impact of a cut in government spending

The equilibrium level of GDP may also be below the full employment level. In this case, there is said to be a **deflationary gap**. Figure 41.11 shows that the lack of aggregate expenditure results in an equilibrium level of GDP of Y, below the full employment level of X. There is a deflationary gap of vw.

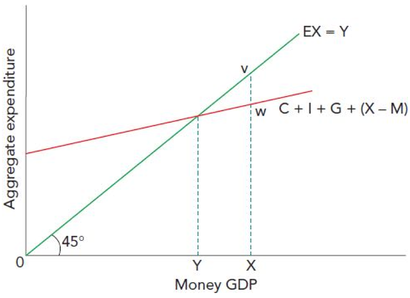


Figure 41.11: A deflationary gap

The Keynesian solution to a deflationary gap is increased government spending financed by borrowing. Figure 41.12 shows an increase in government spending eliminating a deflationary gap.

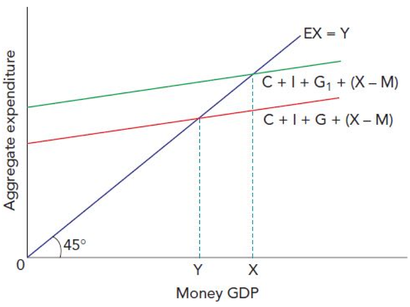


Figure 41.12: Impact of an increase in government spending

THINK LIKE AN ECONOMIST

Japan's deflationary gap

Between 1997 and 2019, Japan suffered from a deflationary gap. Over this period, the country experienced very low or falling prices. Its average growth rate was only 0.8% and in four years, the economy experienced a fall in GDP. The Japanese government and central bank have used a range of policy tools to encourage households and firms to spend more. Most of these tools were not very successful because of a lack of consumer and business confidence.

1 Decide whether you would prefer your country to experience an inflationary or a deflationary gap.

Figure 41.13: A busy street in Tokyo

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 An economy does not engage in international trade. The mrt on gross income is 0.2. the mpc out of disposable income is 0.6. What is the value of the multiplier?

A 1.25

B 2.0

C 2.5

D 5

2 In an open economy with a government sector, the mps is 0.1, mrt is 0.1 and mpm is 0.2. The full employment level of national income is $540bn and the current level of national income is $465bn. How much would government spending have to increase by to achieve full employment?

A $7.5bn

B $25bn

C $30bn

D $75bn

3 An economy has a GDP of $820bn and a multiplier of 1.8. The government increases its spending by $45bn. What will be the new level of GDP?

A $845bn

B $865bn

C $875bn

D $901bn

4 The table shows how consumption changes as income changes

Income ($)	Consumption ($)
100	115
200	206
300	290
400	340
500	360

At which level of income is the average propensity to consume 0.85 and the marginal propensity to consume 0.5?

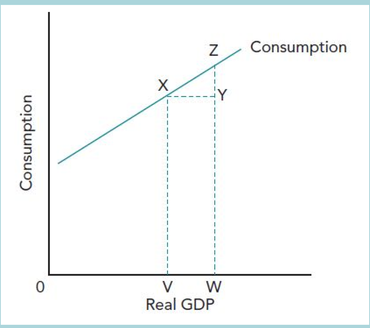
A $200

B $300

C $400

D $500

5 The diagram shows the consumption function. What is the marginal propensity to consume?



A VW

B ZY

C VW/ZW

D ZY/XY

6 Consumption is $100bn + 0.6Y, exports are $80bn, imports are $100bn, government spending is $120bn and investment is $160bn. What is the equilibrium level of national income?

A $840bn

B $900bn

C $960bn

D $1020bn

7 In a closed economy with unemployment, the government increases the tax revenue it receives by the same amount it increases its spending. Will these changes increase real GDP?

	If the mpc of taxpayers and recipients of government spending are equal	If the mpc of taxpayers is less than the mpc of recipients of government spending
A	no	no
B	no	yes
C	yes	no
D	yes	yes

8 What does the accelerator theory suggest?

A All investment is autonomous investment.

B Changes in the growth of income influence investment.

C Changes in technology affect the capital/output ratio.

D The return from investment declines as the capital stock increases.

9 When would an economy experience an inflationary gap?

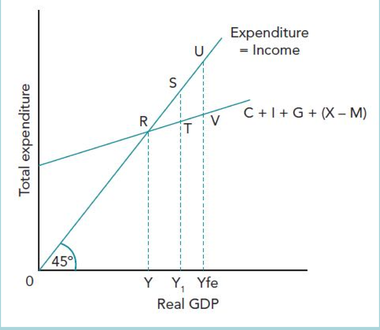
A when its inflation rate exceeds that of its main competitors

B when the tax revenue exceeds government expenditure

C when total expenditure is greater than the full employment level of GDP

D when the value of imports exceeds the value of exports

10 The diagram shows that an economy has a GDP of Y. The full employment level of GDP is Yfe. What is the size of the deflationary gap?



A RT

B ST

C RV

D UV

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that the multiplier shows the relationship between an initial change in spending and the final rise in GDP			
Calculate the multiplier in a closed economy without and with a government sector and an open economy with a government sector			
Calculate the average and marginal propensities to save (aps/mps), consume (apc/mpc), import (apm/mpm)			
Calculate the average and marginal rates of tax (art/mrt)			
Understand that national income in an economy is determined where AD = AS and aggregate expenditure equals output			
Calculate the effect of changing aggregate demand (AD) on national income using the multiplier			
Describe the determinants of aggregate demand: disposable income, wealth, the rate of interest, expectations, availability of bank loans, the distribution of income			
Explain the consumption function: autonomous and induced consumer expenditure			
Explain the savings function: autonomous and induced investment			
Explain that the accelerator theory states that the level of investment depends on the rate of change in GDP			
Analyse the determinants of government spending: the level of economic activity, the extent of market failure, changes in population, natural disasters and military conflicts			
Describe influences on net exports: changes in relative productivity, inflation rate, exchange rate, incomes at home and abroad			
Explain the relationship between the full employment level of national income and the equilibrium level of national income			
Explain that an inflationary gap will occur if aggregate expenditure exceeds the full employment level of national income, while a deflationary gap occurs when aggregate expenditure is too low to achieve full employment			

Chapter 42

Economic growth and sustainability

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the difference between actual growth and potential growth in national output
- explain the causes and consequences of positive and negative output gaps
- describe the phases of the business (trade) cycle
- analyse the causes of the business cycle
- explain the role of automatic stabilisers
- evaluate the effectiveness of policies to promote economic growth
- explain the meaning of inclusive economic growth
- analyse the impact of economic growth on equity and equality
- analyse policies to promote inclusive economic growth
- explain the meaning of sustainable economic growth
- explain the difference between using and conserving resources
- analyse the impact of economic growth on the environment and climate change
- evaluate policies to mitigate the impact of economic growth on the environment and climate change.

ECONOMICS IN CONTEXT

Child labour

In some countries, economic growth is accompanied by increases in child labour. In 2020, it was found that children as young as eight years old were picking coffee beans and doing other work on coffee farms in Guatemala. This Central American country had an average annual economic growth rate of 3.5% between 2000 and 2019. However, it also had a high rate of income inequality and a high rate of poverty. At the start of 2020, it was estimated that nearly half the population was experiencing financial difficulties and that one-fifth of the population was living in absolute poverty.

Figure 42.1: A child working on a coffee farm in Guatamala

The coffee beans picked by Guatemalan children were sold to European and US coffee firms and coffeehouse chains. The number of children employed on Guatemalan coffee farms had risen in recent years as more coffee was produced and consumed throughout the world. The use of child workers in coffee production was despite it being illegal in Guatemala for children aged under 14 to work.

The children who were being employed were working long hours, often more than 40 hours a week. Much of the work they did was physically demanding and some was dangerous. They carried heavy sacks of coffee beans, used machetes and had to apply pesticides without being given any protective equipment or training. Some lived on the farms in barns without sanitation and lighting. Their pay was often less than $3 for an eight-hour day.

When the use of child labour was reported, the European and US firms said that they would stop buying the coffee beans until they could check whether the farms were complying with the firms' ethical standards.

Discuss in a pair or a group:

- Why might the use of child labour promote economic growth in the short run but discourage it in the long run?
- Whether the children benefited from picking the coffee beans?

42.1 Actual and potential economic growth

Actual economic growth occurs when output increases. It is sometimes referred to as short run economic growth. It can be achieved as the result of greater utilisation of existing resources or as the result of the utilisation of more resources. Figure 42.2 uses a production possibility curve (PPC) to show economic growth resulting from greater use of existing resources.

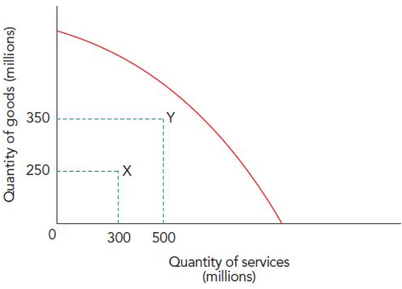


Figure 42.2: Actual economic growth shown on a PPC

The economy is initially producing at point X. Then the production point increases to point Y and more goods and services are produced.

Actual economic growth can also be shown using an AD/AS diagram. Figure 42.3 shows an increase in aggregate demand in an economy with spare capacity. The increase in aggregate demand brings into use previously unemployed resources and output (measured by real GDP) increases from Y to Y_1.

For an economy to continue to grow, it is necessary for **potential economic growth** to occur. Potential economic growth is sometimes called long-run economic growth.

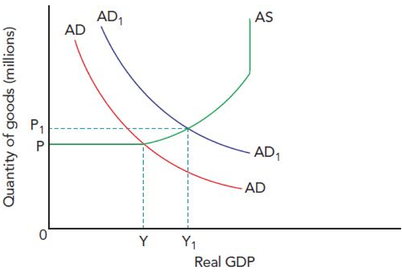


Figure 42.3: Actual economic growth shown on an AD/AS diagram

Figure 42.4 shows potential economic growth using both a production possibility curve and an AD/AS diagram. Both diagrams illustrate an increase in the maximum output the economy is capable of producing.

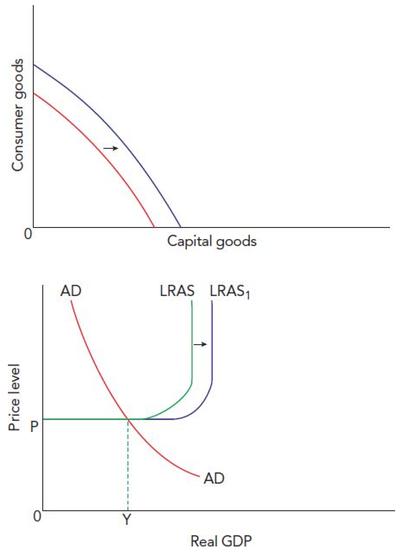


Figure 42.4: Potential economic growth shown on a PPC (top) and AD/AS diagram

For potential economic growth to lead to higher output, the rise in productive potential must be utilised. Figure 42.5 again uses two diagrams, this time to show both actual and potential economic growth.

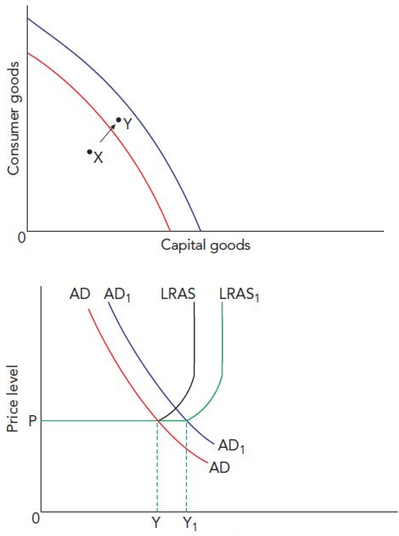


Figure 42.5: Actual and potential economic growth

KEY CONCEPT LINK

Progress and development: Actual economic growth combined with potential economic growth may increase progress and development. This is because such a combination can increase output, income and the quantity and quality of resources.

TIP

It is helpful to draw diagrams when distinguishing between actual and potential economic growth.

42.2 Positive and negative output gaps

The difference between actual and potential output is known as the **output gap**. Figure 42.6 shows a **negative output gap** of Y to Yfe. A negative output gap is caused by a lack of aggregate demand. When there is a negative output gap there will be unemployed resources and the economy will not be producing the full amount it is capable of producing (Yfe).

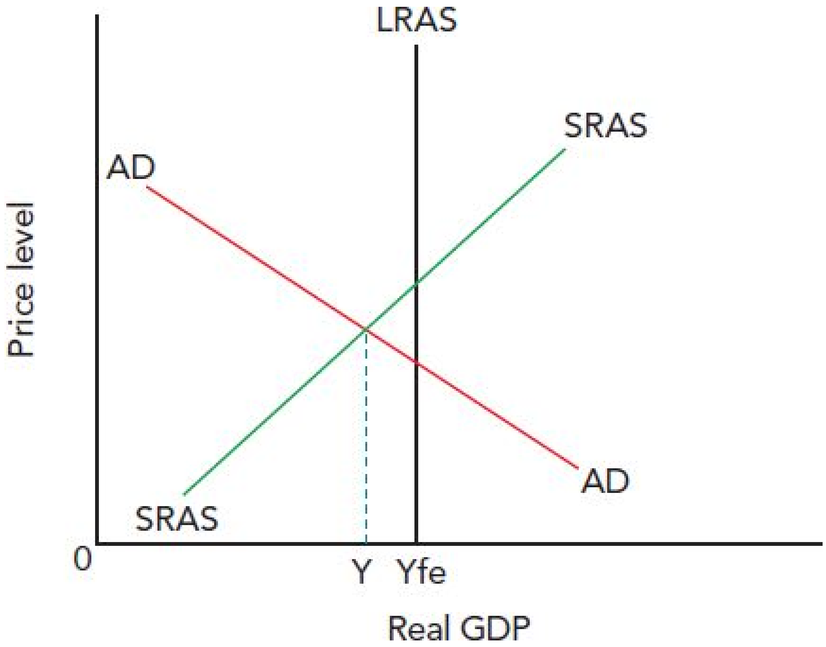


Figure 42.6: A negative output gap

It is also possible that an economy may experience a **positive output gap**. This occurs when an economy is producing more than its maximum potential as shown in Figure 42.7. Here the output gap is Yfe to Y.

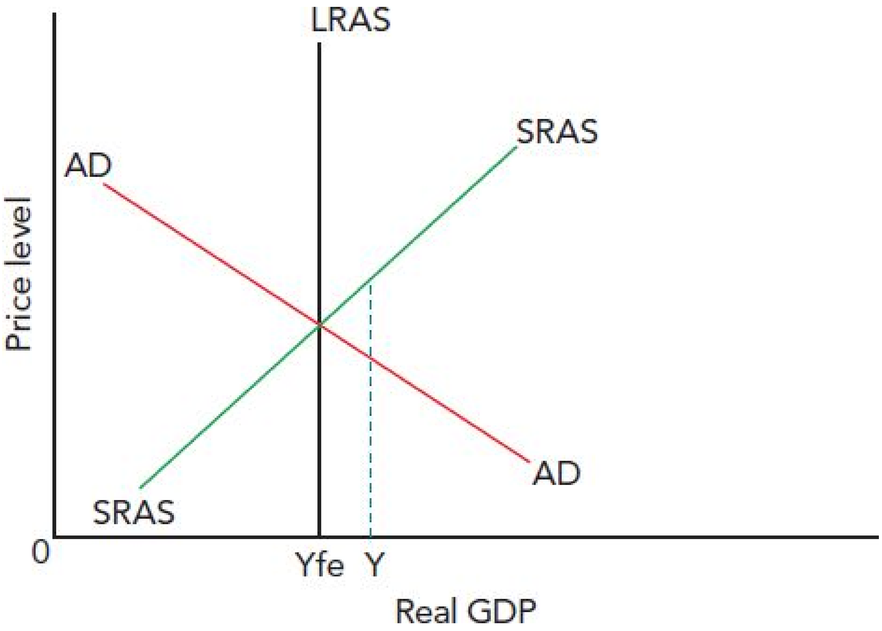


Figure 42.7: A positive output gap

Output may be beyond maximum potential for a while because, in response to high aggregate demand, machinery may be worked continuously, without maintenance being undertaken, and workers may be persuaded to work long hours of overtime. However, this cannot be sustained since at some point machines have to be serviced or repaired and workers will want to reduce the number of hours of overtime they work.

TIP

Remember to refer to output gaps when analysing changes in economic activity.

42.3 The business cycle

Output gaps arise during the course of a **business cycle**. Economies can grow smoothly over time but there can be periods when there are notable fluctuations in real GDP. A country's real GDP can grow at a faster rate than expected and it can experience a slower, or even negative economic growth rate. Fluctuations in the growth of actual output around the trend growth in productive potential are known as the business cycle. The business cycle can also be referred to as the trade cycle or the economic cycle.

The phases of the business cycle

The business cycle usually contains four phases:

- The upturn. During this phase, which can also be called expansion, the economy is growing at a faster rate. Households and firms are optimistic. Consumption grows with households expecting their income to rise. Higher profits and increased bank lending cause investment to rise with some high-risk projects being undertaken. Employment is also likely to rise. If the economy grows rapidly during this period, it can be described as an economic boom.
- The peak. This is the top point of the business cycle and a turning point. The economy will be experiencing a positive output gap. The high level of aggregate demand is likely to result in inflation and balance of payments difficulties.
- The downturn. During this phase, the economic growth rate decreases and negative economic growth may occur. Households and firms become less optimistic about future economic prospects. Saving rises, some high-risk firms go out of business and net investment falls.
- The trough. This is the lowest point of the trade cycle with the economy experiencing a lack of aggregate demand. At this point, an economy may experience a recession or, even more seriously, a **depression**. There will be a negative output gap.

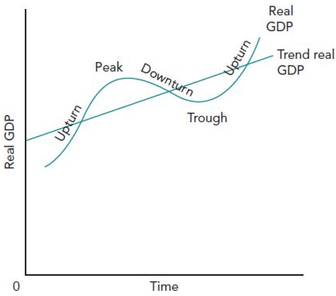


Figure 42.8: A business cycle

Figure 42.8 illustrates a business cycle. Most countries' economies are expected to grow over time. Their trend real GDP is expected to rise as each year there are usually improvements in education and advances in technology.

The causes of the business cycle

There are two main explanations of why business cycles may occur. One is fluctuations in aggregate demand and the other is fluctuations in aggregate supply.

There are a number of reasons why aggregate demand may vary significantly. One is changes in business confidence. If firms become more optimistic about the future, they will increase their investment. Higher investment is an injection into the circular flow. This causes a multiple increase in GDP. The higher GDP, in turn, is likely to cause an increase in investment. The interaction of the multiplier and the accelerator can result in a large rise in aggregate demand. If firms become pessimistic, the multiplier and the accelerator will act in reverse, causing a downward spiral in aggregate demand.

Changes in the money supply can also result in fluctuations in aggregate demand. If the money supply grows faster than the country's output, investment and consumption are likely to rise.

In addition, there may be political cycles. Before an election, a government may increase its spending and cut taxes to make itself popular. After an election. the government may introduce contractionary fiscal and monetary policies to reduce the demand-pull inflation caused by its earlier actions.

Large fluctuations in aggregate supply can result from supply-side shocks. There might be a significant technological advance which has a noticeable impact on productivity and costs of production. The development of artificial intelligence, for instance, may increase global productive capacity by a large amount. As well as positive supply-side shocks, there can also be negative supply-side shocks. For example, there could be a large rise in the global price of oil or a natural disaster. In 2020, COVID-19 resulted in a global recession with many countries experiencing negative economic growth.

TIP

It is useful to give an example of a cause based on changes in the economic activity of your country when analysing the causes of business cycles.

ACTIVITY 42.1

In a pair, research your country's trend real GDP and actual GDP over the last ten years. Plot your findings and write a report on the extent and causes of the fluctuations around the trend.

The role of automatic stabilisers

Automatic stabilisers offset fluctuations in economic activity. They reduce the rise in GDP during an economic boom and reduce the fall in GDP during a recession. Automatic stabilisers do this by reducing the growth in aggregate demand during an upturn and economic boom and increasing aggregate demand during at least part of a downturn and especially during a recession. For example, during an economic boom, households' and firms' income will rise significantly. The resulting rise in consumption and investment will be reduced by progressive income tax and corporate tax rates. During a recession, government spending on welfare benefits will increase as more households will be in need of government financial assistance. The rise in tax revenue during an economic boom and a rise in government spending during a recession flatten out the business cycle.

ACTIVITY 42.2

The shape of a recession can take a number of forms. Some of these are named after the letters they resemble when shown on a diagram. As a group, rank the different forms shown in Figure 42.9 from the one that you think is the most harmful to the one you think is the least harmful. Produce a poster showing the order you have agreed on with reasons for your decisions.

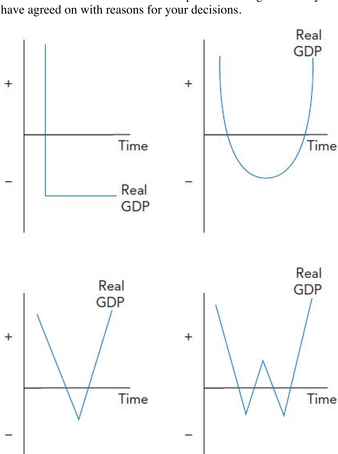


Figure 42.9: Different forms that a recession may take

42.4 Policies to promote economic growth

To promote actual economic growth, and so reduce a negative output gap, a government will try to increase aggregate demand. To do this a government will use either expansionary fiscal policy and/or expansionary monetary policy. For example, if a government cuts the standard rate of income tax, people will have more disposable income. Individuals are then likely to spend more. The rise in consumption, in turn, is likely to encourage firms to expand their output. They will be able to do this if initially there was spare capacity in the economy.

If successful, expansionary fiscal and monetary policies will increase real GDP and reduce a negative output gap. There is a risk, however, that the policies will either not increase aggregate demand enough or will increase it too much. For example, if households and firms are worried about future economic prospects, they would be reluctant to spend much more. On the other hand, if a government underestimates the size of the multiplier, it may increase its spending or cut taxes by too much. This will result in actual economic growth but it will also cause demand-pull inflation.

To promote potential economic growth, a government will have to encourage an increase in aggregate supply. It will use supply-side policy tools to do this. For example, a government could provide subsidies to firms to train their workers. A better-trained labour force will increase productivity and so raise productive capacity. There is, of course, no guarantee that supply-side policy tools will work. In the case of training, workers may be trained in skills that will not be demanded in the future. However, in practice, higher government spending on training schemes usually does increase productivity. As it involves higher government spending, it will add to aggregate demand so could increase both actual and potential economic growth.

TIP

It is useful to include aggregate demand and aggregate supply diagrams when analysing the policies that can be used to promote economic growth.

ACTIVITY 42.3

Write a report on a recent policy tool that your government has introduced to promote economic growth. The report should consider how the policy tool was intended to promote economic growth and how effective it was.

42.5 Inclusive economic growth

Inclusive economic growth would enable everyone to benefit from economic growth. The OECD's definition of inclusive economic growth is: 'Economic growth that is distributed fairly across society and creates opportunities for all.'

There are two key aspects to the benefits of economic growth being distributed fairly. One is in monetary terms, with all experiencing a rise in income. The second is in non-monetary terms, with all experiencing an improvement in healthcare, for example.

Creating opportunities for all means, for example, generating more job opportunities, creating the opportunity for all workers to experience better working conditions and the opportunity for all to live safely.

Impact of economic growth on equity and equality

Economic growth in some countries and in some periods has created greater equity and a more even distribution of income. For example, Iceland has experienced economic growth accompanied by a relatively low rate of income inequality and a high level of gender equality.

In many cases, however, the benefits of economic growth have not always been shared equally or, it could be argued, fairly. Economic growth involves change. Some new industries are created but others disappear. Those workers who are occupationally and geographically immobile may become unemployed. Economic growth can also be accompanied by a widening of the pay gap. For example, in 1965, the top US chief executives earned more than 20 times as much as the average full-time US worker. By 2020, this had risen to 320 times greater. While US real GDP increased by 33% between 2010 and 2019, the real pay of the average US worker did not change. The higher purchasing power went to the owners of capital and chief executives. During this period there was also a rise in the **gig economy** with more workers in insecure jobs, with few rights and no guaranteed working hours.

Globally, economic growth has been accompanied by widening income inequality. In 2020, the richest 1% of the world's population earned more than 25 times as much as the poorest half of the world's population.

Figure 42.10: A worker in the gig economy

TIP

Remember that equality and equity might conflict. For example, it might be thought unfair if everyone is paid the same if some work harder or have more talent than others.

Policies to promote inclusive economic growth

Policies to promote inclusive economic growth seek to spread the benefits and opportunities created by economic growth more evenly. The policy tools which can be used include:

- redistribution of income using progressive taxes and transfer payments
- improved access for all to high quality education which should raise employment opportunities and pay
- a relatively high national minimum wage to ensure that those in work can enjoy a good quality of life
- anti-discrimination legislation so that no group is excluded from the benefits of economic growth
- improvements in transport and communication links to reduce geographical immobility of labour and regional differences in income
- trade union legislation that gives trade unions greater power to protect workers' rights
- legislation against slavery and child labour to ensure that vulnerable groups are not exploited.

KEY ECONOMIC CONCEPT

The role of government and the issues of equality and equity: Government policy measures can be used to try to ensure that the benefits of economic growth are spread relatively evenly and fairly among the country's population.

ACTIVITY 42.4

Most people accept that some degree of income inequality is fair if it is based on qualifications, work effort and skills. What they consider as unfair is income inequality that arises from chance.

In pairs:

1. Produce five sets of cards:

   Set 1 has citizen of the Philippines, citizen of Romania, citizen of Kuwait, citizen of Niger, citizen of Sweden and citizen of the USA.

   Set 2 has three cards with female and three cards with male.

   Set 3 has two cards with low-income parents, two cards with middle-income parents and two cards with high-income parents.

   Set 4 has three cards with born in a rural area and three cards with born in an urban area.

   Set 5 has three years of schooling, four years of schooling, five years of schooling, six years of schooling, seven years of schooling and eight years of schooling.
2. Ask five other learners to select a card (unseen) from each of the sets to form the characteristics of an individual.
3. Ask each learner to rank the 'individuals' from highest to lowest income.
4. Ask them whether they think these characteristics should determine someone's relative income.

42.6 Sustainable economic growth

Sustainable economic growth is economic growth that can continue over time. To achieve this requires a deliberate and determined effort to balance economic, social and environmental objectives. This is because social divisions, lack of access by some to good quality education, housing and healthcare and damage to the environment can threaten an economy's ability to continue to produce a higher output.

KEY CONCEPT LINK

Progress and development: If an economy can achieve sustainable economic growth, there can be advances in the quality of people's lives that can continue over a long period of time.

Using and conserving resources

Using natural resources now can increase economic growth, at least in the short run. For example, cutting down trees in a rainforest, hunting animals in a wildlife reserve or increasing the amount of gas extracted from gas fields can increase output and create jobs. It can also increase exports and so improve the current account position on the country's balance of payments. In addition, the higher output can increase tax revenue that can be used, for instance, to improve the country's infrastructure and education, which can further generate economic growth.

There are, nevertheless, some arguments for conserving resources. For example, maintaining rainforests and wildlife in a reserve may encourage tourists to visit the country. Maintaining rainforests may also help the environment by absorbing carbon dioxide. Conserving resources also enables future generations to benefit from them and may mean that the resources can be sold at higher prices in the future.

There are a number of factors that may influence the decision as to whether to use or conserve resources.

One factor is consideration of whether demand for the products created by the resources is likely to increase or decrease in the future. If it is thought that demand will fall in the future, there is an argument for using the resources now. If the resources are non-renewable, it would be important that any revenue earned from using them now should be invested into developing other industries.

It may be advisable to conserve a resource if the country does not currently have a comparative advantage in producing the related product, but may have in the future. For example, a country may have significant gold deposits, but they may currently be too expensive to extract. If a country has serious debt problems, it may feel forced into using its resource now.

An interesting example is Ecuador. Between 2007 and 2013, the Ecuadorean government sought, unsuccessfully, to get individuals, firms and governments throughout the world to pay it to leave oil underground in its Yasuni National Park, which is part of the Amazonian rainforest. Oil drilling will create income and employment but will reduce tourism and may generate a range of external costs.

KEY CONCEPT LINK

Scarcity and choice: Scarcity and choice are clearly important concepts in assessing whether to conserve or use resources. The reason why a choice has to be made is because resources are limited

TIP

Remember that what may have been renewable resources, such as fish stocks, may become non-renewable resources if they are overexploited.

Impact of economic growth on the environment and climate change

Economic growth can harm the environment and increase the speed of **climate change**. Increases in primary sector output can do this in a number of ways. Keeping more livestock results in the emissions of more methane gas. The use of clean water for livestock to drink puts more pressure on a scarce resource. Higher output of crops may be produced with the help of chemical fertilisers that emit nitrous oxide and by the destruction of rainforests which absorb carbon dioxide and which are biodiverse. Large-scale fishing can destroy fish stocks and mining can pollute nearby rivers and contaminate nearby land with, for instance, deposits of arsenic and mercury.

Higher output of manufactured goods can also result in the emission of **greenhouse gases**. For instance, the burning of fossil fuels, such as coal to power steel plants, will increase the quantity of carbon dioxide in the environment.

The growth of the tertiary sector can damage the environment and contribute to **global warming** and climate change in a number of ways. More tourism, for example, results in more flights, which generate greenhouse gases. It can also lead to the destruction of areas of natural beauty and coral reefs.

The consumption of what is produced can also create environmental problems. Increases in the number of vehicles on the world's roads is contributing to air and noise pollution. The waste created by households leads to widespread damage. Higher incomes result in more shopping and more plastic wrapping being thrown away. Plastic takes centuries to degrade. Meanwhile, it sits in landfill sites and pollutes the world's oceans.

Of course, it is possible that economic growth can improve environmental conditions and reduce the pace of climate change. This would occur if cleaner energy sources are developed and more resources are devoted to, for example, planting trees.

THINK LIKE AN ECONOMIST

Rising sea levels put St Kitts and Nevis at risk

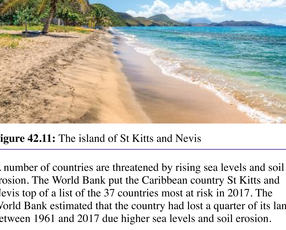


Figure 42.11: The island of St Kitts and Nevis

A number of countries are threatened by rising sea levels and soil erosion. The World Bank put the Caribbean country St Kitts and Nevis top of a list of the 37 countries most at risk in 2017. The World Bank estimated that the country had lost a quarter of its land between 1961 and 2017 due higher sea levels and soil erosion.

You are offered jobs as bankers in Basseterre, the capital of St Kitts and Nevis. Discuss how rising sea levels would affect your decision as to whether to accept the job offer.

Policies to mitigate the impact of economic growth on the environment and climate change

A range of policies could be used to mitigate the impact of economic growth on the environment and climate change including:

- Subsidise cleaner sources of energy such as wind power and the planting of more trees to absorb carbon dioxide. Subsidies do, of course, involve an opportunity cost and may not always encourage efficient use of the money.
- Provide information on the damage that certain activities, such as dumping waste into the sea, can cause the environment. This can persuade people to change their behaviour and governments have recently been using nudge theory to design how they give this information.
- Pass legislation to ban or restrict the production or consumption of certain products. A law may be easy to understand, and has the advantage that it can be enforced. For example, a number of countries have banned the sale of plastic shopping bags. It is, however, rather a blunt instrument and a cost may be involved in enforcing it.
- Tax firms that create pollution. This is based on the **polluter pays principle** as it turns external costs into private costs. It has the potential to move a market closer to its socially optimum level of output. Some of the finance raised can be used to compensate those who have suffered. There is a risk, however, that a tax may be set too high or too low as it can be difficult to assess the cost to the environment. The tax may also be regressive and if other countries do not impose a similar tax, output may not change, just where in the world it is produced.
- Use pollution permits (see Section 38.1). This involves setting a limit on the level of pollution allowed and then selling licences to firms to pollute up to this limit. Pollution permits can be bought and sold. Over time, the limit can be reduced and those firms that pollute below the limit can sell some of their licences to other firms. As a result, cleaner firms should gain a cost advantage and so capture a larger share of the market. Some of the funds raised can be used to fund the development of cleaner energy.

ACTIVITY 42.5

In a group, discuss what would be the most effective policy to reduce pollution in your country. Make a podcast of your discussion.

REFLECTION

What information did you use in reaching your decision? How did you compare other policies in your podcast? In what ways do you think your choice would have been different if you had been considering pollution in another country?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What is likely to happen to actual output and potential output during a depression?

	Actual output	Potential output
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

2 What is most likely to reduce a positive output gap?

A firms delay maintenance checks on capital equipment

B governments increase welfare payments

C households respond to a cut in the rate of interest by spending more

D workers reduce the number of hours of overtime they do

3 During which phase of the business cycle is business confidence likely to change from optimism to pessimism?

A downturn

B peak

C trough

D upturn

4 What effect do automatic stabilisers have?

A They ensure a cyclical budget deficit during an upturn.

B They increase tax revenue during a recession.

C They reduce the scale of an economic boom.

D They raise the international competitiveness of the country's exports.

5 Why may the unemployment rate *not* rise when an economy experiences negative economic growth?

A Firms may want to keep workers in expectation that aggregate demand will rise.

B The government may reduce the money it gives to firms to train workers.

C The size of the labour force may fall by less than the number of workers employed.

D Workers' pay may fall by less than productivity.

6 A central bank cuts the rate of interest. What effect is this likely to have on actual and potential economic growth in national output?

	Actual economic growth	Potential economic growth
A	Decrease it as consumption will fall.	Decrease it as investment will fall.
B	Decrease it as consumption will fall.	Increase it as investment will rise.
C	Increase it as consumption will rise.	Decrease it as investment will fall.
D	Increase it as consumption will rise.	Increase it as investment will rise.

7 When is economic growth most likely to be inclusive? When is accompanied by:

A a decrease in the national minimum wage.

B an increase in differences in regional employment rates.

C a reduction in the male/female pay gap.

D a rise in the number of young people neither in employment nor in education and training.

8 Which change would reduce a country's ability to achieve sustainable economic growth?

A a decrease in restrictions on cutting down of trees in rainforests

B an increase in vegetarianism

C a switch from car travel to travel by public transport

D the replacement of coal by wind power as a source of fuel

9 The polluter pays principle aims to increase the marginal private cost of production. What does it aim to equate the marginal private cost to?

A marginal external benefit of production

B marginal private benefit of consumption

C marginal social benefit of consumption

D marginal social cost of production

10 Which cause of an increase in real GDP is most likely to result in sustainable economic growth?

A creation of palm oil plantations from the rainforest

B greater use of chemical fertilisers in agriculture

C more electricity generated by coal power stations

D rise in the production of solar panels

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain the difference between actual growth when output increases and potential economic growth which involves the creation of extra productive capacity			
Explain that a negative output gap occurs when output is below potential output whereas a positive output gap occurs when output is higher than potential output			
Describe the phases of the business cycle: upturn, peak, downturn, trough			
Analyse that the business cycle may be caused by fluctuations in aggregate demand or aggregate supply			
Explain that automatic stabilisers are forms of government spending and taxation that reduce the extent of an upturn and a downturn			
Evaluate the effectiveness of expansionary fiscal and monetary policies to promote actual economic growth and supply-side policy to promote potential economic growth			
Understand that inclusive economic growth spreads the benefits and opportunities created by economic growth fairly to the whole population			
Analyse the impact of economic growth on equity and equality			
Analyse the effectiveness of policies to promote inclusive economic growth: redistribution of income, increased access to education, high national minimum wage, anti-discrimination legislation, improvements in transport and communication links, trade union legislation, legislation against slavery and child labour			
Understand that sustainable economic growth is economic growth which can be maintained across generations			
Explain how using resources can increase economic growth now but to achieve sustainable economic growth, some resources need to be conserved			
Analyse the impact of economic growth on the environment and climate change			
Evaluate the impact of economic growth on the environment and economic change and the policies used to mitigate the impact: subsidies on cleaner energy, provision of information, legislation banning or restricting activities that cause pollution, taxes on firms that pollute, pollution permits			

Chapter 43

Employment and unemployment

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of full employment
- explain the difference between equilibrium and disequilibrium unemployment
- explain the difference between voluntary and involuntary unemployment
- define the meaning of the natural rate of unemployment
- explain the determinants of the natural rate of unemployment
- analyse the policy implications of the natural rate of unemployment
- describe patterns and trends in (un)employment
- explain the forms of labour mobility: geographical and occupational
- analyse the factors affecting labour mobility
- evaluate the effectiveness of the policies to reduce unemployment.

ECONOMICS IN CONTEXT

Will there be any taxi drivers in ten years' time?

In ten years' time, people wanting to go on a journey may be able to call up a driverless car that will take them to their destination. This will mean that they will not have to own a car and the demand for taxi drivers and driving instructors may disappear. Demand for bus travel may also decrease. Some taxi drivers, driving instructors and bus drivers will retire. Others may find new jobs. A number of these may have to accept a pay cut. Others may become unemployed.

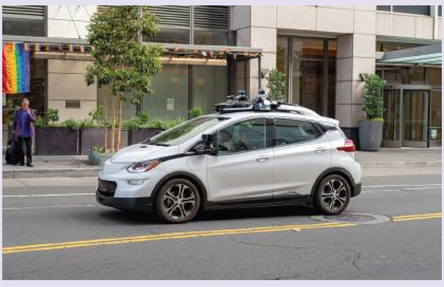


Figure 43.1: A driverless car

While the introduction of driverless cars will destroy some jobs, it may create others. Driverless cars (also known as self-driving cars and autonomous vehicles) are likely to increase the mobility of the old and disabled. They may visit, for instance, theatres, restaurants and shopping centres more frequently. This could increase the demand for the people who work in these places. Fewer car parks will be needed. This may result in more space in city centres where new factories, offices and hotels can be built, creating new jobs. Those firms that produce the best quality and value for money driverless cars may see an increase in their car production. Other car firms may see their sales disappear.

Driverless cars are powered by electricity. Their introduction is increasing demand for electricity while reducing demand for petrol. In the future, petrol stations may disappear and there are likely to be fewer people employed in the oil industry.

Over time, new jobs appear while others become less important or disappear. Just as the number of jobs is not fixed, neither is the type of jobs. Changes in technology and changes in demand for goods and services are constantly creating and destroying jobs.

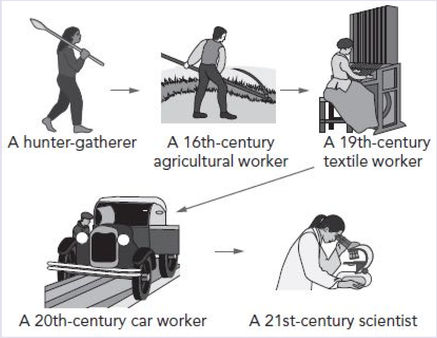


Figure 43.2: Jobs over time

Discuss in a pair or a group:

- Why may taxi drivers who lose their jobs find it difficult to find other jobs?
- Will unemployed car workers in Spain be willing and able to get a job in the USA?
- Who might appear in Figure 43.2 in 20 years' time?

43.1 Full employment

Full employment is the highest level of employment possible. Full employment is often considered to be achieved when the unemployment rate falls to 3%, although the rate may vary between countries. This may appear to be surprising as it might be expected that full employment may only be achieved at 0% unemployed. However, in practice, at any particular time, some people may be experiencing a period of unemployment as they move from one job to another job.

KEY CONCEPT LINK

Efficiency and inefficiency: If an economy is operating with full employment, it will be productively efficient and will be producing on its production possibility curve.

ACTIVITY 43.1

95% of Qatar's labour force are migrant workers. Many of these work in the country's hotels and construction industry. The country's unemployment rate in 2019 was 0.15%.

As a pair, discuss how you as an economist would:

1. measure a country's unemployment
2. explain why despite a low unemployment rate, the wage rate of hotel workers has not risen significantly in recent years
3. advise a government on how its budget balance would be affected by full employment.

TIP

Find out what rate of unemployment your government and another government are aiming for. This may enable you to give an example of how different governments interpret full employment.

43.2 Equilibrium and disequilibrium unemployment

Equilibrium unemployment is unemployment which exists when the aggregate demand for labour equals the aggregate supply of labour. At this point there will be no pressure for the real wage rate to change. Those willing and able to work at the current wage rate will have a job. However, some people who are part of the labour force will not have a job. This is because they are not willing to accept jobs at the current wage rate, lack information about job vacancies, do not have the skills and qualifications required or are not able to move to where the work is.

Figure 43.3 shows a country's labour market being in equilibrium. The aggregate demand for labour (ADL) matches the aggregate supply of labour (ASL) at a real wage rate of W. The aggregate labour force (ALF) includes those prepared to work at the real wage rate of W and able to find a job. It also includes those who are seeking better paid jobs, those in between jobs and those who are not able to do the jobs on offer because they live in a different part of the country or lack the skills or qualifications required. The ALF curve moves closer to the ASL curve as the real wage rate rises. This is because a higher proportion of the labour force will be willing to accept the wage rate.

Figure 43.3 shows that at a wage rate of W, Y number of workers are employed. There is unemployment of YZ workers. These workers are experiencing **voluntary unemployment**, frictional and structural unemployment. Unemployment in this case, is arising due to problems on the supply-side.

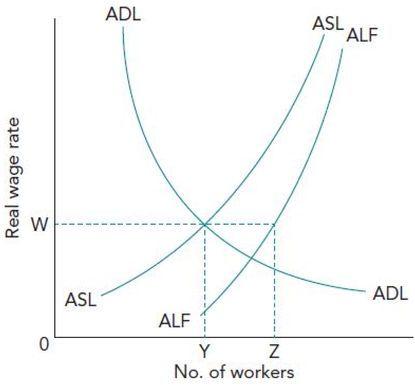


Figure 43.3: Equilibrium unemployment

Keynesian economists argue that the labour market can be in disequilibrium for long periods of time. Figure 43.4 shows unemployment of XY arising from the aggregate supply of labour exceeding the aggregate demand for labour. This **disequilibrium unemployment** is equivalent to cyclical unemployment.

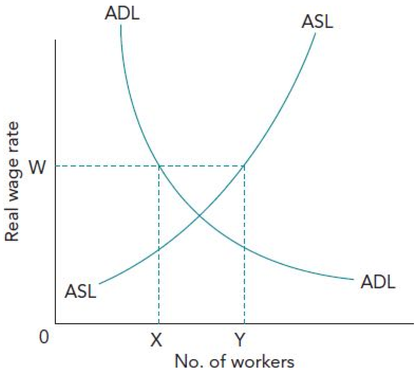


Figure 43.4: Disequilibrium unemployment

The wage rate can stay above the equilibrium level for a number of reasons. One is that aggregate demand for labour fell, but the real wage rate remains unchanged because workers resist wage cuts. The wage rate might also have been pushed up above the equilibrium level by trade union action or by the government setting a national minimum wage. The problem may not be solved simply by lowering the wage rate. This is because lowering the rate could result in lower aggregate demand and, in turn, lower aggregate demand for labour. A downward spiral could be created.

It is possible that, at any particular time, an economy may experience both equilibrium and disequilibrium unemployment. Figure 43.5 shows an economy experiencing XZ amount of unemployment. XY is disequilibrium unemployment and YZ is equilibrium unemployment.

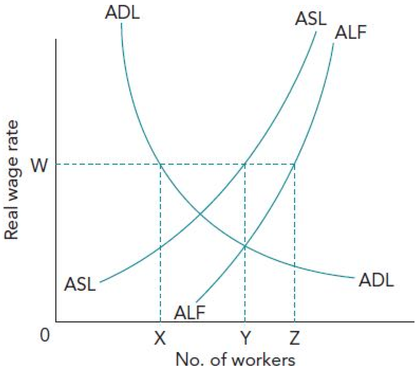


Figure 43.5: Equilibrium and disequilibrium unemployment

KEY CONCEPT LINK

Time: Disequilibrium unemployment can last a long time if workers resist wage cuts or of a wage reduction leads to a further fall in aggregate demand.

TIP

Make sure that any diagram you draw to show equilibrium unemployment includes not only the ADL and ASL curves but also the ALF curve.

43.3 Voluntary and involuntary unemployment

Voluntary unemployment, as previously mentioned, occurs when workers choose not to accept jobs at the current wage rate. They could be employed, but they prefer to remain unemployed until they can gain a job with a higher wage rate. In contrast, involuntary unemployment arises when workers are willing to work at the current wage but cannot find a job.

Most structural and cyclical unemployment is involuntary unemployment. Some frictional unemployment, particularly search unemployment, may be voluntary. Workers may take longer looking for a better paid job if the wage they can currently get is close to or below any unemployment benefit they could receive.

In practice, it can be difficult to determine whether unemployment is voluntary or involuntary. Those who are receiving unemployment benefits are not likely to admit that they could get a job. It may also be difficult to decide if a top scientist who has just lost her job should be classified as unemployed if there is a job as a street cleaner available.

43.4 The natural rate of unemployment

The **natural rate of unemployment** exists when the labour market is in equilibrium with the aggregate demand for labour equalling the aggregate supply of labour. However, this concept goes a little further than equilibrium unemployment. It is the rate to which new classical economists think the economy will move back in the long run and which is consistent with a constant inflation rate. If, for example, a government increases aggregate demand to reduce unemployment, aggregate demand for labour will increase. This will push up the wage rate and move the ASL closer to the ALF. However, in the long run it may increase the price level. Higher costs and a fall in the real wage rate will result in unemployment returning to the natural rate.

The factors that determine the natural rate of unemployment in a country at a particular time are supply-side factors. They relate to the causes of voluntary, frictional and structural unemployment. Supply-side factors include:

- the value of unemployment benefits relative to the value of low pay
- national minimum wage legislation
- the quality of education and training
- how workers are affected by periods of unemployment
- the quantity and quality of information about job vacancies and workers' skills and qualifications
- the degree of labour mobility (see Section 43.7)
- the flexibility of workers and firms.

Policy implications of the natural rate of unemployment

To reduce the natural rate of unemployment, a government will seek to increase both the willingness and ability of workers to work at the current wage rate. Among the policy approaches and tools it may use are:

- Widen the gap between low pay and unemployment benefit. This could be achieved by cutting unemployment benefit and/or the basic rate of income tax.
- Remove any restrictions on the amount firms can pay their workers. Some economists argue that firms may be less likely to reduce the number of jobs they offer if they can reduce the wages they pay. A national minimum wage might prevent firms from doing this.
- Improve education and training. A more skilled labour force is likely to find it easier to switch from one job to another and so suffer less from structural unemployment. Training of the unemployed can be important in overcoming the problem of **hysteresis**. Workers who experience long periods of unemployment can lose confidence in gaining another job and their skills may become out of date. Firms may also be reluctant to employ someone who has been out of work for some time as they may think the **long-term unemployed** will have lost the work habit and may have to be retrained at the firm's expense.
- Increase the quantity and quality of information about the job market. If firms know more about people who are looking for work and workers know more about the jobs on offer, frictional unemployment is likely to be lower.
- Improve **labour mobility**. If workers are more mobile, it is likely that more job vacancies will be matched with the unemployed.
- Increase the flexibility in the labour force. New classical economists favour reducing the power of trade unions and eliminating national minimum wage legislation. They argue that trade unions and a national minimum wage can push the wage rate above the equilibrium level. They also think that trade unions can restrict the tasks workers are prepared to do, which may reduce labour productivity. Greater flexibility by firms may also increase employment. The more flexible firms are in terms of, for example, the hours workers can work and where they can do the work, the more workers may be prepared to accept the jobs on offer at the current wage rate.

ACTIVITY 43.2

In a pair, prepare a leaflet for learners who will be studying economics next year on how the business cycle will influence equilibrium and disequilibrium unemployment.

REFLECTION

What diagrams did you include in your leaflet? Were you able to explain the effects in language that you think your readers would understand?

43.5 Patterns and trends in unemployment

Unemployment is not usually evenly spread. It will be higher in declining industries and in declining occupations. Unemployment can also vary between regions within a country. This is because there can be differences in transport links, infrastructure and housing costs.

Unemployment in most countries is higher among young workers. Firms may be reluctant to employ young workers because of their lack of experience and the need to train them. Certain groups, including women, people with health conditions or impairments and those from ethnic minorities, may experience discrimination in the labour market and so may experience a higher than average unemployment rate.

An upward trend in the number of unemployed and the unemployed rate will be of concern for a government. What will be of particular concern is if the people who are unemployed stay out of work for some time. This is because these workers may lose the work habit and may experience hysteresis.

ACTIVITY 43.3

Figure 43.6 shows the youth unemployment rate and the overall unemployment rate in five European countries in 2019.

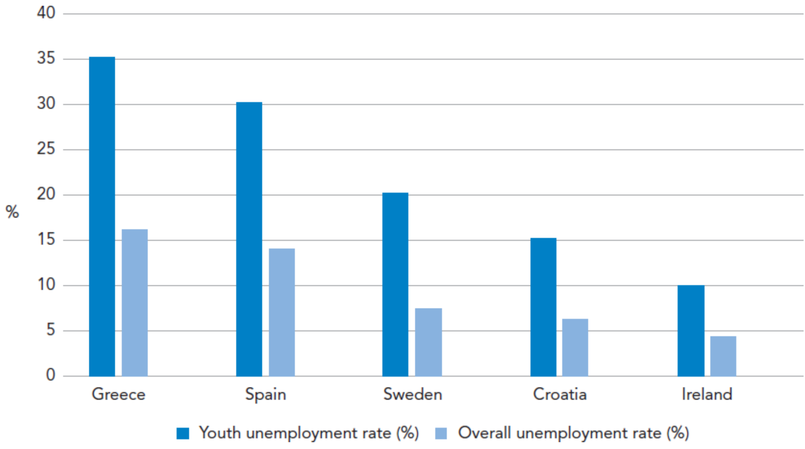


Figure 43.6: Youth unemployment rate and overall unemployment rate in five European countries, 2019

In a pair, produce two wall charts:

1. a chart showing the youth and overall unemployment rate in your own country and four other countries for the previous year – include on this chart three advantages that young workers may have over older workers
2. a map of your country with the unemployment rates of the different regions marked on it – include on this chart two reasons why the unemployment rate of the region you live in differs from the overall rate for your country.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Governments usually seek to keep unemployment as low as possible. This is not only because they want to increase efficiency but also because they want to increase equality and equity. The pain of unemployment is not evenly spread. Some groups, including young workers, have a greater than average chance of experiencing unemployment.

TIP

Remember in answering essay questions that how significant unemployment is as a problem is determined not just by its rate but also by its duration.

43.6 Patterns and trends in employment

The pattern of employment varies between countries although there are some similarities in trends. It can be examined in a number of ways:

- Industrial structure. As many countries have developed, employment has moved first from the primary sector to the secondary sector and then the tertiary sector. For example, Mali, a low-income country, had 80% of its labour force employed in the primary sector, 15% in the secondary sector and 5% in the tertiary sector in 2019. In contrast, Sweden had 2% employed in the primary sector, 10% in the secondary sector and 88% in the service sector.
- The proportion of women in the labour force. The general trend is for women to form an increasing proportion of a country's labour force. For example, whereas in 1990 20% of Bangladesh's labour force was female, by 2019 this had increased to 31%. There are a number of reasons why more women are working and seeking to work. These include a rise in the pay women can receive, more job opportunities, increases in the qualifications women are gaining, greater provision of childcare and a reduction in gender discrimination.
- Employed and **self-employed**. Most people work for someone else. They have an employer who decides, for example, the hours they work and the tasks they perform. However, an increasing proportion of workers are self-employed. For example, a former teacher may set up as an educational consultant, advising schools on how to improve their performance.

Figure 43.7: A medical worker in Bangladesh

- Full-time and part-time. The proportion of people who work full-time and part-time varies over time. Some people choose to work part-time so that they can help to raise their children, care for elderly or sick relatives or enjoy leisure activities. Others are forced to work part-time as full-time jobs are not available. This is most likely to occur during an economic downturn.
- Employment in the formal economy and informal economy. Workers in the formal economy are protected by employment legislation, but those in the informal economy are not covered by, for example, national minimum wage legislation, restrictions on working hours and health and safety standards. Those in the informal economy are not represented by trade unions and are unlikely to receive sickness benefit or a pension.
- Secure and insecure employment. In a number of countries there has recently been a growth in insecure employment. More workers are being employed in the gig economy. These workers often do not know how many hours they will work next week. Like workers in the informal economy, workers in the gig economy do not receive sickness benefit or a pension. Some workers like having the ability to choose when and where they work; others only do the work because they cannot find secure employment. Such workers may find this type of work quite stressful because of the uncertainty involved. The unreliability of their income may also mean that they may experience difficulty buying or renting a home.
- Private and public sector employment. The relative quality and availability of private and public sector employment varies from country to country. In some countries, working for the government has high prestige and high pay. In a number of countries, the proportion of workers employed in the private sector has increased with privatisation.

KEY CONCEPT LINK

Progress and development: High-quality employment which provides high pay, good working conditions and job security increases living standards.

TIP

Find out three ways in which the pattern of employment has changed in your country in recent years so that you can use these as examples in your answers.

ACTIVITY 43.4

In groups of five:

1. Prepare ten cards with an occupation on each card, for example bank worker, doctor, journalist, librarian, pilot, plumber, street food seller, teacher, textile worker and travel agent.
2. Each learner selects two cards.
3. Using a flip chart, each learner should write up whether the worker is likely to be:
   - **a** employed in the primary, secondary or tertiary sector
   - **b** in work in ten years' time
   - **c** working in the private or public sector
   - **d** highly paid or low paid.
4. Each learner should then write up three other characteristics of the occupation, for example in the case of a copper miner, a high degree of risk.
5. Other members of the group then try to identify the occupation and discuss whether they agree with what has been written on the flip chart.

43.7 The forms of labour mobility

Labour mobility is the ability of workers to move from one occupation to another occupation or from one location to another location. There are two main forms of labour mobility. One is **occupational mobility**. For example, an accountant would probably have to gain a teaching qualification to become a teacher of accounts. They should, however, be likely to find it easier to make this job change than someone trying to switch from working as a gardener to a software engineer. The other type of mobility is **geographical mobility**. There may be unemployed workers in one area of the country and job vacancies, for which the unemployed have the appropriate skills and qualifications, in another part of the country or another country. However, there may be reasons why the unemployed cannot change where they live.

Factors affecting occupational mobility

Among the factors that influence occupational mobility are:

- Quality of education and training. The better educated and trained workers are, the more different types of occupation they are likely to be able to do.
- Information available. If workers are to move smoothly from occupations that are experiencing decreases in demand to ones experiencing increases in demand, they need to know where the job opportunities are.
- Barriers to entry and exit. Professional bodies and trade unions may seek to restrict supply to an occupation in order to drive up the wage rate. Workers may also have signed long-term contracts which may make it difficult for them to move to another occupation.
- Time. The longer the time period, the more opportunity workers will have to gain the necessary training, qualifications and skills to gain a job in another occupation.

Factors affecting geographical mobility

The factors influencing the geographical mobility of labour may include:

- The price and availability of housing. Workers may not be able to move to jobs in another location if there is a lack of affordable housing in that location.
- Information available. As with occupational mobility, workers need to know where the vacancies are, details about the pay being awarded and other aspects relating to the job.
- Personal ties. Workers may be reluctant to leave members of their extended family and friends to move to another location.

There are additional factors that influence the movement between countries:

- Immigration controls. Moving to and working in another country may be restricted by limits on work visas and permission to stay.
- Language barriers. Workers may not be able to take up a job in another country because they do not speak the language.
- Cultural differences. Workers may find the culture of another country unattractive.
- Differences in pay and the cost of living. Workers may find that they are better off by being unemployed in their home country than moving to a job in another country.

ACTIVITY 43.5

Produce a list of reasons why a lawyer in Ghana may not be willing and able to switch to working as a lawyer in South Africa.

Share your answers with another learner.

43.8 Policies to reduce unemployment

To reduce cyclical unemployment, a government will use expansionary fiscal or monetary policy tools to increase aggregate demand. Among the expansionary fiscal policy tools it may use are:

- a reduction in indirect or direct taxation to increase consumer expenditure
- a cut in corporate taxes to stimulate investment
- an increase in government spending.

The possible monetary tools include:

- Reduce the rate of interest to increase consumer expenditure and investment.
- Increase the money supply again to increase consumer expenditure and investment.
- Lower the exchange rate, either through a formal devaluation or through intervention in the foreign exchange market in the case of a managed float, to increase net exports.

The extent to which expansionary fiscal or monetary policy tools may increase employment will depend on a number of factors. The rise in aggregate demand may not be very large if consumers and firms are worried about the future or if firms expand their output capacity by buying capital equipment that requires few extra workers to operate. Fiscal and monetary policies also have a time lag. By the time unemployment has been recognised as a problem, policy tools have been decided upon and put into action, other components of aggregate demand may have started to increase.

To reduce frictional and structural unemployment, a government is likely to introduce supply-side policy tools. It may increase information on the job market. It could reduce unemployment benefit and income tax rates to increase the reward from working and so encourage people to spend less time between jobs. Improved education and training may increase workers' occupational mobility and so reduce structural unemployment. Trade union reform may stop trade unions pushing the wage rates of their members above the equilibrium levels and taking industrial action. This may increase the efficiency of the country's labour and product markets.

Some supply-side policy tools can take a long time to have an effect. There is also the risk that workers may not respond as expected, and if the cause of the unemployment is actually a lack of aggregate demand, the policy tool may make the situation worse. For example, a cut in income tax has the potential to reduce not only voluntary, frictional and structural unemployment but also cyclical unemployment. There is, however, no guarantee that it will encourage the unemployed to seek work more actively. If there is a lack of jobs available, the unemployed would not be able to find them anyway. If there are no suitable vacancies, a cut in unemployment benefit will reduce consumer spending which could result in cyclical unemployment.

TIP

In any evaluation of the appropriate policy tools to reduce unemployment, remember to consider the cause(s) of unemployment and the possible adverse side effects of such tools.

ACTIVITY 43.6

In a pair, prepare a presentation advising your government on the policy tools it could use to reduce unemployment in your country. You may wish to give your presentation to an invited audience of local politicians.

THINK LIKE AN ECONOMIST

Your working life

More people will have a number of jobs throughout their working lives. For example, the Indian film and theatre actor Boman Irani spent some time working as a waiter and the American film actor Harrison Ford worked as a carpenter.

Figure 43.8: An individual might have many jobs over the course of their career

Discuss:

1. whether you think you will do more than one type of job
2. how studying economics may influence your choice
3. whether you would be prepared to work for some time in a less well-paid and less satisfying job.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 An economy's full employment rate is estimated to be 4%. If the economy's actual unemployment rate is 1.5%, what is this likely to mean?

A There is a government budget deficit.

B There is deflation.

C There is no frictional unemployment.

D There is a positive output gap.

2 What is the equilibrium level of unemployment?

A a stable level of unemployment

B the level of unemployment where the aggregate demand for labour equals the aggregate labour force

C the level of unemployment where there is no upward pressure on the real wage rate

D zero unemployment

3 What type of unemployment is caused by the real wage rate in the economy being above the equilibrium level?

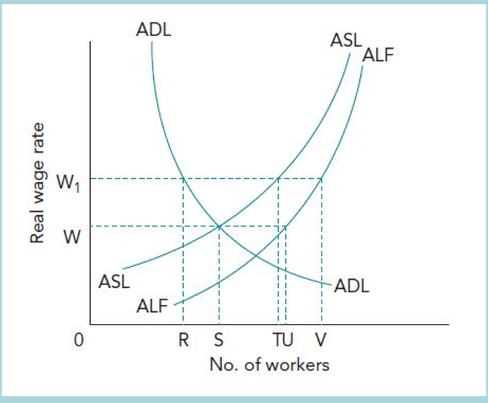
A disequilibrium unemployment

B equilibrium unemployment

C frictional unemployment

D structural unemployment

4 If the real wage rate rises to W_1 in the diagram, which distance represents disequilibrium unemployment?



A RS

B RT

C RV

D SU

5 What does hysteresis explain?

A Structural unemployment being more of a problem in the short run than frictional unemployment.

B The existence of cyclical unemployment in an economy after aggregate supply has increased to match aggregate demand.

C The tendency for economies to move towards full employment in the long run.

D Unemployment continuing to exist after the initial cause of unemployment has disappeared.

6 Which three factors are most likely to increase a worker's chance of experiencing long-run unemployment?

	Qualifications	Social skills	Willingness to move to another part of the country
A	high	high	high
B	high	high	low
C	high	low	low
D	low	low	low

7 What effect would an increase in labour mobility have on equilibrium and disequilibrium unemployment?

	Equilibrium unemployment	Disequilibrium unemployment
A	decrease	decrease
B	decrease	leave unchanged
C	leave unchanged	leave unchanged
D	leave unchanged	decrease

8 What would reduce the occupational mobility of labour?

A a decrease in the price of housing

B a decrease in the school leaving age

C an increase in labour market information

D an increase in the proportion of households with access to the internet

9 Why might an expansionary monetary policy *not* reduce unemployment?

A The economy has a wide range of financial institutions.

B The economy is operating with a negative output gap.

C There is initially a high rate of interest.

D There is a lack of business and consumer confidence.

10 Which government policy tool is designed to reduce disequilibrium unemployment?

A a cut in government spending

B an increase in unemployment benefit

C privatisation

D reform of trade unions

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that full employment is the highest rate of employment that it is thought the economy can achieve			
Explain that equilibrium unemployment is the unemployment that will exist when the aggregate demand for labour equals the aggregate supply of labour and disequilibrium unemployment occurs when the aggregate supply of labour is greater than the aggregate demand for labour			
Explain the determinants of the natural rate of unemployment: level of unemployment benefit, skills of workers, labour mobility, flexibility of workers			
Analyse the implications of a government's policy approaches and tools to reduce the natural rate of unemployment			
Describe patterns and trends in unemployment/employment in various countries			
Understand that there are two forms of labour mobility: occupational mobility and geographical mobility			
Analyse the factors that influence occupational mobility and geographical mobility			
Evaluate the effectiveness of expansionary fiscal and monetary policies to reduce cyclical unemployment and supply-side policy to reduce frictional unemployment and structural unemployment			

Chapter 44

Money and banking

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of money
- explain the functions and characteristics of money
- define the meaning of money supply
- analyse the quantity theory of money
- explain the functions of commercial banks, including providing deposit accounts; lending money; holding or providing cash, securities, loans, deposits, equity; reserve ratio and capital ratio; the objectives of commercial banks
- analyse the causes of changes in the money supply in an open economy, including credit creation, government deficit financing, quantitative easing, change in the balance of payments
- explain the role of the bank credit multiplier
- explain the role of the central bank
- evaluate the effectiveness of policies to reduce inflation
- explain demand for money (liquidity preference theory)
- evaluate interest rate determination according to both the loanable funds theory and the Keynesian theory.

ECONOMICS IN CONTEXT

Bank collapses

In 2019, the customers of a small bank in Kentucky, USA, started to worry that they would lose the money they kept in deposits at the bank. Several customers rushed to take their money out. Some of those who had borrowed from the bank wondered if they could still spend the money they had been lent. The Kentucky bank, as with other commercial banks, had lent out more money than it had.

Figure 44.1: A customer withdraws money from an ATM

Banking regulators know that commercial banks have deposits of a greater value than they have cash, and assets that they can turn into cash quickly, to pay out all their customers should they want to withdraw their money. What worried the regulators about the bank in Kentucky was that the gap between the bank's holding of cash and its easy access to cash and its customers' deposits was too large. The regulators decided that the bank and two other small banks, one in New Jersey and one in Ohio, had to be closed down.

The banks' customers did not lose out as the regulators sold the banks to larger, more secure banks. The regulators did not want customers to lose their money as this could have resulted in a loss of confidence in the banking system. If customers of larger banks panic and start to withdraw their money, the whole banking system could collapse. This would have a very damaging effect on the economy, as shown in Figure 44.2.

A bank collapses
↓
Customers lose confidence in the banking system
↓
Customers try to withdraw money from their deposits
↓
Banks are unable to pay out all the money
↓
Households and firms lose money
↓
Consumer spending and investments decline
↓
The economy enters a recession

Figure 44.2: The consequences of a bank collapse

Discuss in a pair or a group:

- In what circumstances might banks be reluctant to lend?
- Should central banks support commercial banks that get into difficulties?

44.1 Introduction to money

Money is an item which people use to buy and sell goods and services. It also carries out a number of other functions (see below).

Bank notes and coins (cash) are used mainly for small purchases. Money in bank deposits is the main form of money. It is transferred from one person to another person by direct debit, credit cards and smartphones.

In recent years, there has been the development of what is known as cryptocurrencies (also called digital money and electronic money). These cryptocurrencies allow people to make and receive payments online, person to person, without the need for a commercial bank. They are also not regulated by central banks.

The best known and most widely used cryptocurrency is bitcoin. This was introduced in 2009 by an unknown entrepreneur. People can get bitcoins by accepting them in payment, buying them on special websites or carrying out tasks for the bitcoin system (known as mining). As well as using cryptocurrencies to make payments, some people get them hoping that they will rise in value. However, their value is determined by demand and supply and their value has fluctuated considerably.

While some people use bitcoins to make payments, borrow and lend and as a way of saving, the extent to which they can be considered to be money is debatable. This is because they have not yet become generally acceptable. The majority of shops and firms do not accept them as a way of paying for products.

The functions of money

The best-known function of money is to buy and sell goods and services, but it also carries out three other functions. Each of these functions has a technical name.

- Medium of exchange. We sell goods and services for money. We use the money we receive to buy other goods and services. Having money overcomes the need for the **double coincidence of wants**. Households and firms do not have to find someone who both wants what they want to exchange and has something they want in return. For example, a farmer can sell her onions to one person and use the money she receives to buy curtains from another person.
- Store of value. Money enables people to save. They can keep any money they receive from selling goods and services for future use.
- Unit of account. This function is also known as a measure of value. Money enables the value of different items to be compared as prices are expressed in money terms. For instance, if a book sells for $30 it can be said to be worth 15 times as much as a soft drink that sells for $2 a can.
- Standard of deferred payment. Money enables people, firms and the government to borrow and lend and to buy and sell in the future. For example, someone who borrows money now can agree how much they will repay in five years' time and a trader can agree to buy a given quantity of pepper in two years' time.

The characteristics of money

To act as money, an item has to possess a number of characteristics:

- Generally acceptable. This is the most important characteristic. If people are not prepared to accept an item in exchange for products, as a store of value and standard of deferred payments, if it will not act as money. In Zimbabwe, people lost confidence in the Zimbabwean dollar in 2009 due to hyperinflation (see Section 20.2). People used US dollars instead. The Zimbabwean central bank stopped printing the Zimbabwean dollar in 2009 and did not issue a new version until 2019.
- Recognisable. People have to identify the item as money. Central banks make the country's notes and coins distinctive.
- Portable. It must be easy to carry money around. Bank notes are very light and coins are not too heavy. Transferring money from one account to another account can now be done electronically and so does not involve having to carry anything. Even using credit and debit cards to transfer money involves carrying very light objects.
- Divisible. Any form of money must be divisible into units of different value. For example, the US currency has the following denominations: bank notes of $1, $2, $5, $10, $20, $50 and $100 and coins of 1 cent (penny), 5 cent (nickel), 10 cent (dime), 25 cent (quarter) and 50 cent (half dollar) (see Figure 44.3).
- Homogeneous. Each unit of money must be identical. In the past, some governments called in money and reduced, for example, the silver in the coins. People held back some of their money. When the government returned the money, people valued it less than the money they kept back.
- Limited in supply. If there is an unlimited supply of money, it would have no value. This would make it unacceptable.
- Not easy to counterfeit. If it was easy to counterfeit money, it would lose its value. Central banks now build in special features to their bank notes to try to prevent counterfeiting.

Figure 44.3: The main denominations of US currency

ACTIVITY 44.1

In a pair, produce a wallchart on items that have been used as money over time.

TIP

In examining the consequences of hyperinflation, it is useful to consider the ability of the country's currency to carry out its function.

44.2 The money supply

The **money supply** is the total amount of money in an economy. The money supply consists of currency in circulation plus relevant deposits. Governments measure the money supply to gain information about trends in aggregate demand, the state of financial markets and to help them in determining the direction of monetary policy.

In practice, measuring the money supply is not straightforward. This is because it is difficult to decide what to include in any measure of the money supply.

Economists define items as money if they fulfil the functions of money. However, the extent to which items carry out these functions varies and can change over time. As a result, governments use a variety of measures of the money supply, which are occasionally altered to reflect developments in the roles carried out by particular items.

There are two main measures of the money supply:

1. **Narrow money**: This is money that is used as a medium of exchange and consists of notes in circulation and cash held in banks and in balances held by commercial banks at the central bank. This is sometimes referred to as the monetary base.
2. **Broad money**: This consists of the items in narrow money plus a range of items that are concerned with money's functions as a store of value. An example is money in savings accounts.

44.3 The quantity theory of money

Aggregate demand is influenced by the money supply and, in turn, can influence the money supply. One theory which seeks to explain how changes in the money supply can have an impact on the economy is the **quantity theory of money**. This theory is based on the **Fisher equation:** MV = PT (also commonly written as MV = PY) where: M is the money supply V is the velocity of circulation (the number of times money changes hands) P is the price level T or Y is the transactions or output of the economy.

Both sides of the equation have to equal each other since both sides represent total expenditure in the economy. To turn the equation into a theory, monetarists assume that V and T are constant, not being affected by changes in the money supply, so that a change in the money supply causes an equal percentage change in the price level. For example, the money supply may initially be $80 billion, the velocity of circulation 5, price level 100 and output 4 billion. If V and T are unchanged, an increase in the money supply by 50% to 120 would cause the price level to also rise by 50% to 150. The monetarist view is that inflation is a monetary phenomenon. However, Keynesians argue that the equation cannot be turned into a theory since V and T can change with a change in the money supply and so no predictions can be made about what effect a change in M will have on P.

TIP

Remember to give an example when explaining the quantity theory of money.

KEY CONCEPT LINK

Equilibrium and disequilibrium: The two sides of the Fisher equation will always move to equilibrium. What is significant is what may cause the equilibrium to change. For example, expectation that the inflation rate will rise is likely to cause the velocity of circulation to increase. People will want to spend the money quickly. They will not want to hold on to money as they will expect its value to fall.

Keynesian and monetarist theoretical approaches

Keynesians are economists whose ideas are based on the work of the British economist John Maynard Keynes (1883–1946). They believe that if left to market forces, there is no guarantee that the economy will achieve a full employment level of GDP. Indeed, they think that the level of GDP can deviate from the full employment level by a large amount and for long periods. In such cases, they favour government intervention to influence the level of economic activity. They argue that if there is high unemployment, the government should use a budget deficit to increase aggregate demand. They believe that a government can assess the appropriate amount of extra spending to inject into the economy in such a situation. For most Keynesians, the avoidance of unemployment is a key priority.

ACTIVITY 44.2

In a pair, produce a scatter diagram for learners in the first year of their economics course showing the relationship between the growth in the money supply and the inflation rate in five countries, including your own country in a recent year. Figure 44.4 is an example for 2019. (Hint: for data on money supply (broad money) by country, visit the GlobalEconomy.com website; for the inflation rate, you could use the IMF's World Economic Outlook DataMapper (inflation rate, average consumer prices).)

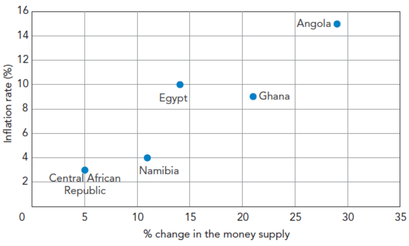


Figure 44.4: Relationship between changes in the money supply and inflation rate (%)

To support the diagram, write an explanation as to whether if a positive relationship is found that it is possible to conclude that increases in the money supply cause inflation.

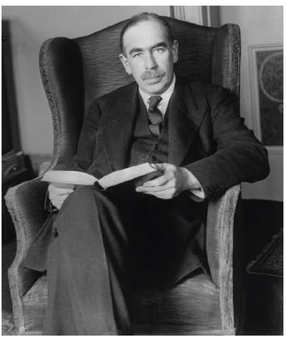


Figure 44.5: John Maynard Keynes

Figure 44.6: Milton Friedman

In contrast, for monetarists, the control of inflation is seen as the top priority for a government. This group of economists, the best-known of whom was the American economist Milton Friedman (1912–2006), argue that inflation is the result of an excessive growth of the money supply, so they believe that the main role of a government is to control the money supply. They also maintain that attempts to reduce unemployment by increasing government spending will only succeed in raising inflation in the long run. They think that the economy is inherently stable unless disturbed by erratic changes in the growth of the money supply.

44.4 Functions of commercial banks

Commercial banks, also called high street banks and retail banks, carry out a range of functions. They provide deposit accounts for their customers; there are two main types of deposit accounts. One type is a **demand deposit account** (also known as a current account or sight account). This type of account provides easy and quick access to the money in the account. It is used mainly to receive and make payments. Customers can pay in and take out cash from this type of account. The second type of account is known as a **savings deposit account**. This type of account is used mainly as a way of saving.

As well as deposits, commercial banks hold a range of other assets. These include cash, **government securities** and **equities**.

Commercial banks make most of their profits from lending. Bank customers are usually given the opportunity to overdraw their deposit account by a certain value. They can also ask for an **overdraft**. An overdraft allows customers to spend more than is in their deposit accounts. It is often used for unexpected differences in spending and income. The customer is charged interest on the overdraft. A **loan** has to be agreed with a commercial bank. It is usually for a particular purpose and a set amount of time. Interest has to be paid on the full value of the loan, whether it is used or not. The interest rate, however, is normally lower than on an overdraft.

The proportion of liquid assets to total deposits that commercial banks keep is known as the reserve ratio. To learn more about the **reserve ratio** and **capital ratio**, see Section 44.5.

THINK LIKE AN ECONOMIST

Commercial banks offer incentives to students

Figure 44.7: Students using a digital banking app to pay bills

Commercial banks in most countries try to attract students as customers. They offer a range of incentives for students to open up demand deposit accounts with them. For instance, in recent years, Canadian commercial banks have offered a free tablet, a free flat screen television, cash, an absence of bank charges and a free railcard.

1. Why are commercial banks keen to sign up students?
2. What research would you undertake before opening up a student account with a commercial bank?
3. Would you be influenced by the incentive of free gifts?

The objectives of a commercial bank

Commercial banks have three main objectives: profitability, **liquidity** and security. Commercial banks aim to achieve high profits for their shareholders mainly by lending. This objective conflicts with its two other objectives and a balance has to be achieved between the three objectives. Commercial banks have to achieve a certain level of liquidity and security. They need to have enough liquid assets, such as cash and short-term securities that will soon be turned into cash, to meet the expected request by their customers to withdraw their money in cash. These liquid assets are, however, not very profitable. Indeed, no money is earned on holding cash. Commercial banks also aim for security. They do not want to go out of business and they have to convince their customers that they are financially sound. To achieve this aim they try to ensure they have sufficient financial capital to cover their risker loans.

A commercial bank will keep some assets that are liquid but not very profitable and some that are profitable but not very liquid. It may also keep some of its profits in case some of its borrowers do not repay their loans or some of the firms it buys shares in go out of business.

KEY CONCEPT LINK

The margin and decision making: As economic activity changes, commercial banks have to review the balance of their objectives.

ACTIVITY 44.3

In a group:

1. Research the services offered by commercial banks in your area.
2. Discuss which commercial bank you would want to open a demand deposit account and a savings deposit account with, or if you are already a bank customer, why you selected that bank.
3. Write up on a flip chart the key influences on your decision.

44.5 Causes of changes in the money supply

There are five main causes of an increase in the money supply in an open economy:

1. an increase in commercial bank lending
2. an increase in government spending financed by borrowing from commercial banks
3. an increase in government spending financed by borrowing from the central bank
4. the sale of government bonds to private sector financial institutions (quantitative easing)
5. more money entering than leaving the country.

Commercial banks and credit creation

When commercial banks lend, they create money. This is because when a bank gives a loan (also called an advance by bankers), the borrower's account is credited with the amount borrowed. Banks are in a powerful position to create money because they can create more deposits than they have cash and other liquid assets (items that can be quickly converted into cash).

From experience, banks have found that only a small proportion of deposits are cashed. When people make payments, they tend to make use of credit cards, debit cards and online transfers. These means of payment involve a transfer of money using entries in the records that banks keep of their customers' deposits rather than by paying out cash. So, banks can create more deposits than they have liquid assets.

Nevertheless, they have to be careful when calculating what liquidity ratios (the proportion of liquid assets to total liabilities) to keep. This ratio can be set by a central bank when it is called a reserve ratio. The lower the proportion of liquid assets commercial banks keep, the more they can lend. However, they have to be able to meet their customers' demands for cash. If they miscalculate and keep too low a ratio, or if people suddenly start to cash more of their deposits, there is a risk of a run on the banking system. This was evidenced in 2008 when there were fears over the liquidity of some US and European banks, the result being enforced government involvement. Indeed, banking is based on confidence. Customers have to believe there is enough cash and liquid assets to pay out all their deposits even though, in practice, this is not going to be the case.

The bank credit multiplier

By estimating what reserve ratio to keep, a bank will be able to calculate its **bank credit multiplier**. When calculating its bank credit multiplier, a commercial bank will take into account its reserve ratio:

Bank credit multiplier (after loans have been made)

$$= \frac{\text{Value of new assets created}}{\text{Value of change in liquid assets}}$$

For example, if total deposits rise by $600 million as a result of a new cash deposit of $100 million, the bank credit multiplier is $600m/$100m = 6. It is also possible to calculate the bank credit multiplier, in advance:

Bank credit multiplier (in advance)

$$= \frac{100}{\text{liquidity ratio}}$$

Reserve ratio

If a bank keeps a reserve ratio of 5%, the bank credit multiplier will be 100 / 5 = 20. With this knowledge, a bank can then calculate how much it can lend. The bank first works out the possible increase in its total liabilities. This is found by multiplying the change in liquid assets by the bank credit multiplier. So, if the bank credit multiplier is 20 and liquid assets rise by $40 million, total deposits can rise by $40 million × 20 = $800 million.

To work out the change in loans (advances), the change in liquid assets is deducted from the change in liabilities. This is because the change in liabilities will include deposits given to those putting in the liquid assets. In the example, the change in loans can be $800 million – $40 million = $760 million.

However, in practice a bank may not lend as much as the bank credit multiplier implies it can. This is because there may be a lack of households and firms wanting to borrow or a lack of creditworthy borrowers. If banks persist in lending to borrowers with poor credit ratings, as was the case in the US sub-prime market in 2008, the risk of default is high and can have serious consequences on a bank's liquidity.

A bank is likely to change its reserve ratio if people alter the proportion of their deposits they require in cash, if other banks alter their lending policies or if the country's central bank requires banks to keep a set reserve ratio.

A central bank may seek to influence commercial banks' ability to lend. For example, the bank may engage in open market operations. These involve the central bank buying or selling government securities to change bank lending. If the central bank wants to reduce bank loans, it will sell government securities. The purchasers will pay by drawing on their deposits in commercial banks and so cause the commercial banks' liquid assets to fall.

ACTIVITY 44.4

A bank keeps a reserve ratio of 4%. It receives an additional cash deposit of $50 000. Calculate:

1. the credit multiplier
2. the potential increase in total liabilities (deposits)
3. the potential increase in bank lending.

Discuss your answers with another learner.

TIP

In explaining the bank credit multiplier, it is useful to give a simple numerical example.

The capital ratio

The capital ratio is a commercial bank's available financial capital expressed as a percentage of its riskier assets. The available financial capital includes its retained profits and newly issued shares. While government securities are normally assumed to carry no risk, some loans may be considered risky if the economy got into difficulties. For example, if a commercial bank had a capital ratio of 8%, this would mean that 8% of its riskier assets are covered by readily available financial capital. The higher the capital ratio a commercial bank has, the more unexpected losses it can experience without going out of business. The capital ratio is designed to protect the bank's customers in the event of a financial crisis and to promote the stability of the banking sector by discouraging excessive risk taking.

The role of a central bank

The central bank of a country carries out a range of functions. It issues bank notes and authorises the minting of coins. It is the bank of the commercial banks. Commercial banks keep deposits in the central bank. This enables the commercial banks to make payments and receive payments from other commercial banks and to withdraw money when needed. Their deposits at the central bank are considered to be liquid assets. The central bank will also usually lend to commercial banks if they get into financial difficulties.

Two of the other key functions of a central bank are to act as the banker to the government and to implement the government's monetary policy.

Government deficit financing

If the government spends more than it raises in taxation, it will have to borrow. This is organised by the central bank. If the central bank borrows, on behalf of the government, by selling government securities, including National Savings certificates, to the non-bank private sector (non-bank firms and the general public), it will be using existing money. The purchasers will be likely to draw money out of their bank deposits. So, the rise in liquid assets resulting from increased government spending will be matched by an equal fall in liquid assets as money is withdrawn.

However, if a budget deficit is financed by borrowing from commercial banks or the central bank itself, the money supply will increase. When a government borrows from the central bank, it spends money drawn out of its account kept at the central bank. This spending will increase deposits in commercial banks and so increases their liquid assets. With more liquid assets, they will be able to lend more. Commercial banks will also be able to lend more if the government borrows from them by selling them short-term government securities. This is because these securities count as liquid assets and so can be used as the basis for loans.

Quantitative easing

When the rate of interest is very low, a central bank may decide to try to increase aggregate demand by its use of **quantitative easing**. This involves a central bank buying both government and private securities, of different maturities, from financial institutions, including commercial banks. In return for the securities, the central bank credits the accounts of the commercial banks. With more liquid assets, it is hoped that the commercial banks will lend more. This should increase the money supply and reduce the short-term and long-term interest rate. These changes may, in turn, increase investment and consumer expenditure and so aggregate demand and economic activity. Quantitative easing has also been used to help markets that are in difficulties. For example, the Federal Reserve Bank of the USA has purchased mortgage-based securities to help the US housing market.

Quantitative easing was first used in Japan in the 1990s and in the UK and USA following the global recession at the end of the first decade of the twenty-first century. It has also been used in the twenty-first century when very low, or even negative interest rates, have limited central banks' ability to stimulate economic activity by reducing the rate of interest it sets.

Changes in the balance of payments

The **total currency flow** refers to the total net outflow or inflow of money resulting from international transactions, as recorded in the different sections of the balance of payments. If, for example, export revenue exceeds import expenditure, money will flow into the country on the trade balance. Exporters will deposit the money into the country's commercial banks, which will lead to a multiple increase in the money supply.

ACTIVITY 44.5

Ghana had a budget deficit every year from 2012 to 2020. Its central bank organised the sale of government debt to a range of buyers. A number of foreign governments purchased the securities issued to finance the debt. Some Ghanaian commercial banks also purchased Ghanaian government securities. Commercial banks sometimes feel it is safer to buy government securities than to lend to households and firms.

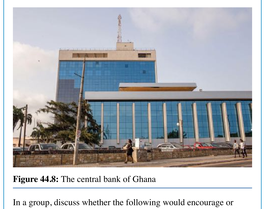


Figure 44.8: The central bank of Ghana

In a group, discuss whether the following would encourage or discourage you from buying a government security issued by the central bank of Ghana to finance its budget deficit:

1. the budget deficit has arisen due to increased government spending on schools and hospitals
2. the budget deficit has arisen due to an increase in the pay of top government officials
3. it is predicted that the Ghanaian government might default on its loan repayments
4. it is predicted that Ghanaian banks are very keen to purchase the securities
5. share prices are predicted to rise in your country
6. it is predicted that the Ghanaian government budget position would move into surplus next year and would stay in surplus for the next six years.

TIP

Keep up-to-date with your government's use of policy tools so that you can support your answers with real-world examples.

44.6 The effectiveness of policies to reduce inflation

As discussed in Sections 22.5 and 23.3, contractionary monetary and/or contractionary fiscal policy can be used to reduce inflation. Supply-side policy can also be used in the case of cost-push inflation. For example, increased spending on training can raise labour productivity and so reduce labour costs or at least reduce the upward pressure on labour costs. Lower corporate tax may encourage firms to buy more efficient capital equipment, which can also put downward pressure on price rises.

How effective policies are in reducing inflation depends on a number of factors. One can be whether the type of inflation has been correctly identified. Inflation may be of a cost-push type, arising when the economy is operating at less than full employment. If a government then introduces contractionary monetary and fiscal policies, the fall in aggregate demand may not have much impact on the price level but could increase unemployment. In practice, it is often difficult to distinguish between cost-push and demand-pull inflation. This is because once inflation is under way, it is usually a mixture of cost-push and demand-pull inflation. Also, some policy tools can help to reduce both types of inflation, at least in the long run. For example, an increase in government spending on education and training may increase demand-pull inflation in the short run. However, in the long run it may reduce cost-push inflation by raising productivity and lowering costs of production, It could also allow the economy to sustain larger increases in aggregate demand without experiencing inflation.

Governments and central banks make estimates of future inflation rates – the further they are into the future, the more uncertain these forecasts are. It might be predicted that demand-pull inflation is accelerating and will cause a problem. There is no guarantee that such a forecast is right and even if it is, it will take time to decide on the appropriate policy tool, implement it and for households and firms to react. By the time all these changes occur, the inflation rate may have fallen and any policy tool designed to reduce aggregate demand may just increase the severity of any downturn.

There may be limits on the policy tools a government can use. If it is a member of an **economic and monetary union**, it will not be able to set its own interest rate. Any country may be reluctant to raise its income tax rate if it thinks this will encourage some of its skilled workers to emigrate and will discourage multinational companies from setting up in the country. A government may also want to spend more on infrastructure to reduce cost-push inflation, but may be reluctant to raise tax rates and may lack willing lenders.

A government may decide that inflation is the result of the money supply growing faster than output, but it can be difficult to control the growth of the money supply. This is because commercial banks have a profit incentive to increase their loans and they are inventive in getting around any limits on bank lending.

One of the main influences on the effectiveness of anti-inflationary policies is how households and firms react. Contractionary monetary and/or fiscal policies may be introduced to lower demand-pull inflation. This will occur at a time when households and firms are likely to be optimistic about the future. In such a situation, a rise in the rate of interest, for example, may not reduce consumption and investment. A rise in income tax rates may cause people to work more hours to maintain their living standards rather than reduce their spending. There is also no guarantee that if a government trains or provides subsidies for firms to train workers, that firms will have the capital equipment that can take full advantage of the workers' new skills. If productivity of workers rises by less than their wage rates, costs of production will still rise.

TIP

In your answers, it is useful to draw on examples of policy tools used in your own country to correct balance of payments disequilibrium and inflation.

ACTIVITY 44.6

Your government estimates that it requires spending per person to fall, on average, by $2000 to reduce demand-pull inflation. In groups of five:

1. Select a card.
   - Card 1: You have disposable income of $30 000 a year and currently spend $25 000 a year.
   - Card 2: You have disposable income of $10 000 a year and currently spend $11 000 a year by reducing past saving.
   - Card 3: You have a disposable income of $200 000 a year and currently spend $90 000 a year.
   - Card 4: You receive $5000 a year and currently spend $7000 a year. You borrow to finance the extra spending.
   - Card 5: You are retired and receive a pension of $8000 a year and you spend $8000 a year.
2. Decide how much less you would spend if the government raised sales tax from 10% to 15% and the central bank increased the rate of interest from 5% to 8%.
3. Write up on a flip chart your change in spending and the reason for the change.
4. If your total is more than $10 000, discuss the impact this may have on unemployment and economic growth. If it is lower than $10 000, discuss another policy tool that could reduce consumption further.
5. Discuss whether you think it will be easy for a government to meet its target for aggregate demand.

REFLECTION

How did the activity emphasise to you the importance of disposable income as a determinant of consumption? How did it help you to understand other influences on spending and saving?

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Anti-inflationary policy tools have a different impact on different income groups. For example, a cut in government spending on healthcare is likely to have more of a negative effect on the poor than on the rich.

TIP

Remember that the effectiveness of anti-inflationary policies is influenced by how economic agents react.

The monetary transmission mechanism

This is the process by which a change in monetary policy works through the economy via a change in aggregate demand to the price level and the real GDP. There are a number of links in this process. For example, an increase in the money supply may lower the interest rate, which in turn may increase aggregate demand. Higher aggregate demand may increase output and/or the price level.

44.7 The liquidity preference theory

a Keynesian concept
that explains why
people demand money

The demand for mo ference. There are three main motives part of their wealth in a money form.

The motive most people will be familiar with is the **transactions motive**. This is the desire to hold money to make everyday purchases and meet everyday payments. How much is held by a household or firm is influenced by the income received and the frequency of the income payments. Generally, the more income received and the more infrequently the payments are received, the higher the amount that will be held.

Usually, firms and households hold rather more of their wealth in money form than they anticipate they will spend. This is so that they can meet unexpected expenses, and take advantage of unforeseen bargains. This is known as the **precautionary motive**. Money resources held for the transactions and precautionary motives are sometimes referred to as **active balances** as they are likely to be spent in the near future. They are relatively interest inelastic so that, for example, a rise in the rate of interest will not result in households and firms significantly cutting back on their holdings of money for transactions and precautionary reasons.

In contrast, the third motive for holding money balances, the **speculative motive**, is interest elastic. Households and firms will hold what are sometimes called **idle balances** when they believe that the returns from holding financial assets are low. One financial asset that firms and households may decide to hold is government bonds. These are government securities that represent loans to the government. The price of government bonds and the rate of interest (in percentage terms) move in opposite directions. For example, a government bond with a face value of $500 may carry a fixed interest rate of 5% of its issue price. If the price of the bond rises to $1000, the interest paid will now represent 2.5% of the price of the bond. Households and firms are likely to hold money when the price of bonds is high and expected to fall. This is because they will not be forgoing much interest and because they will be afraid of making a capital loss. The speculative demand for money will be low when the price of bonds is low and the rate of interest is high.

It is interesting to note that, while the transactions and precautionary motives for holding money are interest inelastic, the demand for holding money for the speculative motive is interest elastic.

44.8 Interest rate determination

Keynesians argue that the rate of interest is determined by the demand for and supply of money. They assume that the supply of money is determined by the monetary authorities and is fixed in the short run.

Figure 44.9 shows the combined transactions, precautionary and speculative motives for holding money in the form of liquidity preference (or demand) for money. The rate of interest is at R, since this is where the liquidity preference curve intersects the supply of money curve.

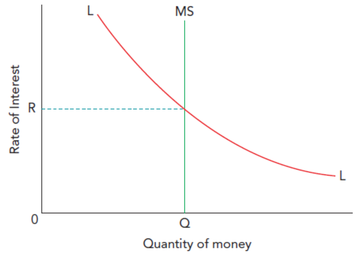


Figure 44.9: The liquidity preference theory of interest rate determination

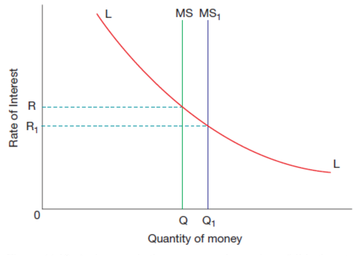


Figure 44.10: An increase in the money supply causing a fall in the rate of interest

An increase in the money supply will cause a fall in the rate of interest, as illustrated in Figure 44.10. The rate of interest falls because the rise in the money supply will result in some households and firms having higher money balances than they want to hold. As a result, they use some to buy financial assets. A rise in demand for government bonds will cause the price of bonds to rise and so the rate of interest to fall.

The liquidity trap

Although it is expected that an increase in the money supply will cause the rate of interest to fall, Keynes described a situation where it would not be possible to drive down the rate of interest by increasing the money supply. He described this situation as the **liquidity trap**. He thought it could occur when the rate of interest is very low and the price of bonds is very high. In this case, he thought that speculators would expect the price of bonds to fall in the future, so if the money supply was to be increased they would hold all the extra money. They would not buy bonds for fear of making a capital loss, and because the return from holding such securities would be low. Figure 44.11 shows that at a rate of interest R, demand for money becomes perfectly elastic and the increase in the money supply has no effect on the rate of interest.

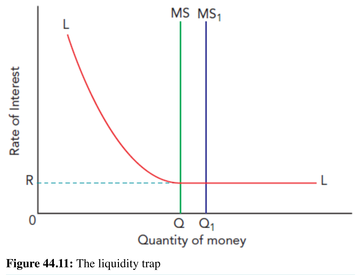


Figure 44.11: The liquidity trap

TIP

The concept of the liquidity trap can be brought into an assessment of the effectiveness of monetary policy. This is because when the rate of interest is very low, it may no longer be worthwhile cutting it further and so this particular policy tool may not be an option.

Loanable funds theory

This theory suggests that the rate of interest is determined by the demand for and supply of loanable funds as shown in Figure 44.12.

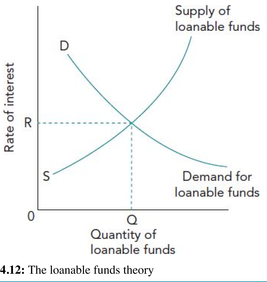


Figure 44.12: The loanable funds theory

The demand for loanable funds is the demand for money to borrow. For example, households borrow money to purchase cars and houses. Firms may demand loanable funds because they are in financial difficulties or more commonly because they want to invest. The government may also want to borrow if it has a budget deficit. The demand for loanable funds slopes down from left to right as borrowing and the rate of interest are inversely related. The lower the rate of interest, the more likely that economic agents will borrow more.

The supply of loanable funds comes from savings. The more money that is saved, the more money there will be available to lend. The supply of loanable funds curve slopes up from left to right as savings and the rate of interest are directly related. The higher the rate of interest, the more likely economic agents will save as they will gain a higher return.

The theory suggests that an increase in savings will result in a rise in the supply of loanable funds and a fall in the rate of interest as shown in Figure 44.13.

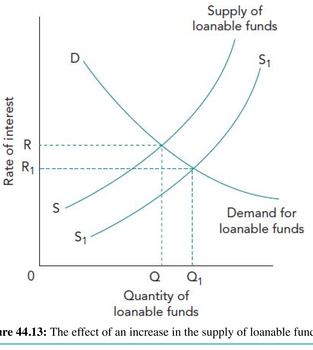


Figure 44.13: The effect of an increase in the supply of loanable funds

ACTIVITY 44.7

In a pair, prepare a presentation on how an increase in real GDP per head may affect the rate of interest according to liquidity preference theory and loanable funds theory. Include diagrams in your presentation.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What must an item be to act as money?

A backed by gold

B generally acceptable

C indivisible

D unlimited in supply

2 The quantity theory of money suggests that a 4% rise in the money supply will result in a 4% increase in:

A real GDP.

B the level of employment.

C the price level.

D the velocity of circulation.

3 A country's money supply increases from \$10bn to \$12bn. Its national income rises from \$40bn to \$60bn. What is the change in the velocity of circulation?

A a fall from 0.25 to 0.2

B a fall from $2\frac{1}{2}$ to 2

C a rise from 4 to 5

D a rise from $\frac{1}{4}$ to $\frac{1}{5}$

4 A country's price level index is initially 120. The index numbers for the country's money supply, velocity of circulation and output change to 150, 120 and 125. What is the change in the price level?

A a fall of 30

B a fall of 20

C a rise of 24

D a rise of 36.25

5 A commercial bank keeps a liquidity ratio of 5%. It attracts an additional \$10 000 in deposits. What is the maximum amount this will enable the bank to lend?

A \$50 000

B \$100 000

C \$190 000

D \$200 000

6 What could increase the bank credit multiplier?

A an increase in commercial banks' reserve ratio

B an increase in firms going out of business

C a reduction in the demand for bank loans

D a reduction in the use of cash by households and firms

7 What effect is the purchase of government securities by a central bank likely to have?

	Money supply	Rate of interest
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

8 What would cause an increase in liquidity preference?

A an expectation that the price level will not change

B an expectation that the rate of interest will rise

C people being paid more frequently

D people buying more insurance

9 When would an increase in the money supply have no effect on the rate of interest?

A liquidity preference is perfectly income elastic

B liquidity preference is perfectly interest elastic

C the price level is constant

D the velocity of circulation is constant

10 According to the loanable funds theory, what would cause a decrease in the rate of interest?

A a decrease in the money supply

B a decrease in the bank credit multiplier

C an increase in aggregate demand

D an increase in saving by households and firms

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that money acts as a medium of exchange, store of value, unit of account and standard of deferred payments			
Explain the functions and characteristics of money: acceptable, recognisable, portable, divisible, homogeneous, limited in supply and not easy to counterfeit			
Understand that money supply includes notes, coins and money in bank accounts			
Analyse the quantity theory of money which proposes that an increase in the money supply will cause an equal percentage change in the price level			
Explain the functions and the key objectives of commercial banks (profitability, liquidity and security)			
Analyse the four main causes of changes in the money supply in an open economy: credit creation, government deficit financing, quantitative easing, change in the balance of payments			
Explain that the bank credit multiplier shows how much money a commercial bank can create by lending			
Describe the role of the central bank			
Evaluate the effectiveness of anti-inflationary policies			
Understand that the demand for money is explained by the liquidity preferences of households and firms			
Consider the Keynesian view of interest rate determination that the rate of interest is determined by the demand for and supply of money, compared with the loanable funds theory that suggests that the rate of interest is determined by the demand for and supply of loanable funds			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Changes in the economy of the Netherlands

The Netherlands is a high-income country. It has one of the largest economies of the world and in 2019 was the seventh largest exporter. In recent years, its economy has experienced a double dip recession. Between 2008 and 2009, the country's output fell as a result of the global financial crisis. The Netherlands suffered from a decline in global demand, problems with its own banks and a loss in consumer and business confidence. After a short-lived recovery, the economy went back into recession between 2012 and 2013. This time, a fall in consumer confidence was combined with contractionary fiscal policy measures. The government raised VAT and decreased its spending.

Between 2013 and 2019, the economy picked up. Each year more jobs were created and unemployment fell each year from 9% in 2013 to 4.2% in 2019. People from a migrant background continued to be more likely to be unemployed than those born in the country. The proportion of permanent jobs declined with more workers on flexible contracts. Wage growth was modest, averaging 1.8%. The Netherlands has the highest rate of part-time work in Europe for both men and women. In the period 2013 and 2018, this contributed to a growing wage inequality in the country. Productivity growth, despite a reduction in training, has been good.

The country has had a current account surplus for decades, largely as a result of positive net exports, but its economic growth between 2013 and 2019 was driven largely by increases in domestic demand. Investment contributed 21% of the country's aggregate demand, but it was consumption that was the largest component and increased the most. The government had a budget surplus from 2013 and 2019. In 2019, the government increased the rate of VAT. This time, it increased its spending.

Over the period 2013 – 2019, life expectancy in the Netherlands increased from 81.3 years to 82.5 years and GDP per head rose, by a relatively small amount, from $52 190 to $52 600. Over this period, the educational qualifications of the population rose with a greater percentage of students continuing on to higher education.

a What evidence is there in the material that aggregate demand increased in the Netherlands between 2012 and 2019. **[4]**

b Explain why the Netherlands experienced a recession in 2013. **[4]**

c Consider whether there is conflicting evidence that the Netherlands experienced inclusive growth between 2013 and 2019. **[5]**

d Discuss how an increase in an indirect tax can affect the inflation rate. **[7]**

Essays

2 'Most countries have a similar multiplier.' Assess this statement. **[20]**

3 Assess the extent to which business cycles are caused by changes in investment. **[20]**

4 Assess how commercial banks can influence a country's macroeconomic performance. **[20]**

Unit 10

Government macroeconomic intervention (A Level)

UNIT INTRODUCTION

In this unit, you will explore the relationships between the different government macroeconomic policy objectives. You will be introduced to two versions of a diagram which plots the relationship between unemployment and inflation. You will then consider the effectiveness of the main government policies and the problems and conflicts that can arise in their use. For example, you will examine how government policies to promote economic growth may result in an increase in imports and a deficit on the current account of the balance of payments. You will also explore the reasons why government policies may not always achieve their objectives.

Chapter 45

Government macroeconomic policy objectives

LEARNING INTENTIONS

In this chapter you will learn how to:

- analyse macroeconomic policy objectives in terms of inflation, balance of payments, unemployment, growth, development, sustainability and redistribution of income and wealth.

ECONOMICS IN CONTEXT

Mongolia's improving macroeconomic performance

Mongolia has been experiencing high economic growth in recent years. Between 2010 and 2019, its average economic growth rate was 8.8%. Its economic growth rate did fluctuate in this period, for instance, it was 5.4% in 2017 and 6.7% in 2019. With output rising at a more rapid rate, the country's unemployment rate fell from 7.2% in 2017 to 6.3% in 2019. Over these two years, however, its inflation rate rose from 4.6% to 9.3%.

Figure 45.1: A uranium mine in Mongolia

Much of Mongolia's output and exports come from mining. The country has extensive deposits of coal, copper, gold, uranium and other minerals. Mining creates employment and incomes but it also causes a range of external costs including air pollution and water pollution. It is also a relatively dangerous occupation with a higher percentage of accidents than most industries.

Mongolia's capital, Ulaanbaatar, was ranked the 6th most polluted capital city in 2018. Many homes in the city burn coal both to heat their homes and to cook their food. At the end of 2018 and start of 2019, the Mongolian government closed the city's schools to protect the children from the toxic air.

Mongolia is classified as having high human development by the United Nations (there are four categories: very high development, high development, medium and low development). Figure 45.2 is a development diamond diagram. This type of diagram shows a comparison between four indicators of development for a country and those indicators for that country's development or income group.

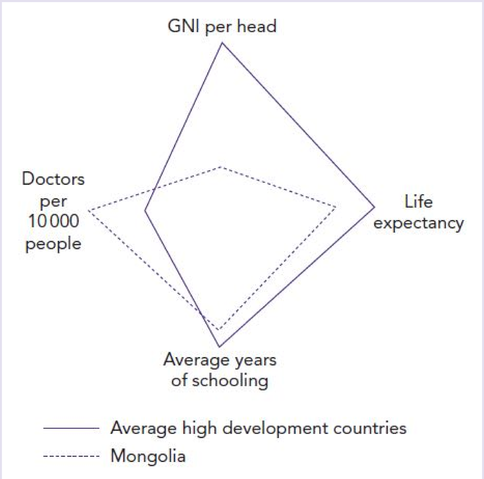


Figure 45.2: Development diamond

Discuss in a pair or a group:

- How might an increase in copper mining affect Mongolians' quality of life?
- What does the development diamond indicate about how quality of life in Mongolia compares to countries considered to be of a similar level of development?

45.1 Inflation

Governments aim for low and stable inflation. A high number of governments now set their central banks a target inflation rate to achieve. Their chances of achieving their targets are influenced by a range of factors. One is the inflation rate of other countries. A country's firms may import raw materials or capital goods from a country that is experiencing high inflation. If it cannot source these from elsewhere, the country's costs of production will rise which is likely to push up the country's inflation rate. For example, the country may be an importer of oil. In this case, the decision by oil producing countries to raise the price of oil would be likely to increase cost-push inflation. High inflation in the country's rival trading partners may also reduce pressure on the country's firms to keep their price rises low.

A government and a central bank's ability to implement anti-inflation policy tools is also influenced by what other governments and central banks are doing. If a government raises its income tax rates and other countries do not, the country may lose some of its skilled workers and multinational companies may be discouraged from setting up in the country. A rise in the country's interest rate above that of rival countries may attract an inflow of money into the country's banks. This may push up the country's exchange rate. While this may help to lower inflation, it may reduce the international competitiveness of the country's products. Government and central bank officials often meet with those from other countries to discuss their policy approaches.

TIP

Remember that performance on one macroeconomic policy objective influences the other objectives.

45.2 Balance of payments stability

Governments usually aim for the total of the credit items in the current account of the balance of payments to equal the total of the debit items in the long run. There are a number of reasons for this. A current account deficit reduces aggregate demand and can result in external debt. A current account surplus can be inflationary and can involve an opportunity cost of forgone imports.

Governments also seek to avoid large changes in the current account balance. Fluctuations in the current account balance can result in changes in the exchange rate. Moving from a large current account deficit to a smaller deficit or current account surplus and then back to a large deficit can cause the exchange rate to rise and then fall. Changes in the exchange rate can create uncertainty. Such uncertainty can reduce investment and economic growth.

45.3 Unemployment

Governments seek to keep unemployment low and of short duration. The quicker the unemployed can return to work, the less output will be lost and the lower government spending on unemployment benefits will be. If workers experience only short periods of unemployment, they may not lose much income. They are also unlikely to miss out on much training or technological developments and advances in working practices.

ACTIVITY 45.1

Figure 45.3: Manila, the capital of the Philippines

In recent years, the Philippines has faced a number of economic challenges. Before 2018, the country had a surplus on the current account of the balance of payments, largely because of money sent home by people working abroad. Since 2018, it has had a current account deficit. Its economic growth rate had fallen for a while and its inflation rate had risen. To increase the country's macroeconomic performance, the government borrowed to spend on improving the country's infrastructure. At the time the government took out its loans, the rate of interest was low.

In a group, discuss:

1. what effect an increase in a country's inflation rate would be expected to have on its current account balance
2. whether borrowing now to spend on improving the country's infrastructure would lead to increased borrowing in the future.

Make a podcast of your discussion using a simple recording device, such as a smartphone.

45.4 Economic growth

Governments may aim for economic growth, or an increase in the economic growth rate if the economy has been experiencing a negative output gap. To achieve this, it may use expansionary fiscal and/or expansionary monetary policy. If national output does rise, unemployment is likely to fall. However, there is a risk that demand-pull inflation may occur if aggregate demand increases too much. The effect on the current account of the balance of payments of an increase in national output is uncertain. There may be a rise in exports, but more raw materials and capital goods may be purchased to assist in the production of more goods and services. Some of the accompanying rise in income may be spent on imported goods and services.

Higher output may not be sustainable if it causes a depletion of non-renewable resources and damages the environment. For example, agricultural output may rise in the short run as a result of the use of chemical insecticides and weedkillers. If, however, these damage the soil, future agricultural output may fall.

Governments promote potential economic growth by using supply-side policy. Expanding productive capacity should reduce the chances of an economy experiencing demand-pull inflation. By keeping down rises in the costs of production, an increase in productive capacity may increase international competitiveness and so improve the balance of payments performance. The impact on unemployment is more uncertain. For example, improvements in education and training will increase the skills of workers, which should make them more attractive to employers. However, if demand for the goods and services workers could produce is lacking, they will not be employed. Support for technological improvement is likely to create some new jobs but also end the need for other jobs.

45.5 Economic development

In its World Development Report of 1991, the World Bank offered the following view of development:

> The challenge of development […] is to improve the quality of life. Especially in the world's poor countries, a better quality of life generally calls for higher incomes – but it involves much more. It encompasses as ends in themselves better education, higher standards of health and nutrition, less poverty, a cleaner environment, more equality of opportunity, greater individual freedom and a rich cultural life.

This statement remains true. Although it acknowledges that economic growth is important, it makes clear that higher income in itself is not sufficient to ensure that there is a rise in the quality of life for the citizens of a country. This is a much broader view of development than one confined purely to increases in GDP. It is one that provides a different focus for those responsible for development policy planning and moves away from measures designed purely to increase and maintain an economic growth target. The US economist Michael Todaro states that development must be seen as a multidimensional process.

> Development […] must represent the whole gamut of change by which an entire social system, tuned to the diverse basic needs and desires of individuals and social groups within that system, moves away from a condition of life widely perceived as unsatisfactory toward a situation or condition of life regarded as materially and spiritually better.
>
> (M.P. Todaro, *Economic Development*, 1995)

ACTIVITY 45.2

In 2019, the average earnings of full-time female workers in Australia was 14% lower than male full-time workers. The labour force participation rate of women was 75% and of men was 83%. Women account for 38% of all full-time employees and 68% of all part-time employees. Women make up 59% of students enrolled at Australian universities.

In pairs:

1. research why more women are entering the labour force in Australia
2. predict whether the gap between female and male wages in Australia will narrow in the future
3. produce a leaflet with your research findings and the reasons for your prediction.

45.6 Sustainability

Very rapid economic growth may be achieved, but this may be at the expense of the living standards and quality of life of future generations if it results from the reckless use of resources. Both developed and developing countries are now becoming more concerned to achieve **sustainable development**. This occurs when output increases in a way that does not harm the needs of future generations. Materials such as aluminium, plastics, paper and glass can be recycled. More use could be made of renewable resources in preference to non-renewable resources, and improvements in technology may both increase output and reduce pollution. Cutting back on CO_2 emissions, reducing landfill and dumping less waste into rivers and the sea are all central to realising improved sustainability.

Figure 45.4: A solar farm providing renewable energy

KEY CONCEPT LINK

Progress and development: Economic growth means a country's real GDP has increased but development means it has progressed in a wider sense.

TIP

In discussing whether an economy is developing, it is useful to consider whether its economic growth is sustainable.

45.7 Redistribution of income and wealth

Governments take some money from the rich and use it to help those on low incomes either in the form of cash benefits or in the form of the provision of goods and services such as subsidised housing or free healthcare. Some people receive a low income through no fault of their own. They may, for instance, have health-related issues or be old. Those who are on low incomes also receive more benefit from an extra dollar than the rich would have received if they kept the dollar.

The extent to which governments redistribute income varies. This is, in part, because they have different views on how significant can be the disincentive effect to work and enterprise of, for instance, progressive taxation.

KEY CONCEPT LINK

Regulation, equality and equity: Governments seek to make income more evenly distributed, in part, on grounds of fairness.

ACTIVITY 45.3

In a pair, prepare and give a presentation on whether your country is likely to meet the UN's sustainable development goals. You might wish to give your presentation to parents of the class.

REFLECTION

Did preparing the presentation help to give you a better understanding of the nature of sustainability? How could you apply this to enable you to understand complex topics? If you gave the presentation to parents, were you able to explain the economics in a way that was clear and understandable for non-economists?

THINK LIKE AN ECONOMIST

International tourism

International tourism has increased significantly in recent years and, after a downturn in 2020, is likely to continue to grow. Tourism creates jobs and incomes, but it also creates environmental damage.

Figure 45.5: Tourism in the Maldives

Tourism contributes over 60% of the GDP of the Maldives. However, it is also responsible for 80% of emissions of greenhouse gases in the country. Waste and litter created by tourists is also significant, although the country has made progress in recent years in recycling.

1 How does tourism affect the quality of life in your country?

2 How may the environmental damage caused by tourism be reduced in the future?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Which two government macroeconomic policy objectives are most likely to benefit from an increase in aggregate demand?

A a decrease in cyclical unemployment and an increase in economic growth

B a decrease in import expenditure and a decrease in demand-pull inflation

C an increase in price stability and an increase in frictional unemployment

D an increase in exports and a decrease in cost-push inflation

2 Why might the government macro policy objective of redistribution of income result in inflation?

A It will increase aggregate demand as people with a low income have a higher mpc than those with a high income.

B It will increase aggregate supply as there will be a greater incentive to become an entrepreneur.

C It will increase the role of automatic stabilisers.

D It will increase the value of leakages from the circular flow.

3 Which policy tool could help a government achieve its objective of low unemployment?

A a decrease in limits on bank lending

B a lower school leaving age

C an increase in income tax

D a revaluation of the exchange rate

4 A country's economic growth rate rises but so does its unemployment rate. What could explain this?

A a decrease in the rate of interest

B a decrease in the size of the labour force

C an increase in net exports

D an increase in productivity

5 A government has the macro policy objective of reducing demand-pull inflation. Which policy measure should it *not* introduce?

A increase income tax rates

B increase the rate of interest

C reduce the growth of the money supply

D reduce the value of the currency

6 A government estimates that to achieve low unemployment, the national income has to be $800bn. Its consumption function is $100bn + 0.6Y. It is calculated at a national income of $800bn, investment would be $120bn, exports $90bn and imports $150bn. What would be the value of government spending?

A $10bn

B $140bn

C $160bn

D $640bn

7 Which activity would increase economic growth but would not be sustainable?

A cleaning up polluted rivers

B deforestation

C education

D recycling

8 Which combination of policy tools would redistribute income from those on high incomes to those on low incomes?

	Inheritance tax	Transfer payments
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

9 A government wants to spend more on training the unemployed to reduce the unemployment rate and increase economic growth. It does not want to raise taxes to finance the extra expenditure and does not want to increase the money supply. Which source of borrowing should it use?

A domestic commercial banks

B foreign commercial banks

C private individuals

D its central bank

10 A government has as its key macroeconomic objective that 'everyone shares in the benefits of economic growth'. Which change would help it achieve this objective?

A a decrease in the school leaving age

B a decrease in the unemployment rate

C an increase in income inequality

D an increase in the tax on basic necessities

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Analyse macroeconomic policy objectives that aim to maintain a low and stable rate of inflation			
Analyse macroeconomic policy objectives that aim to achieve balance of payments stability			
Analyse macroeconomic policy objectives that aim to keep unemployment low and of short duration			
Analyse macroeconomic policy objectives that aim for economic growth or an increase in the economic growth rate			
Analyse macroeconomic policy objectives that aim to achieve sustainable development			
Analyse macroeconomic policy objectives that aim to redistribute income and wealth from the rich to people on low incomes			

Chapter 46

Links between - macroeconomic problems and their interrelatedness

LEARNING INTENTIONS

In this chapter you will learn how to:

- describe the relationship between the internal value of money and the external value of money
- explain the relationship between the balance of payments and inflation
- explain the relationship between growth and inflation
- explain the relationship between growth and the balance of payments
- explain the relationship between inflation and unemployment
- analyse the traditional Phillips curve
- analyse the expectations-augmented Phillips curve (short- and long-run Phillips curve).

ECONOMICS IN CONTEXT

Nigeria's mixed macroeconomic performance

Nigeria has relied heavily on oil production in the past. Specialising in one product has a number of risks. For instance, demand can fall, reducing the country's exports and GDP. Nigeria is now seeking to diversify its economy by promoting the growth of its secondary and tertiary sectors. To help achieve this, it is improving its infrastructure, building new rail links, roads, ports and new airport terminals.

Figure 46.1: Lekkiport, a deep sea port in Lagos

A diversified economy is likely to cope better with demand- and supply-side shocks. Nigeria's growth rate has fluctuated in recent years, falling from 8% in 2010 to 2.3% in 2019, experiencing negative economic growth of 1.6% in 2016. The country experienced a deficit on the current account of its balance of payments in 2015 but in all the other years between 2010 and 2019 it had a surplus on the current account. The surpluses were relatively small, averaging 2.3% as a percentage of GDP.

Nigeria's inflation rate and unemployment rate have also fluctuated over the period 2010 to 2019 as shown in Figure 46.2. The inflation rate fluctuated from 8.1% to 16.5%. There was rather less change in the unemployment rate which ranged from 3.6% to 6.2%.

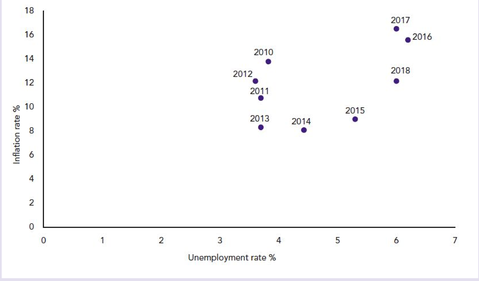


Figure 46.2: Nigeria's inflation rate and unemployment rate, 2010–2019

Discuss in a pair or a group:

- Would the number of people employed in Nigeria between 2017 and 2018 have been unchanged?
- In what way does the diagram show any pattern in the relationship between the unemployment rate and the inflation rate?
- Why might changes in the unemployment rate and the inflation rate move in opposite directions?

46.1 The relationship between the internal and external value of money

The internal value of a country's currency and its external value may be closely connected. The internal value will fall as a result of inflation. Each unit of the currency will buy less in the domestic market.

If the internal value of a country's money falls as a result of a rise in its inflation rate above that of rival countries, demand for its products will fall. As a result, demand for the country's currency will fall as foreigners buy fewer of the country's exports, while the supply of the currency on the foreign exchange market will rise as more imports are purchased. The reduced demand and higher supply of the currency will cause a depreciation, as shown in Figure 46.3.

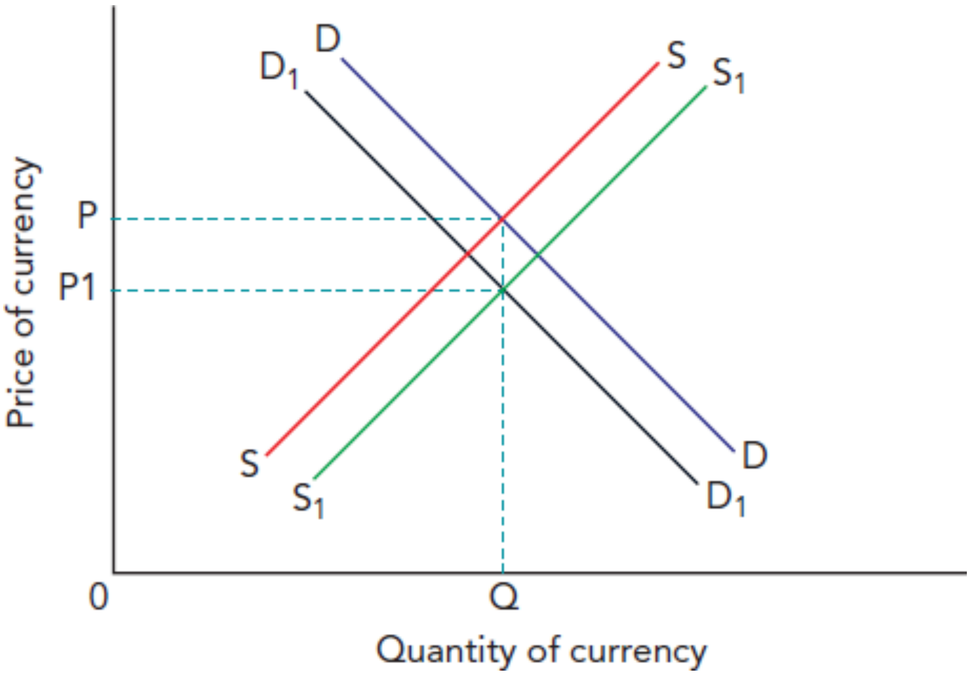


Figure 46.3: The effect of higher inflation on the external value of a currency

A change in the external value of the currency – the exchange rate – will, in turn, affect the internal purchasing power of a country's money. A fall in the exchange rate will raise the price of a country's imports in terms of the home currency. This will directly and indirectly reduce the value of the country's money. Each unit of the currency will now buy fewer of the now more expensive finished imported products. For example, originally US$1 may exchange for 8 Argentine pesos. If the value of the US dollar then falls to 6 Argentine pesos, an Argentine import priced at 480 Argentine pesos, will rise in price from US$60 to US$80. Purchasing power may also be reduced as a result of the increase in the price of imported raw materials and the reduction in competitive pressure, driving up the prices of domestically produced products. So the internal and external values of a country's money tend to be directly related, with a fall in the internal value leading to a fall in the external value and vice versa.

TIP

Remember when answering essay questions that while the internal and external values of a currency are likely to be connected, this may not always be the case. For example, a country may experience inflation, but if it has a fixed exchange rate or if its inflation rate is below that of rival countries, its external value may not even fall. Indeed, it may rise.

46.2 The relationship between the balance of payments and inflation

As mentioned above, if a country's inflation rate rises above that of its main competitors, its price competitiveness will fall. Export revenue will decline while import expenditure rises and the current account balance will deteriorate.

An increase in a current account surplus may cause inflation as it will mean that net exports are making an increasing contribution to aggregate demand and more money will be flowing into the country than leaving it. However, this upward pressure on the domestic price level, and so downward pressure on the internal value of the currency, may be short-lived. This is because an increasing current account surplus may cause a rise in the exchange rate. An appreciation may reduce the surplus and will tend to reduce the inflation rate as the price of imported products will fall and there will be more pressure on domestic firms to keep their prices low.

A net inflow on the financial account may reduce a country's inflation rate if multinational companies bring in advanced technology and increase competitive pressure within the economy.

KEY CONCEPT LINK

Time: The effect of economic growth on the current account of the balance of payments may vary in the short run and long run.

46.3 The relationship between growth and inflation

A high rate of inflation is likely to reduce a country's economic growth rate. This is because net exports are likely to fall. The resulting lower aggregate demand would be expected to reduce the country's output, or at least reduce the growth of the country's output.

The effect of economic growth on inflation is more uncertain. A rise in actual economic growth may be accompanied by cost-push or demand-pull inflation. As more is produced, there will be more competition for resources, including workers, which will raise their price. Higher output also increases income and so aggregate demand. The gap in the growth of the two will become more acute as the economy approaches full employment level.

However, potential economic growth can reduce inflation. It enables aggregate demand to increase without pushing up the price level and it can reduce the costs of production. For instance, advances in technology can enable a higher output to be produced per factor input.

KEY CONCEPT LINK

Equilibrium and disequilibrium: A change in a country's inflation rate can cause a change in the equilibrium level of national income.

ACTIVITY 46.1

Table 46.1 shows the inflation rate and economic growth rate for five selected countries in 2019.

Country	Inflation rate (%)	Economic growth rate (%)
Argentina	53.0	−1.7
Czech Republic	2.8	2.4
Malaysia	0.8	4.5
South Africa	4.0	0.4
Turkey	15.2	0.2

Table 46.1: Information of five selected countries, 2019

In a pair, discuss:

1. how an economist might show information on the relationship between countries' economic growth rates and their inflation rates
2. whether the relationship shown in Table 46.1 is the one economists would expect
3. two other influences on economic growth an economist may consider.

46.4 The relationship between growth and the balance of payments

Economic growth may be export-led. This means it is largely the result of an increase in net exports. Higher net exports will cause a multiple increase in GDP. In this case, economic growth will be accompanied by an improvement in the current account of the balance of payments. There can also be this positive relationship if there is potential economic growth. In this case, the price competitiveness and, possibly, the quality competitiveness of the country's products could increase.

However, there is the possibility of an inverse relationship, at least in the short run. Firms may purchase raw materials and capital goods from other countries in order to produce a higher output. If some of the output is exported, the initial rise in imports may be matched by an increase in exports.

An increase in a current account surplus will increase aggregate demand which can cause actual economic growth. Some countries, including Singapore, have experienced significant increases in their national income as a result of a rise in exports.

TIP

Recognise when answering essay questions on changes in the macroeconomy that the balance of payments, inflation, economic growth and unemployment are all interrelated. A change in one would have an impact on the others.

46.5 The relationship between inflation and unemployment

Economists have devoted considerable attention to the relationship between inflation and unemployment. They have studied how changes in the inflation rate can affect unemployment and how changes in the unemployment rate can affect the inflation rate. They have also examined how government policy designed to reduce the unemployment rate influences both the unemployment rate and the inflation rate.

THINK LIKE AN ECONOMIST

Inflation

In 2019, inflation in Argentina reached 53%. This was the highest rate the country had experienced since 2013. Average household spending on food doubled from $50 to $100, taking up nearly half the average wage. Long queues formed at shops throughout the country as people tried to buy pasta, meat, sugar and other food items before they rose further in price.

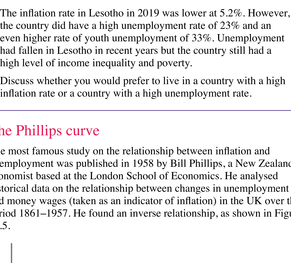


Figure 46.4: Maseru, Lesotho

The inflation rate in Lesotho in 2019 was lower at 5.2%. However, the country did have a high unemployment rate of 23% and an even higher rate of youth unemployment of 33%. Unemployment had fallen in Lesotho in recent years but the country still had a high level of income inequality and poverty.

Discuss whether you would prefer to live in a country with a high inflation rate or a country with a high unemployment rate.

The Phillips curve

The most famous study on the relationship between inflation and unemployment was published in 1958 by Bill Phillips, a New Zealand economist based at the London School of Economics. He analysed historical data on the relationship between changes in unemployment and money wages (taken as an indicator of inflation) in the UK over the period 1861–1957. He found an inverse relationship, as shown in Figure 46.5.

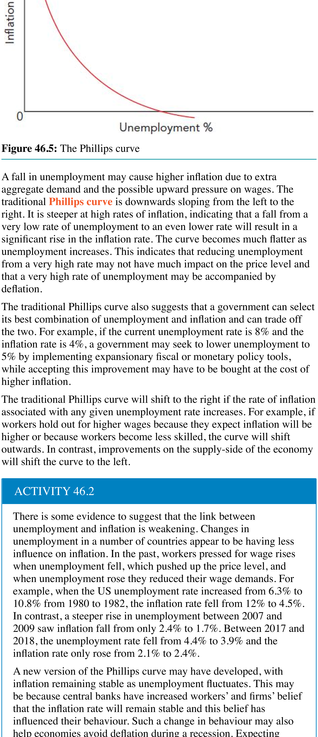


Figure 46.5: The Phillips curve

A fall in unemployment may cause higher inflation due to extra aggregate demand and the possible upward pressure on wages. The traditional **Phillips curve** is downwards sloping from the left to the right. It is steeper at high rates of inflation, indicating that a fall from a very low rate of unemployment to an even lower rate will result in a significant rise in the inflation rate. The curve becomes much flatter as unemployment increases. This indicates that reducing unemployment from a very high rate may not have much impact on the price level and that a very high rate of unemployment may be accompanied by deflation.

The traditional Phillips curve also suggests that a government can select its best combination of unemployment and inflation and can trade off the two. For example, if the current unemployment rate is 8% and the inflation rate is 4%, a government may seek to lower unemployment to 5% by implementing expansionary fiscal or monetary policy tools, while accepting this improvement may have to be bought at the cost of higher inflation.

The traditional Phillips curve will shift to the right if the rate of inflation associated with any given unemployment rate increases. For example, if workers hold out for higher wages because they expect inflation will be higher or because workers become less skilled, the curve will shift outwards. In contrast, improvements on the supply-side of the economy will shift the curve to the left.

ACTIVITY 46.2

There is some evidence to suggest that the link between unemployment and inflation is weakening. Changes in unemployment in a number of countries appear to be having less influence on inflation. In the past, workers pressed for wage rises when unemployment fell, which pushed up the price level, and when unemployment rose they reduced their wage demands. For example, when the US unemployment rate increased from 6.3% to 10.8% from 1980 to 1982, the inflation rate fell from 12% to 4.5%. In contrast, a steeper rise in unemployment between 2007 and 2009 saw inflation fall from only 2.4% to 1.7%. Between 2017 and 2018, the unemployment rate fell from 4.4% to 3.9% and the inflation rate only rose from 2.1% to 2.4%.

A new version of the Phillips curve may have developed, with inflation remaining stable as unemployment fluctuates. This may be because central banks have increased workers' and firms' belief that the inflation rate will remain stable and this belief has influenced their behaviour. Such a change in behaviour may also help economies avoid deflation during a recession. Expecting prices not to fall may mean that workers are reluctant to accept wage cuts and because of anticipating stable wage demands, firms may be reluctant to cut prices.

In a pair, discuss:

1. why a rise in unemployment may reduce wage demands.
2. drawing the new version of the Phillips curve suggested by the information in the second paragraph
3. whether a reduction in the link between unemployment and inflation will benefit an economy.

The expectations-augmented Phillips curve

The traditional Phillips curve is supported by Keynesians but is questioned by monetarists. Monetarists argue that, while there may be a short-run trade-off, in the long run government policy tools to increase aggregate demand will have no impact on unemployment but will only succeed in raising the inflation rate. To support this view, the US economist Milton Friedman developed the **expectations-augmented Phillips curve**, as shown by the vertical line in Figure 46.6. The position of this line is determined by the natural rate of unemployment.

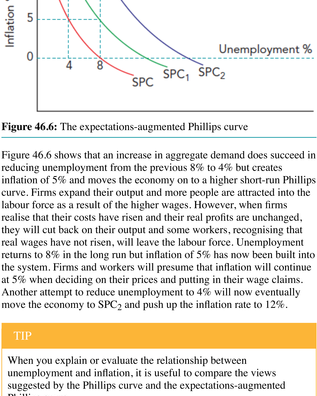


Figure 46.6: The expectations-augmented Phillips curve

Figure 46.6 shows that an increase in aggregate demand does succeed in reducing unemployment from the previous 8% to 4% but creates inflation of 5% and moves the economy on to a higher short-run Phillips curve. Firms expand their output and more people are attracted into the labour force as a result of the higher wages. However, when firms realise that their costs have risen and their real profits are unchanged, they will cut back on their output and some workers, recognising that real wages have not risen, will leave the labour force. Unemployment returns to 8% in the long run but inflation of 5% has now been built into the system. Firms and workers will presume that inflation will continue at 5% when deciding on their prices and putting in their wage claims. Another attempt to reduce unemployment to 4% will now eventually move the economy to SPC_2 and push up the inflation rate to 12%.

TIP

When you explain or evaluate the relationship between unemployment and inflation, it is useful to compare the views suggested by the Phillips curve and the expectations-augmented Phillips curve.

ACTIVITY 46.3

In a pair, analyse the relationship between your country's unemployment rate and inflation rate over the last twenty years. Prepare a report on your findings in the form of a wall chart which includes a diagram showing the relationship you found and a brief written analysis of that relationship.

REFLECTION

How did the activity reinforce your understanding of the Phillips curve?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What must exist for a progressive income tax to redistribute income?

A inequality of income

B an absence of tax evasion

C private ownership of wealth

D state-owned industry

2 Which situation would be most likely to increase a country's output and employment?

A $G + T + S < I + M + X$

B $G + X + S < I + M + T$

C $I + G + X > S + T + M$

D $I + S + M > G + X + T$

3 Why might a government *not* welcome an increase in a trade surplus?

A The country has a high rate of cyclical unemployment.

B The country has a high rate of demand-pull inflation.

C The country has a low rate of development.

D The country has a low rate of economic growth.

4 An economy experiences high cost-push inflation and an appreciation of its currency. What is most likely to occur as a result of this combination of changes?

A a decrease exports

B a decrease in the terms of trade

C an increase in employment

D an increase in investment

5 A country experiences a significant fall in unemployment, a rise in its current account surplus and a fall in its inflation rate. What is most likely to explain this combination of changes?

A Aggregate demand increased by more than aggregate supply.

B Government tax revenue increased by more than government spending.

C Productivity increased by more than the average wage rate.

D The external value of money increased by more than the internal value fell.

6 A government decreases the top rate of income tax and reduces the subsidy it gives to bus companies. What effect is this combination of government policy tools likely to have?

A an increase in the amount of tax paid by those on low income and an increase in the use of private transport by the rich

B an increase in the cost of living for those on low income and an increase in the disposable income of the rich

C an increase in the mobility of those on low income and a decrease in work incentives for the rich

D an increase in the spending on food by those on low income and a decrease in saving by the rich

7 Which government policy tool is most likely to redistribute income from the rich to those on low income?

A a decrease in the national minimum wage

B a decrease in the pension the government pays each retired person

C an increase in housing benefit

D an increase in the rate of indirect tax

8 What does the Phillips curve show?

A a trade-off between inflation and economic growth

B a trade-off between inflation and unemployment

C the relationship between export revenue and import expenditure

D the relationship between government spending and taxation

9 Which change would shift a short-run Phillips curve to the right?

A a decrease in the rate of interest

B a decrease in trade union membership

C an increase in the expected rate of inflation

D an increase in the growth of government spending

10 According to monetarists, what is the shape of the short-run and the long-run Phillips curve?

	Short-run	Long-run
A	downward sloping	upward sloping
B	downward sloping	vertical
C	upward sloping	downward sloping
D	upward sloping	horizontal

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe the relationship between the internal value of a country's currency and its external value			
Explain the relationship between the balance of payments and inflation			
Explain the relationship between growth and inflation			
Explain the relationship between growth and the balance of payments			
Explain the relationship between inflation and unemployment			
Analyse the traditional Phillips curve (downward sloping from left to right) that suggests that government can reduce the unemployment rate at a cost of a higher inflation rate			
Analyse the expectations-augmented Phillips curve (a vertical line) that suggests there is no long-run trade-off between unemployment and inflation			

Chapter 47

Effectiveness of policy options to meet all macroeconomic - objectives

LEARNING INTENTIONS

In this chapter you will learn how to:

- evaluate the effectiveness of fiscal policy including Laffer curve analysis in relation to different macroeconomic objectives
- evaluate the effectiveness of monetary policy in relation to different macroeconomic objectives
- evaluate the effectiveness of supply-side policy in relation to different macroeconomic objectives
- evaluate the effectiveness of exchange rate policy in relation to different macroeconomic objectives
- evaluate the effectiveness of international trade policy in relation to different macroeconomic objectives
- analyse problems and conflicts arising from the outcome of the different policies
- explain the existence of government failure in macroeconomic policies.

ECONOMICS IN CONTEXT

Colombia's changing international trade policy

Colombia's main exports include coal, coffee, cut flowers, emeralds and petroleum. It imports a range of products including cars, chemicals, electronic equipment, machinery and pharmaceuticals. In the 1990s, the government of Colombia removed most of the country's import tariffs and embargoes, opening up the economy to free trade to a greater extent. In this decade, both Colombia's exports and imports increased. However, owners of Colombian industries put pressure on the government to restore trade restrictions. Between 2000 and 2017, the government increased the country's trade restrictions, mostly non-tariff barriers. For example, the Colombian sugar industry persuaded the government to impose what is regarded to be artificially high environmental standards on imported sugar. The rise in protectionism has reduced the growth of productivity in the country and increased the deficit on the current account of its balance of payments. However, since 2017, the government has been trying to sign a number of free trade agreements with its main trading partners, including the USA which receives over a quarter of Colombia's exports and is the source of over a quarter of Colombia's imports. Apart from the USA and China, most of Colombia's main trading partners are in Latin America. Figure 47.2 shows the current account balance as a percentage of GDP of a number of Latin American countries in 2017.

Figure 47.1: A sugar farm in Colombia

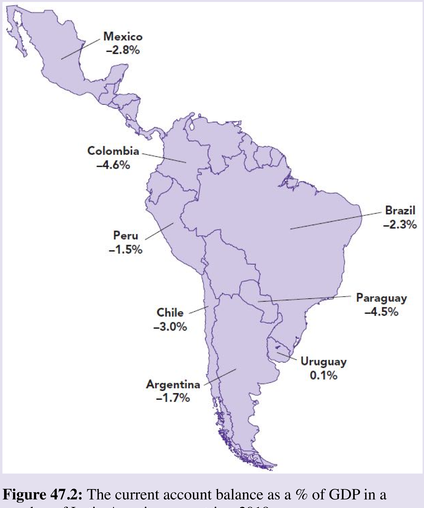


Figure 47.2: The current account balance as a % of GDP in a number of Latin American countries, 2019

Discuss in a pair or a group:

- Why might the owners of industries want import restrictions to be restored?
- Why might a rise in protectionism reduce productivity?

47.1 The effectiveness of fiscal policy in relation to different macroeconomic objectives

There are a number of reasons why fiscal policy may not be effective in achieving all the macroeconomic objectives at the same time.

Economic growth and low unemployment versus balance of payments stability and price stability

Expansionary fiscal policy can increase actual economic growth and reduce cyclical unemployment. However, the higher aggregate demand can increase demand-pull inflation and can increase a deficit on the current account of the balance of payments.

Contractionary fiscal policy can improve two of the macroeconomic objectives but can also threaten to worsen the other two. In this case, a lower aggregate demand may help a government to achieve low inflation and a balance on the current account of the balance of payments. This may be at the expense of higher cyclical unemployment and lower actual economic growth.

Crowding out and crowding in

There is a debate among economists as to whether higher government spending always results in higher aggregate demand.

New classical economists argue that higher government spending, financed by increased borrowing, reduces funds available to lend to the private sector and drives up the rate of interest. The reduction in the funds available and the rise in the rate of interest reduces consumption and private sector investment. So increased public sector spending crowds out private sector spending. The higher interest rate can also attract foreign financial investment which could increase the exchange rate and reduce net exports.

Keynesians reject the idea that **crowding out** occurs. They argue that **crowding in** occurs. This is the view that higher government spending will raise GDP by a multiple amount. The higher income will increase saving, which will provide the funds available to lend. The higher income will also encourage a rise in consumption and investment. This would mean that higher public sector spending can increase private sector investment.

Unexpected responses

As mentioned previously, there is no certainty as to how households and firms will respond to changes in fiscal policy. For example, a cut in income tax rates and corporate tax rates may not increase consumption and investment if households and firms expect that the tax cuts will soon be reversed.

Time lags

Due to the time lags involved in fiscal policy, there is a risk that the policy may act to reinforce the business cycle rather than counter it. For example, an economy may be entering a recession. The government will take time to recognise the problem, decide on the policy tool(s) it should use and implement them. It will also take time for households and firms to react to the changes. By the time all the changes have occurred, the economy may be experiencing an economic boom. In this case, expansionary fiscal policy will have an impact when the negative output gap has been closed and a positive output gap is occurring. As a result, the fiscal policy measures adopted will add to inflationary pressure.

Difficulties of reversing an increase in government spending

Some forms of government spending can involve a long-term commitment to higher spending. For example, if a government decides to build more state-run hospitals, it will have to finance the extra staff and equipment costs for decades even when the economy is booming. The alternative would be to face considerable unpopularity in closing them.

Redistribution of income and development versus the incentive to work

Fiscal policy is the main policy used to redistribute income and promote development. Progressive taxes and transfer payments move money from the rich to those on low incomes. Government spending on state healthcare and state education can also benefit those on low incomes and raise life expectancy and educational performance. There is a risk, however, that an increase in transfer payments may reduce the incentive for the unemployed to seek work. If this is the case, the unemployed and their children may experience greater poverty in the long run than if they had accepted a low paid job now. Being in employment can increase workers' skills and their chance of gaining a higher paid job in the future.

ACTIVITY 47.1

Figure 47.3 shows the unemployment rate and government budget balance as a percentage of GDP for five selected countries in 2019.

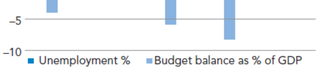


Figure 47.3: Unemployment rate (%) and government budget balance as a percentage of GDP of five countries in 2019

1 Explain how:
   a a country's unemployment can influence its government budget balance
   b a country's budget balance can influence unemployment in the country.

2 Compare and discuss your answers with another learner.

The Laffer curve

The **Laffer curve** shows that when tax rates are high, raising them further will be counterproductive. It was first drawn by a US economist and adviser to President Ronald Reagan, Arthur Laffer, in the early 1970s. Laffer drew the curve to support his view that a cut in tax rates may increase tax revenue by stimulating both total economic activity, because of the greater incentive effect, and declared economic activity. Figure 47.4 shows the Laffer curve.

At a tax rate of 0% there will obviously be no tax revenue. There will also be no tax revenue at a rate of 100% as workers will not be prepared to work if all their income goes in tax. The curve suggests there is a tax rate that will generate the most tax revenue. Raising the tax rate beyond this point would reduce tax revenue as it will discourage work and encourage tax evasion. Figure 47.4 indicates that a cut in the tax rate from 50% to 40% would increase tax revenue.

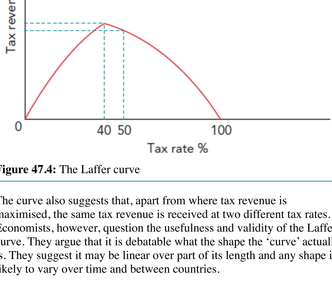


Figure 47.4: The Laffer curve

The curve also suggests that, apart from where tax revenue is maximised, the same tax revenue is received at two different tax rates. Economists, however, question the usefulness and validity of the Laffer curve. They argue that it is debatable what the shape the 'curve' actually is. They suggest it may be linear over part of its length and any shape is likely to vary over time and between countries.

Empirical evidence also suggests that belief in the Laffer curve can result in government failure. For example, soon after it was shown to Ronald Reagan, the US government introduced tax cuts that actually reduced tax revenue.

TIP

Always indicate the 0% and 100% tax rates on a Laffer curve as well as the 'optimum' rate.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: Changes in fiscal policy can have an impact on equality and equity. For instance, a rise in indirect taxation is likely to fall more heavily on people on low incomes and some may consider this to be unfair.

47.2 The effectiveness of monetary policy in relation to different macroeconomic objectives

Monetary policy may not be successful in achieving all the macroeconomic objectives for a number of reasons.

Economic growth and low unemployment versus balance of payments stability and price stability

Expansionary monetary policy may promote economic growth and may reduce unemployment but this type of policy can increase demand-pull inflation and increase a deficit on the current account of the balance of payments.

Time lag

There is a time lag with both monetary policy and fiscal policy. Monetary policy tends to have a shorter time lag than that which exists with fiscal policy. It takes less time to change the rate of interest than to draw up changes in taxes and government spending and to pass these changes into legislation.

How commercial banks respond

Monetary policy has to be carried out through the commercial banking system.

The central bank may raise the interest rate it charges commercial banks to borrow from it. The commercial banks may not pass on this increase in the interest rate they charge their customers if they think that keeping lending at a high level will generate more profits.

There is no guarantee that quantitative easing will be successful. The central bank can buy financial assets from commercial banks in return for cash. This will increase commercial banks' liquid assets and their ability to lend. If commercial banks are pessimistic about the future, they may be reluctant to lend more as they will be worried about the ability of borrowers to repay the loans.

Liquidity trap

Quantitative easing has been adopted when interest rates have been low. One limit on monetary policy is that a reduction in the interest rate may have little impact when it is already low. A liquidity trap may occur.

Influence of changes in other countries

A central bank's ability to change its interest rate is also limited by what other central banks are doing. A central bank may want to raise its interest rate to discourage borrowing. If other central banks cut their interest rates or keep their interest rates low, the country's firms may borrow from abroad. Foreigners may also put more money into the country's commercial banks to gain a higher interest rate. This will increase the assets of the country's commercial banks and their ability to lend.

Unexpected responses

As with fiscal policy, it is difficult to predict how households and firms will respond to changes in monetary policy. At times of optimism, a higher interest rate may not discourage consumption and investment.

Demand and supply-side shocks

The success of both fiscal policy and monetary policy depends on the ability of government and central bank officials to assess current macroeconomic performance and future private sector economic activity. Both types of policy can also be thrown off course by demand- and supply-side shocks. A central bank may forecast an economic boom and may raise its interest rate so that it can reduce the growth of aggregate demand in, for instance, one year's time. If there is a global recession during the time it takes for the change in the interest rate to affect aggregate demand, the economy may experience a more severe recession.

Mobility of financial investment

With increasing mobility of financial investment, it can be difficult for a country to operate an interest rate that is significantly different from rival countries. If, for example, the country reduces its rate of interest to a level noticeably lower than that of its rival countries, hot money (see Section 28.4) may flow out of the country. A rise in the rate of interest may discourage foreign direct investment as it would raise foreign firms' costs and the firms may expect demand to fall in the country.

Co-ordination

It is important that monetary and fiscal policies are co-ordinated. A government's attempt to boost economic growth may fail if the central bank increases the interest rate.

KEY CONCEPT LINK

Time: Time lags can have a significant impact on all the main forms of government policy.

TIP

When assessing the effects of demand-side policies, remember that in the case of both fiscal policy and monetary policy, expansionary policy can help increase economic growth and reduce unemployment and contractionary policy can help reduce demand-pull inflation and improve the balance on the current account of the balance of payments.

ACTIVITY 47.2

In a group of six, imagine you are the members of the committee of your central bank that sets the interest rate.

1. Research:
   - a your country's current macroeconomic performance
   - b forecasts for your country's future economic performance
   - c your country's current interest rate and its rate over the last five years.
2. Vote on whether you would recommend raising the interest rate, leaving it unchanged or lowering it.
3. Select one of you to write up a report on the reasons for your committee's decision on what should happen to the interest rate.
4. The five of you who did not write the report should check it and suggest corrections and amendments.
5. Present your report to an AS Level economics group and take questions.

47.3 The effectiveness of supply-side policy in relation to different macroeconomic objectives

Supply-side policy measures can be divided into those which are market-based and those which are interventionist.

Market-based supply-side policy

Market-based supply-side policy includes tools that increase the role of market forces: cuts in direct tax, cuts in unemployment benefit, privatisation, deregulation and labour market reforms.

Cuts in direct tax and unemployment benefit seek to raise aggregate supply by increasing incentives to work and be entrepreneurial. Privatisation, deregulation and labour market reforms are aimed at raising aggregate supply by increasing competition and reducing the cost and effort involved in complying with government rules and regulations.

Market-based supply-side policy may increase economic growth and reduce inflation, but may conflict with the objectives of redistribution of income and lower unemployment. It is also possible that they may reduce rather than increase economic growth.

Cuts in income tax and unemployment benefit are likely to transfer money from people on low incomes to the rich rather than the other way round. Privatisation has resulted in some individuals and groups of individuals who have bought out state-owned industries becoming very rich. In pursuit of profits, some privatised firms have increased the price of their products, taking a higher proportion of the income of people on low incomes. Labour market reforms, which reduce the power of trade unions, and deregulation in the form of the removal of a national minimum wage can also reduce the relative pay of those on low incomes.

Cuts in income tax and unemployment benefit will increase the gap between paid employment and transfer payments, but they will not necessarily increase employment and growth. There may not be job vacancies, the unemployed may lack the skills and qualifications to take those job vacancies that do exist or the jobs may be in different areas to the unemployed.

Cuts in income tax may have unintended consequences. Instead of encouraging workers to work more hours, workers may decide to maintain their current disposable income and take more leisure time. Privatisation may not necessarily increase efficiency and lower costs of production. This is because it does not guarantee increased competition. A state-owned industry may be sold off as a monopoly. Even if it is sold off as a number of firms, they may later merge to form a monopoly. The removal of rules and regulations may also increase the chances of monopolies occurring. The removal of rules on health and safety may damage the health of workers and result in accidents. These effects could reduce labour productivity and economic growth.

Interventionist supply-side policy

Interventionist supply-side policy involves the government taking a larger role in the economy. Its policy tools include government spending on education, training, infrastructure and support for technological improvement. Spending on education and training can take some time to have an effect but if they are successful, they have the potential to improve all the macroeconomic objectives. They can increase actual and potential economic growth, reduce inflation, improve the current account of the balance of payments, reduce unemployment, increase development and reduce income inequality.

Of course, as previously mentioned, the education and training may be in areas that will not be in demand in the future. Workers may also not take up training opportunities.

Improvements in infrastructure and technology can help a government achieve its macroeconomic objectives. There is a risk, however, that building more roads and airports may create more air and noise pollution and reduce development. Advances in technology may result in some structural unemployment.

KEY CONCEPT LINK

Efficiency and inefficiency: Supply-side policy measures are designed to increase efficiency. However, there may be times when the use of certain policy tools may increase inefficiency. For example, firms given a subsidy to develop new production methods may become complacent.

TIP

Remember when answering essay questions that interventionist supply-side policy measures will be likely to increase both aggregate demand and aggregate supply.

ACTIVITY 47.3

Income inequality can have an impact on other government macroeconomic objectives. It can, for instance, increase saving in an economy. This is because the rich will have more money and it is the rich who tend to save the highest amount and the highest proportion of their income. If not all the money that is saved is borrowed, spending will fall. This could result in a decline in economic growth and a rise in unemployment.

Income inequality can, however, be accompanied by a rise in the quality of life of most people in the economy. The gap between the rich and those on low incomes may widen but those on low incomes could still be better off than before. The ability to earn high incomes could encourage more people to set up new firms that could add to output and employment.

Figure 47.5: Rough sleeping

In a group, prepare a presentation arguing for either less or greater income inequality in your country. You could make a podcast of your presentation.

REFLECTION

How easy or difficult was it to keep value judgements out of your presentation? How well were you able to relate your points to all the macroeconomic objectives?

47.4 The effectiveness of exchange rate policy in relation to different macroeconomic objectives

As with the other policies, there are reasons why exchange rate policy may not be successful in achieving all the macroeconomic objectives.

Balance of payments stability, economic growth and low unemployment versus price stability

A government can lower the exchange rate to improve the current account of the balance of payments, increase economic growth and reduce unemployment. Lower export prices may increase demand for exports and export revenue. Higher import prices may lower demand for imports and reduce import expenditure. Higher net exports will raise aggregate demand which can increase output and create more jobs. However, a lower exchange rate may cause cost-push inflation and demand-pull inflation. The price of imported raw materials and capital goods will rise. The competitive pressure on domestic firms to keep down rises in their costs of production will be reduced. The increase in net exports will raise aggregate demand which could result in demand-pull inflation if the economy is approaching full employment.

To reduce inflation, a government may seek to raise the exchange rate. A higher exchange rate results in higher export prices and lower import prices. This has the potential to reduce aggregate demand and lower costs of production. It may, however, increase a deficit on the current account of the balance of payments, reduce economic growth and increase unemployment.

There are a number of factors that limit the effectiveness of exchange rate policy.

Price elasticity of demand

The effect of changes in the price of exports on export revenue and changes in the price of imports on import expenditure will depend on price elasticity of demand. If demand for exports is elastic, for instance, a rise in the price of exports will cause export revenue to rise.

Speculation

Under a floating exchange rate system. A government may instruct a central bank to sell the country's currency to bring about a depreciation. However, if there is strong speculation that the currency will rise in value, private sector purchases of the currency may be greater than the central bank sales of the currency.

Objectives of other countries

The governments of other countries may object to a government seeking to lower its exchange rate if they think it is doing this to gain a competitive advantage for its products. The rise in the price of imported raw materials and capital goods may also soon erode any competitive advantage gained.

Availability of foreign currency

A central bank may want to raise the exchange rate if inflationary pressure is building up. Its ability to do this may be restricted by a lack of foreign currency to purchase the currency.

Actions of other central banks

A country's exchange rate is also influenced by the actions of the central banks of other countries. For instance, the UK's central bank, the Bank of England, may sell UK pounds to buy US dollars in a bid to reduce the value of the pound. If, however, the Federal Reserve, the US central bank, does not want this to occur, it could buy pounds.

TIP

When writing answers to questions which ask you to assess the policy tools that can be used to improve macroeconomic performance, remember that exchange rate policy is not only used to influence the balance of payments. Changes in a country's exchange rate can influence economic growth, unemployment and inflation.

ACTIVITY 47.4

Egypt experienced a rise in its inflation rate from 5.4% in 2018 to 9% in 2019. In part, this was due to a fall in the value of the Egyptian pound. Some economists suggested that the government should spend more on education and healthcare to reduce the inflation rate.

In a pair, prepare an article for the business section of a newspaper which should discuss:

1. why a fall in the value of the Egyptian pound could have caused inflation
2. how increased government spending on education and healthcare might reduce inflation.

47.5 The effectiveness of international trade policy in relation to different macroeconomic objectives

A government may promote free international trade by removing any government restrictions on imports and exports. This can increase economic growth by allowing greater advantage to be taken of comparative advantage. Following a policy of allowing free trade is more likely to be successful if other governments do the same.

Some governments favour trade protectionism. This approach can help protect employment, build up infant industries and discourage dumping. There are a number of factors that can limit the success of trade protection. One is that firms can become dependent on the protection, other governments may retaliate leading to a trade war and membership of a trade bloc may prevent the government from imposing trade restrictions on other members.

KEY CONCEPT LINK

Progress and development: If industries do take advantage of any protection given to them, they may help a country's economic progress. However, there is a risk that protectionism may encourage inefficiency and reduce economic progress.

ACTIVITY 47.5

In a group of four:

1. Create eight sets of different coloured cards:

   Set 1: macroeconomic problem: a country experiences negative net investment, a country experiences a high rate of demand-pull inflation, a country experiences unsustainable economic growth, a country experiences a loss of consumer confidence, a country experiences cost-push inflation and a country experiences a high rate of cyclical unemployment.

   Set 2: macroeconomic objective threatened: steady and sustainable economic growth, low unemployment, price stability, redistribution of income and development.

   Set 3: a diagram on each card showing an analysis of the problem: (a) AD/AS diagram showing AD shifting to the left, (b) AD/AS diagram showing AS curve shifting to the left, (c) AD/AS diagram showing a negative output gap, (d) a production possibility curve with capital goods and consumer goods on the axes and a production point inside the curve, (e) an AD/AS diagram showing AD shifting to the right, (f) an AD/AS diagram showing AD and AS shifting to the right, (g) an AD/AS diagram showing AS shifting to the right.

   Set 4: consequence of the problem: downward pressure on the country's output, a fall in living standards, a reduction in the international competitiveness of the country's products, inflation, a rise in unemployment and a fall in tax revenue.

   Set 5: policy tool: increase income tax, cut corporate tax, cut the rate of interest, increase government spending on pensions, improve training, increase import tariffs.

   Set 6: type of policy: fiscal, monetary, market-based supply-side, interventionist supply-side, exchange rate and international trade.

   Set 7: advantage of the policy tool: may increase both AD and AS, may improve living standards, may also reduce inflationary pressure, may redistribute income from the rich to the poor, may attract MNCs into the country and may reduce a budget deficit.

   Set 8: disadvantage of the policy tool: will not work if households and firms are pessimistic about the future, may reduce economic growth and employment, may create a disincentive to work and enterprise, may raise the exchange rate and so reduce net exports, time lag before it has its full impact and may discourage investment.

2. Select a card, unseen, from Set 1 and then select an appropriate card from each of Sets 2–8.

3. Ask your teacher to check you have a valid sequence of cards.

47.6 The problems arising from conflicts between policy objectives

The decision as to which policy tools a government will use is influenced by the risk that these may conflict between policy objectives.

Low unemployment and economic growth versus price stability

Government expansionary fiscal and monetary policy tools designed to either reduce unemployment and/or increase the economic growth rate may, as indicated above, increase the rate of inflation. Similarly, if a government seeks to reduce demand-pull inflation by using contractionary fiscal and monetary policy tools, it may reduce the economic growth rate and increase the unemployment rate. A government may seek to avoid these policy conflicts by introducing supply-side policy tools that may, in the long run, reduce the inflation and unemployment rates and increase the economic growth rate.

Low inflation versus balance of payments stability

A conflict may also arise between the aims of low inflation and a reduction in a current account deficit. A central bank may raise the rate of interest. Such a move will not only increase unemployment; there will also be a knock-on effect on the balance of payments position and the exchange rate. A rise in the interest rate is likely to lead to an appreciation in the exchange rate. This could worsen the current account position but may attract hot money flows.

Redistribution of income versus economic growth

There may be a conflict between creating greater income equality and stimulating economic growth. Making income tax rates more progressive and increasing benefits to low-income groups may discourage effort and enterprise and may reduce foreign direct investment. There is, however, the possibility that raising the living standards of the poor may improve the health and education of part of the labour force and so raise productivity. In addition, effort and enterprise may be more influenced by wage rates and profit levels than tax rates. Similarly, foreign direct investment may be attracted despite relatively high tax rates if, for instance, demand in the country is increasing and the country's workers are becoming more skilled.

Number of policy tools

To avoid conflicts between policy objectives, a government may employ a separate policy tool for each objective. For example, a government may cut income tax in order to reduce unemployment, while it may devalue the currency in a bid to improve the current account position. In practice, governments use a combination of fiscal, monetary and supply-side policy tools.

THINK LIKE AN ECONOMIST

Government spending in Mozambique

Figure 47.6: A high school in Mozambique

GDP per head in Mozambique in 2019 was $520. The country is classified by the UN as a low-income country. In December 2018, the Mozambiquan government announced details of its 2019/2020 budget. It stated that 21.5% of government spending would go on education, 10.6% on healthcare, 11% on agriculture and rural development, 6.3% on roads and smaller percentages on a range of other areas.

Discuss, as a group, which area you think your government should spend the highest percentage on.

TIP

When assessing the effectiveness of a particular policy tool in solving a particular economic problem (for example, a high inflation rate), it is useful to consider the possible adverse effects it may have on other policy objectives.

47.7 Government failure in macroeconomic policies

There are a number of reasons for **government macroeconomic failure** – when government macroeconomic policy measures may actually cause a deterioration, rather than an improvement, in economic performance.

Miscalculating the size of the multiplier

For instance, if a government understates the size of the multiplier, it may increase its spending by too much. This may result in swapping one problem, a negative output gap, with another problem, a positive output gap.

Time lags

As mentioned, in the case of a number of policy tools there may be a series of time lags. For example, there may be a delay before a government recognises that inflationary pressure is building up – a recognition lag. There may then be an implementation lag – the time it takes to draw up and introduce a policy tool such as a rise in income tax. There is then the time it takes for the policy tool to influence the behaviour of households and firms – a behavioural lag.

By the time a policy tool does have an impact on economic behaviour, the level of economic activity may have changed, which may make the policy tool inappropriate. Indeed, governments may seek to use fiscal and monetary policy tools to offset the effects of the business cycle, but these measures sometimes reinforce the business cycle rather than acting **counter-cyclically**. As well as there being a delay before households, workers and firms react to policy tools, there is the possibility that they may not respond in the expected way. For example, during an economic boom a central bank may raise the rate of interest in the expectation that it will encourage saving and discourage borrowing. However, if households and firms are optimistic about the future, they may continue to borrow and spend.

Desire to win elections

Some elected governments may be tempted to introduce popular policy tools when elections are approaching. Measures such as an increase in government spending on pensions may win votes but may not necessarily improve economic performance.

Pressure groups and corruption

Government policy tools may be influenced by powerful pressure groups and there is the possibility of government corruption. For instance, past attempts to reduce class sizes and increase resources in education and improve health care in Honduras were hindered by corrupt government officials who stole money from government budgets.

KEY CONCEPT LINK

Efficiency and inefficiency: The key concept of efficiency is clearly linked to government failure. When a government implements a policy tool, it is seeking to improve economic efficiency but, as explained in this chapter, there are a number of reasons why the tools may worsen rather than improve the economy's performance.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 An increase in government spending results in higher aggregate demand. According to the expectations-augmented Phillips curve, what effect would this rise in government spending have on unemployment in the short run and the long run?

	Short run	Long run
A	decrease	decrease
B	decrease	no change
C	no change	no change
D	no change	decrease

2 A country's government reduces taxation and its central bank lowers the rate of interest. Which combination of macroeconomic problems is it most likely to be trying to achieve?

A deflation and a deficit on the current account of the balance of payments

B deflation and a surplus on the current account of the balance of payments

C inflation and a deficit on the current account of the balance of payments

D inflation and a surplus on the current account of the balance of payments

3 An economy's aggregate demand is high enough to achieve full employment. The government wants to maintain the level of employment, cut taxation but avoid an increase in inflation. Which policy change would help it achieve this objective?

A a decrease in the budget surplus

B a fall in the exchange rate

C an increase in government spending on transfer payments

D an increase in the rate of interest

4 Which of the following is an example of an expansionary monetary policy tool?

A limits on bank lending

B quantitative easing

C tax reductions

D unemployment benefit reductions

5 A government wants to reduce inflation. It decides to increase its budget deficit. What could explain this action?

A The increase in the budget deficit is caused by a rise in government spending on education.

B The increase in the budget deficit is caused by an increase in spending on paying interest on government debt.

C The economy has a large multiplier effect.

D The economy is operating with a positive output gap.

6 Which government policy tool is likely to have a different effect on aggregate supply to the other three?

A a decrease in corporation tax

B a decrease in income tax

C an increase in government spending on infrastructure

D an increase in the rate of interest

7 What do automatic stabilisers do?

A balance the internal and external value of money

B ensure government spending equals tax revenue in the long run

C reduce inflation at the peak of the business cycle

D result in higher tax revenue during a recession

8 An economy had high unemployment and a budget deficit of $190bn. The economy moves to full employment. As a result, tax revenue increases by $70bn and transfer payments fall by $20bn. What is the structural deficit?

A $100bn

B $120bn

C $140bn

D $170bn

9 What would increase the effectiveness of monetary policy?

A Consumption becomes more interest inelastic.

B Exports become more income elastic.

C Government spending becomes more income inelastic.

D Investment becomes more interest elastic.

10 A government increases tariffs on a range of imports. Which outcome is most likely to make the policy tool effective in reducing unemployment?

A a reduction in support for declining industries

B a rise in tax revenue that can increase government spending

C foreign governments respond by increasing their tariffs on the country's products

D the replacement of imported raw materials by more expensive domestically produced raw materials

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Evaluate the influence of crowding out or crowding in, how households respond, time lags and demand and supply-side shocks on the effectiveness of fiscal policy			
Understand that the Laffer curve suggests that tax cuts may actually increase a government's tax revenue			
Evaluate the influence of time lags, how commercial banks at home and abroad and how households and firms react and demand and supply-side shocks on the effectiveness of monetary policy			
Understand that supply-side policy tools may be market-based or interventionist			
Examine the impact of supply-side policy tools on the distribution of income, unemployment, competition			
Examine the factors that limit the effectiveness of exchange rate policy			
Examine the factors that may influence the effectiveness of international trade policy: promotion of free trade, trade protectionism			
Analyse problems arising from conflicts between policy objectives			
Discuss the reasons for government macroeconomic failure: lack of accurate information, time lags, unexpected responses, pressure groups, corruption			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Singapore's economy stumbles

Singapore is a small, open economy. It has one of the world's largest current account surpluses as a percentage of GDP and its net exports usually contribute around 28% of its GDP. The port of Singapore is the second largest, after Hong Kong, in total value of container transshipment traffic. The importance of international trade to Singapore makes it susceptible to changes in the global economy. For example, electronics form 13.5% of the country's exports and in 2019 there was a global decline in demand for electronics. In that year, Singapore's economic growth rate fell from 3.1% the year before to 0.7%. This was the slowest rate experienced since 2009.

Singapore's central bank, the Monetary Authority of Singapore, maintained a tight monetary policy. Throughout the period 2012 and 2019, it had the target of keeping inflation below 2%. Some economists expressed concern about the country's inflation record. The country's inflation rate and the global inflation rate are shown in Figure 1.

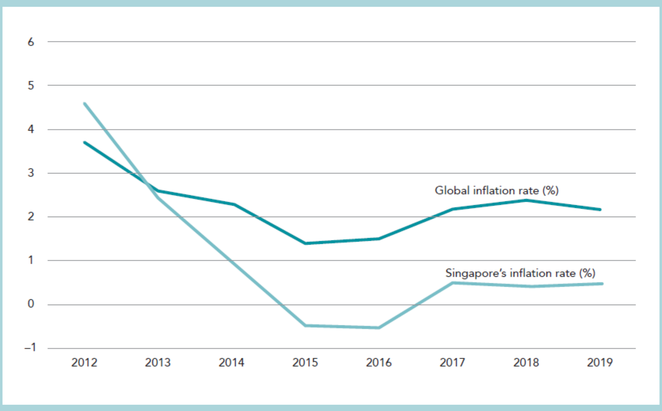


Figure 1: Singapore and global inflation rates, 2012–2019

The government's budget balance was in surplus throughout the period, but the surplus declined in 2019. In that year, the government increased its spending on infrastructure, land reclamation and assistance to those on low-incomes. It did not alter the country's income tax rates but it gave people a tax rebate, allowing them to pay less tax for that year. This measure reduced tax revenue. Singapore has a progressive income tax system and a relatively high number of tax brackets. In 2019, the top tax rate was 22%. This was low in international terms but some argued that a cut would increase tax revenue.

a What evidence is there in the material to suggest that the Singaporean government was following an expansionary fiscal policy in 2019. **[4]**

b Explain how Singapore could benefit from a global economic boom. **[4]**

c Consider whether economists should have been concerned about Singapore's inflation rate record between 2012 and 2019. **[5]**

d Discuss whether a reduction in Singapore's top income tax rate would increase tax revenue. **[7]**

Essays

2 Assess whether government attempts to reduce unemployment will cause inflation. **[20]**

3 'Supply-side policy is more effective than fiscal policy in promoting economic growth.' Evaluate this statement. **[20]**

4 Assess whether government intervention is needed to reduce cyclical unemployment. **[20]**

Unit 11

International economic issues (A Level)

UNIT INTRODUCTION

In this unit, you will explore two further types of exchange rate systems. You will consider how price elasticities of demand for exports and imports and the time period can influence how changes in a country's exchange rate can affect its current account balance. You will also examine how development differs between countries. You will consider how living standards are measured and how they vary between countries and over time. You will look at other differences between countries including population growth, how income is shared out and what products are produced and traded. Then you will consider the role of international aid, foreign investment and international organisations. Finally, you will examine how the world economy is changing.

Chapter 48

Policies to correct disequilibrium in the balance of payments

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain the components of the balance of payments: current account, financial account and capital account
- evaluate the effects of fiscal, monetary, supply-side, protectionist and exchange rate policies on the balance of payments
- explain the difference between expenditure-switching and expenditure-reducing policies.

ECONOMICS IN CONTEXT

Argentina's balance of payments problems

At the start of 2020, Argentina was the world's 26th largest economy, measured by GDP, and South America's 2nd largest economy. Argentina exports and imports a range of goods and services. Among its top exports are oil seeds, corn, animal feed and vehicles. Its top imports include electric equipment, machinery, pharmaceuticals and financial services. Its three main trading partners are Brazil, USA and China. A country that is becoming a more important trading partner of Argentina is Vietnam. Following a trade agreement in 2010, trade between Argentina and Vietnam had increased by ten times by 2019. Among Vietnam's exports to Argentina are footwear and clothes while Argentina mainly exports food to Vietnam.

Figure 48.1: Soy bean farming in Argentina

Argentina's current account of its balance of payments is usually in deficit, although the deficit fluctuates. Figure 48.2 shows the country's current account balance in recent years.

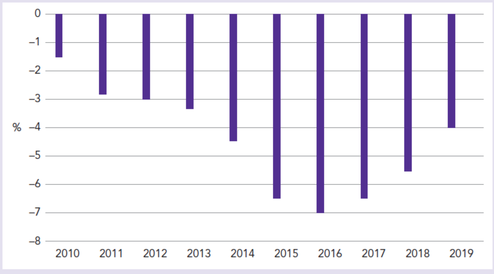


Figure 48.2: Argentina's current balance as a percentage of GDP, 2010–19

The deficit is caused largely by high spending on imports and high-interest debt repayments. High spending on imports and high debt repayments are connected. The country spends more than it produces and to finance that gap it borrows from other countries' banks, governments and individuals and global financial institutions.

In April 2020, Argentina's foreign debt was 42% of its GDP. In that month, the Argentinian government was trying to restructure its foreign debt. The government suggested that interest payments on its government bonds sold overseas should be delayed until 2023 and that some loans would not be repaid until 2026. It was even considering defaulting on its debt for the ninth time since the country gained independence in 1816.

Discuss in a pair or a group:

1 What may cause a country to import more than it exports?

2 Would you lend to the Argentinian government?

48.1 The components of the balance of payments

The balance of payments records all economic transactions between residents and non-residents during a given time period. As discussed in Section 27.1 the balance of payments account consists of the current account, the capital account and the financial account. It also includes **net errors and omissions** (also sometimes known as the balancing item). For some countries, the financial account is the largest component of the balance of payments.

TIP

In answers to essay questions, the two key accounts to concentrate on are the current account and the financial account.

KEY CONCEPT LINK

Equilibrium and disequilibrium: While the combined accounts of the balance of payments should come to zero, the individual accounts are not usually in balance.

Financial account

The financial account forms a large part of some countries' balance of payments. It records movements of funds into and out of the country. It is made up of four parts:

1. Direct investment covers the building of a factory in another country and the takeover of an existing firm in another country (debit items), or the setting up of a new plant or the takeover of a firm in the country by a foreign firm (credit items).
2. Portfolio investment includes the purchase and sale of government bonds and shares that do not involve legal control of a firm.
3. Other investments cover shorter-term movements of financial investment including bank deposits, bank loans and inter-government loans that move between countries.

   Direct, portfolio and other investments generate investment income that appears in the primary income section of the current account.
4. Reserve assets are made up of the government's holdings of gold, foreign exchange reserves, Special Drawing Rights (a form of international money created by the International Monetary Fund (IMF)) and changes in the country's reserve position in the IMF. Reserves are kept to settle international debts and to influence the value of the foreign exchange rate. Additions to the reserves are shown as debit items, while reductions to the reserves are shown as credit items. This is because, for instance, if the central bank of a country sells some of its foreign currency, the country will be gaining its own currency in exchange, so there will be a flow of currency into the country.

TIP

There is commonly confusion between the items that go in the primary income part of the current account and those that go in the financial account. The names of the two parts provide clear guidance. Remember that the financial investment goes in the financial account whereas the income that the investment generates goes in the primary income part.

KEY CONCEPT LINK

Progress and development: An inflow of direct and portfolio investment can have an impact on progress and development. There are debates about whether multinational companies promote or harm development.

A financial account deficit

A financial account deficit is not necessarily a problem, especially as it will give rise to an inflow of profits, interest and dividends in future years. The deficit may also be short-term, resulting from hot money flowing out of the country in search of higher interest rates and in expectation that other currencies may rise in value. A financial account deficit is more of a concern, however, if it results from a long-term lack of confidence in the country's economic prospects. Indeed, such a concern might result in a capital flight, when the country's residents move their money from domestic to foreign banks and the countries' firms move some production abroad. The movement of funds and production out of the country reduces tax revenue and reduces potential employment economic growth. A financial account deficit may also result in a depreciation in the exchange rate.

A financial account surplus

A financial account surplus arises when more direct and portfolio investment and loans enter the country than leave it. This may occur as a result of foreigners being impressed by the country's economic prospects.

A financial account surplus can have a number of advantages. It can finance a deficit on the current account of the balance of payments. It can also create employment in the country and raise the country's economic growth. In the long run, however, a financial account surplus will result in more money flowing out of the country in the form of profit, interest and dividends. This may result in a deficit on the primary income balance of the current account unless offset by an increase in the country's direct and portfolio investment and loans abroad.

Capital account

For most countries, the capital account is a relatively small part of the balance of payments. It includes non-produced, non-financial assets. Examples of items in the capital account are government debt forgiveness, money brought into and taken out of the country by migrants, the sales and purchases of copyrights, patents, trademarks and mineral rights.

Net errors and omissions

The balance of payments as a whole must always balance. This is because any credit item has to be matched by a corresponding debit item. For example, if a country sells exports, these exports will be recorded as credit items. To purchase the exports, foreigners would have to obtain the currency of the country they are importing from. They may do this by, for instance, borrowing from the country's banks – a debit item.

A deficit on the current account of the balance of payments should be matched by a surplus of equal value on the capital and financial accounts. In practice, with so many transactions involved, it is difficult to keep an accurate record. Some mistakes are likely to be made and some transactions may not be included. To compensate for this, a net errors and omissions figure is included. For example, if the current account plus the capital and financial accounts, add up to minus $2000 million, this means that $2000 million more must have come into the country than was recorded. In this case, a net errors and omission figure of plus $2000 million would be added. By including the net errors and omissions figure, it means that the current account, capital account, financial account and net errors and omissions equal zero.

More and better-quality information is likely to become available over time, and so the size of the net errors and omissions figure usually declines. The value of current account deficits experienced by some countries should be matched by the value of the current account surpluses experienced by other countries, but again, due to mistakes and items being left out, this is not the case.

ACTIVITY 48.1

Table 48.1 shows details of Germany's balance of payments (€billion) in 2019.

Exports of goods	1293	Capital account	2
Imports of goods	1071	Direct investment	- 44
Net services	- 20	Portfolio investment	- 113
Primary income balance	92	Other investment	- 62
Secondary income balance	- 48	Reserve assets	- 1

Table 48.1: Germany's balance of payments in €billion, 2019

Calculate:

1. Germany's current account balance
2. Germany's financial account balance
3. The net errors and omissions figure on German's balance of payments.

Share your answers with another learner.

48.2 Effect of fiscal, monetary, supply-side, protectionist and exchange rate policies on the balance of payments

As discussed in Section 27.2, a government and its central bank may use a range of policies to influence the components of its balance of payments. It could use contractionary fiscal and/or contractionary monetary policy to reduce demand for imports and encourage firms to switch some of their products to the export market. Supply-side policy measures may be introduced to promote greater international competitiveness. Protectionist policy may be used to reduce demand for imports largely by seeking to replace spending on imports by spending on domestically produced products. Changes in the exchange rate can be implemented to affect the price of exports and imports and so the trade balance. Such changes in the exchange rate may only have a short-term effect on the current account balance. An exception may be a government deciding to stop maintaining an exchange rate that is set above or below the market value. For example, if a central bank has kept an exchange rate above its equilibrium level, the high export prices and low import prices may have led to a current account deficit. In this case, allowing the exchange rate to increase to its market rate may reduce the country's deficit.

Depending on the measures adopted, fiscal policy, monetary policy and exchange rate policy can be used to reduce either a deficit or a surplus on the current account of the balance of payments. In contrast, supply-side policy would only be used to try to reduce a current account deficit. It is also likely that protectionist policy would be most likely to be used to reduce a deficit.

There can be occasions when a government or central bank, in pursuing another macroeconomic policy objective, introduces a policy measure which has an unintended consequence for the balance of payments. For example, a government may lower income tax in an attempt to reduce unemployment, but some of the increase in spending created may go on imports. This could increase a current account deficit.

If government wishes to increase its country's economic development, or to finance a deficit on the current account it may aim for a surplus on the financial account of the balance. Attracting multinational companies to set up in the country may increase employment and income growth. Selling shares in the country's firms to foreigners will provide funds for the firms to expand. Borrowing from abroad may help to cover the cost of imported raw materials and capital goods which may, in the long run, reduce a current account deficit. To attract a net inflow of direct investment, portfolio investment and bank loans, a government will aim for macroeconomic stability. The main type of policy it is likely to use is supply-side policy. A rise in the quantity and quality of the country's resources that result from improvements in education, training, infrastructure and technology is likely to prove attractive to foreign investors. Trade union reform may make multinational companies more willing to invest in the country if the reform results in a fall in industrial action. Privatisation may also increase the opportunity for foreign direct investment. Of course, as previously mentioned, some supply-side policy measures can take time to have an effect and the outcomes are not certain.

To encourage domestic consumers and firms to switch to buying domestic products, a government may impose a tariff on imports or increase an existing tariff. Such a tool works more effectively when domestically produced substitutes of a high quality are available.

TIP

Remember, in answering essay questions on the effects of policy measures, to consider not only the impact on the external economy but also on the internal economy.

ACTIVITY 48.2

Figure 48.3: Migrant workers in South Africa

South Africa usually has a current account deficit despite having a trade in goods surplus. Its primary income balance is negative. Large inflows of portfolio investment in the past have resulted in large outflows of interest and dividends. These payments now account for over half of the current account deficit. South Africa also often has a relatively large deficit on its secondary income balance due to a net outflow of workers' remittances.

South Africa's current account deficit has often led to a fall in the value of the country's currency, the rand.

In pairs, discuss:

1. apart from large outflows of interest and dividend payments, two other possible causes of South Africa's current account deficit
2. why a current account deficit might be self-correcting.

REFLECTION

Would you have been able to give more than two reasons? Could you relate the reasons to specific accounts in the balance of payments? How did the activity help you to recognise the links between the balance of payments and the exchange rate?

THINK LIKE AN ECONOMIST

India's current account deficit

Figure 48.4: An oil rig supplying oil to India

India has had a deficit on the current account of its balance of payments for some time. The country spends a relatively high amount on imported oil and this contributes to a deficit on trade in goods and services. The country usually has a surplus on its trade in services, with software services exports accounting for nearly 40% of its total service exports. The country sells 90% of its software services to the USA, UK and EU. Due to workers' remittances, the country usually has a surplus on its secondary income account. The main contributor to the current account deficit is the deficit that occurs on primary income. The country pays out large sums in profit interest and dividends arising from inflows of foreign direct investment and portfolio investment and loans.

Decide whether:

1. India is likely to have a deficit or a surplus on its financial account
2. you would recommend that India should diversify the service sector.

48.3 Expenditure-switching and expenditure-reducing policies

There are two broad-based policy approaches that can be used to correct an imbalance in the balance of payments. These are **expenditure switching policy** and **expenditure reducing policy**.

Expenditure-switching policy

An expenditure-switching policy is any action taken by a government that is designed to persuade purchasers of goods and services, both at home and abroad, to buy more of that country's goods and services and less of the goods and services of other countries. This would include any policy tools designed to persuade domestic households and firms to buy domestically produced goods and services rather than imports. It would also include policy tools designed to persuade foreign households and firms to buy more exports from the domestic economy. Expenditure-switching policies are not designed to reduce the total amount of spending in a country but to redirect or 'switch' spending to the country's products rather than those produced in other countries. The intended impact is a fall in import expenditure and a rise in export earnings.

The types of policy which are most commonly used as expenditure-switching policies are supply-side, protectionist and exchange rate. For example, a government may increase spending on infrastructure to reduce the cost and price of domestic products, may impose import tariffs to reduce demand for imports or may instruct its central bank to lower the exchange rate to lower export prices and raise import prices.

TIP

To decide whether a policy tool designed to improve the current account balance is expenditure-switching or expenditure-reducing, consider what impact it will have on total level of spending in the economy.

KEY CONCEPT LINK

The role of government and issues of equality and equity: Expenditure-switching policy tools may increase inequality if they increase unemployment.

ACTIVITY 48.3

The Sri Lankan government announced in March 2018 that it would pass legislation to protect the country's industries against unfair competition from industries in other countries in the form of dumping and foreign governments subsidising their exports. The Sri Lankan government said it would investigate whether unfair trade practices are occurring and whether they are damaging the country's industries. If it is found that the country's industries are being harmed by unfair competition, the government said it would impose tariffs on the imports from the foreign industries involved.

In a pair, produce a leaflet explaining the reasons why foreign industries may engage in dumping. Include a section on whether it is ever justifiable for a government to subsidise its firms.

Expenditure-reducing policy

An expenditure-reducing policy is any action taken by a government that is designed to reduce the total level of spending in an economy. An expenditure-reducing policy has two effects. One is a reduction in spending, which will mean that there will be fewer purchases of imported goods and services. The second is that domestic producers will find that their domestic market is reduced. As a result, domestic producers may try to make up for the decrease in domestic sales with an increase in sales abroad. The overall effect of an expenditure-reducing policy may be a fall in imports and a rise in exports.

Fiscal policy and monetary policy can be used as expenditure-reducing policies. A government could raise taxes and cut its spending. A central bank could reduce the money and increase the rate of interest to reduce spending in the economy.

ACTIVITY 48.4

In a pair, prepare a presentation on what you think would be the most effective policy tool to improve your country's balance of payments performance.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Malaysian citizens buy shares in Nigerian firms. In which section of Malaysia's balance of payments will this transaction appear?

A the capital account

B the financial account

C primary income balance of the current account

D the trade in goods balance of the current account

2 A government wants to reduce the surplus on the financial account of the country's balance of payments. Which policy tool would help it to reduce this objective?

A a decrease in illiteracy in the country

B a decrease in income tax

C an increase in corporate tax

D an increase in government subsidies to multinational companies

3 The multinational company of a country invests in a branch in a foreign country. The company also buys the copyright of a number of books in that country. In which accounts of the balance of payments will these transactions appear?

	Investment in the branch	Purchase of copyright in foreign books
A	capital account	current account
B	current account	financial account
C	financial account	capital account
D	financial account	current account

4 A country exports $102m of goods and services and imports $106m of goods and services. Firms in the country increase their investment by $18m. $12m of the finance for this investment is obtained by borrowing from banks in the country and $6m is obtained by borrowing from foreign banks. What is the net effect of these transactions on the country's balance of payments?

A an inflow of £15m

B an inflow of $2m

C an outflow of $10m

D an outflow of $21m

5 What may be considered to be both a fiscal policy tool and a protectionist policy tool designed to reduce a current account deficit?

A a decrease in the exchange rate

B a government subsidy paid to domestic producers of steel

C an increase in the rate of interest

D the imposition of an embargo on the import of gold

6 Why might the imposition of a quota on the imports of cars *not* result in a decrease in the quantity of cars purchased from other countries?

A The country's domestically produced cars are a close substitute for foreign cars.

B The country's main trading partners impose quotas on the country's cars as retaliation.

C The quota raises the price of imported cars.

D The quota is set above the country's demand for imported cars.

7 Which effect is a deficit on the current account of the balance of payments likely to have?

A an appreciation of the currency

B a fall in unemployment

C a rise in aggregate demand

D a surplus on the combined capital and financial accounts

8 Why is the effect of an increase in a country's interest rate on its trade in goods and services uncertain?

A It may decrease consumption and increase the exchange rate.

B It may decrease government spending and reduce the exchange rate.

C It may increase borrowing and reduce saving.

D It may increase lending and reduce saving.

9 What is an example of an expenditure-reducing policy tool introduced to reduce a current account deficit?

A a fall in the exchange rate

B a government subsidy given to the country's farmers

C a limit on bank lending

D an import tariff

10 What is an advantage of an expenditure-switching policy over an expenditure-reducing policy?

A It may increase a current account surplus.

B It may increase employment.

C It may reduce economic growth.

D It may reduce inflation.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe the components of the balance of payments: current account (see Section 48.1), financial account and capital account, net errors and omissions			
Evaluate the effects of fiscal, monetary, supply-side, protectionist and exchange rate policies that governments and central banks may use to influence the components of the balance of payments			
Explain the difference between expenditure-switching policy tools and expenditure-reducing policy tools that governments may use to correct an imbalance in the balance of payments			

Chapter 49

Exchange rates

LEARNING INTENTIONS

In this chapter you will learn how to:

- identify the three main ways exchange rates are measured: nominal, real and trade-weighted exchange rates
- explain the difference between nominal and real exchange rates
- explain trade-weighted exchange rates
- analyse how exchange rates are determined under fixed and managed systems
- explain the difference between revaluation and devaluation of a fixed exchange rate
- analyse the causes of changes in the exchange rate under different exchange rate systems
- evaluate the effects of changing exchange rates on the external economy using the Marshall–Lerner condition and J-curve analysis.

ECONOMICS IN CONTEXT

Ghana's changing current account balance

Ghana is a relatively open economy with low tariffs. The country exports a high proportion of its output. Ghana imports an even higher proportion of the products it consumes. The country's main exports include cocoa, horticultural products, gold and oil. Its main imports include banking services, capital goods, cars and rice. Figure 49.1 shows how Ghana's exchange rate, inflation rate and current account balance changed between 2012 and 2018.

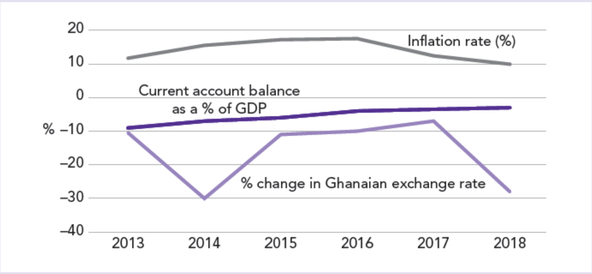


Figure 49.1: Ghana: macroeconomic data, 2012–18

Two of Ghana's main trading partners are China and India. Figure 49.2 compares Ghana' s inflation rate with that of China and India.

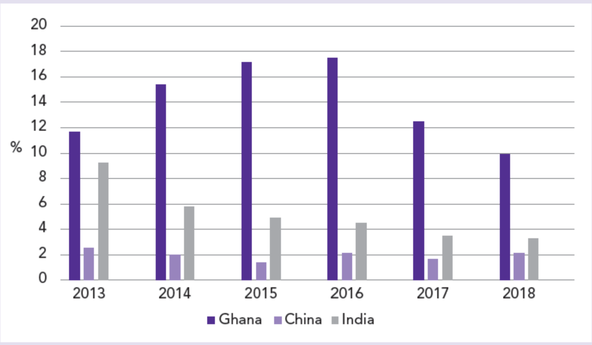


Figure 49.2: The inflation rates of Ghana, China and India, 2013–18

Discuss in a pair or a group:

- What happened to the internal and external value of the Ghanaian currency over the period shown?
- In what ways do you think changes in the internal or external value of the Ghanaian currency had more of an influence on the country's current account balance?

49.1 Measurement of exchange rates

There are a number of ways of measuring the price of a currency. It can, for example, be measured in terms of how much it costs in another currency. It can also be measured in terms of what can it buy in another country or countries and in terms of a basket of currencies.

Nominal and real exchange rates

The nominal foreign exchange rate is the price of one currency in terms of another currency. For example, 160 Pakistani rupees may buy one US dollar.

Economists also measure real exchange rates. A **real exchange rate** takes price changes as well as exchange rate changes into account to assess changes in the competitiveness of a country's products in global markets. A fall in a country's foreign exchange rate would be expected to make its exports more price competitive. However, if the country is experiencing a relatively high inflation rate, export prices may actually be increasing. A real exchange rate compares the relative price of two countries' products:

$$\text{Real exchange rate} = \frac{\text{nominal exchange rate} \times \text{domestic price index}}{\text{foreign price index}}$$

The real exchange rate may rise as a result of an appreciation or an increase in the country's relative inflation rate. The price of products in the country will increase relative to those in another country or countries. More imports could be purchased for a given quantity of exports. As the country's products are more expensive relative to its competitors, the country is likely to import more and export less. The real exchange rate has more of an impact on the current account balance than the nominal exchange rate as it reflects international price competitiveness.

ACTIVITY 49.1

Suppose the US dollar:Mexican peso exchange rate is $1 = 20 pesos and that the US price index is 144 and the Mexican price index is 120.

1. Calculate the real exchange rate.
2. Decide if the dollar is undervalued or overvalued.
3. Share your answer with another learner.

Trade-weighted exchange rate

In practice, a country trades with a number of other countries and it is possible that its currency may rise in value against some countries while falling against others. To gain an impression of the general change in a country's foreign exchange rate, economists measure **trade-weighted exchange rates**. A trade-weighted exchange rate is a measure, in index form, of the price of a currency against a basket of currencies. These are weighted according to the relative importance of the countries in the country's trade. For example, if India undertakes three times as much trade with China as it does with the US, the Chinese renminbi will be given three times as much weight in the calculation as the US dollar.

TIP

Be careful in interpreting exchange rate changes. For example, if the exchange rate between the Mexican peso and the US dollar changes from 25 Mexican pesos to $1 to 28 Mexican pesos to $1, it means that the Mexican peso is now worth less. To buy $1 now costs more pesos.

49.2 Determination of exchange rates

Exchange rates can be determined by a government, by the free market forces of demand and supply or by a combination of the two. Most governments and their central banks today allow market forces to play a large role in determining their countries' exchange rates, but may intervene if there are large fluctuations in their value.

A fixed exchange rate system

Figure 49.3: UAE dirhams

In a **fixed exchange rate** system, the price of the currency is determined by the government. For instance, the value of the UAE's dirham may be fixed at 1 dirham = US$0.25. The UAE's central bank will maintain the rate by direct intervention and/or by trying to influence the market demand for and supply of the currency. Direct intervention will involve the central bank buying or selling the currency. It may try to influence the market demand and supply by changing the rate of interest. If, for instance, there is downward pressure on the exchange rate because the supply of the currency is increasing on the foreign exchange market, the central bank is likely to buy the currency. The central bank may also increase the rate of interest. Such a measure may attract hot money flows, with people buying the currency to place into accounts in the country's financial institutions. Figure 49.4 shows that the UAE government fixes its exchange rate at 1 dirham = $0.25.

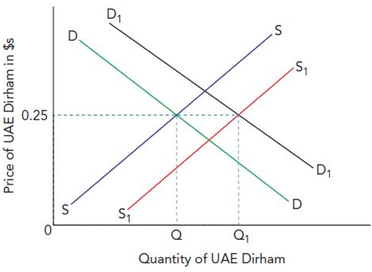


Figure 49.4: Central bank action to maintain the value of the UAE dirham

If the supply of the currency increases to S_1, the central bank may buy enough of the currency to shift the demand curve to D_1, and maintain the value of the currency at $0.25.

It is easier for a central bank to maintain a fixed exchange rate if that rate is set close to the long-run equilibrium value of the currency. This is because it will only have to offset short-run – and possibly relatively small – fluctuations. If, however, the exchange rate is overvalued, the central bank may be in danger of running out of reserves trying to keep the exchange rate at a level that does not reflect its market price.

One of the disadvantages of a fixed exchange rate is the need to keep reserves. This involves an opportunity cost, as the foreign exchange or gold, for instance, could be used for other purposes. There is also the risk that a government may sacrifice other policy objectives in order to maintain the fixed exchange rate. For instance, a central bank may raise the interest rate in a bid to keep the exchange rate at the price the government wants maintained. However, a higher interest rate may reduce aggregate demand and increase unemployment.

Market pressures may mean that the rate at which the currency is fixed may have to be changed over time. A reduction in the value of a fixed exchange rate to a lower level is known as **devaluation**. A **revaluation** occurs when the government raises the exchange rate to a new, higher fixed rate.

A fixed exchange rate does create certainty, which can promote international trade and investment. For instance, a foreign firm may be more willing to set up a branch in the country if it knows how much any revenue it earns will be worth in its own currency.

A fixed exchange rate also imposes discipline on a government to keep inflation low, so that a loss of international price competitiveness does not put downward pressure on the exchange rate.

A managed system

A **managed system**, in effect, combines features of a floating exchange rate system and a fixed exchange rate system. It usually involves a government allowing the exchange rate to be determined by market forces within a given band, which has upper and lower limits. Figure 49.5 shows that the government sets a central value of P, an upper band of P_a, which it does not want the exchange rate to exceed, and a lower limit of P_b, which it does not want it to fall below.

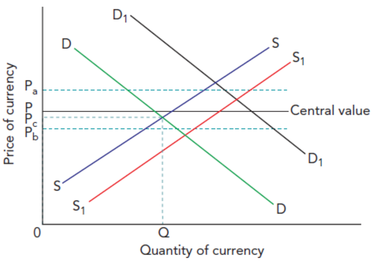


Figure 49.5: A managed system

If the exchange rate is within the limits, for example at P_c, no action will be taken. If, however, demand for the currency were to rise to D_1, the central bank would sell the domestic currency to increase supply to S_1 and so keep the exchange rate within the desired band.

KEY CONCEPT LINK

Equilibrium and disequilibrium: A fixed exchange rate is easier to maintain if it is set close to its long-run equilibrium price.

ACTIVITY 49.2

Switzerland's main trading partners are member countries of the European Union. In 2011, demand for the Swiss franc increased by a significant amount. The Swiss National Bank, (SNB) the country's central bank, wanted to keep the exchange rate to €1 = 1.2 Swiss francs. The SNB initially lowered the interest rate to near zero and then bought large quantities of euros. The Swiss exchange rate also came under upward pressure in 2015 when the SNB took similar action. Figure 49.6 shows the euro–Swiss franc exchange rate between 2011 and 2019.

Explain:

1. What is an advantage of a stable exchange rate?
2. Why might a central bank want to avoid a rise in its country's exchange rate?
3. What would have happened to the price of Swiss exports between 2017 and 2018?

Compare your answers with another learner.

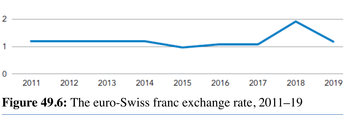


Figure 49.6: The euro-Swiss franc exchange rate, 2011–19

49.3 Revaluation and devaluation of a fixed exchange rate

A revaluation occurs when a government raises the exchange rate to a new, higher fixed rate. This higher price will be maintained by the government. If there is downward pressure on the currency, the central bank will buy the currency, using some of its reserves. It might also raise the interest rate.

A devaluation is a reduction in the price of the currency arising from a government's decision to maintain it at a new lower level. If there is upward pressure on the new, lower exchange rate, the central bank will sell its currency. The increased supply of the currency on the foreign exchange market may keep the price low. The central bank might also lower the interest rate to reduce demand for the currency and increase its supply.

Devaluations and revaluations occur for two main reasons. One reason is that the current exchange rate is not sustainable. It results in surpluses or shortages of the currency in the foreign exchange market. The second reason is the use of devaluations and revaluations as a policy tool.

KEY CONCEPT LINK

The role of government and issues of equality and equity: A devaluation is likely to benefit firms that export but may harm firms that import raw materials and capital goods and consumers who may now have to pay higher prices.

TIP

Remember to use the terms appreciation and depreciation in connection with a floating exchange rate, and revaluation and devaluation in connection with a fixed exchange rate.

ACTIVITY 49.3

Figure 49.7: The Caribbean Island of Aruba

1 The Aruban government decides to revalue its currency, the Aruban florin, from 1 florin = $0.56 to 1 florin = $0.65. In a pair, decide which groups would gain and which groups would lose as a result of this decision:

- **a** Aruban consumers
- **b** Aruban importers
- **c** Exchange rate dealers
- **d** US consumers
- **e** US exporters
- **f** US tourists to Aruba

49.4 Changes in the exchange rate under different exchange rate systems

Section 28.4 discussed how a floating exchange rate will change when there are changes in the market forces of demand and supply. The main reasons why demand for the currency may rise are increases in demand for the country's goods and services, increases in direct and portfolio investment in the country and speculation that the currency will rise in price. The supply of the currency will decrease if the country buys fewer imports, invests less abroad and it is expected that the currency will rise in price.

A fixed exchange rate does not often change. A change when it does occur is the result of a government decision. As mentioned above, a government will devalue its currency if the government thinks that it cannot maintain its current price. If market forces are putting downward pressure on the price of the currency, there is a risk that the central bank will run out of the reserves that it can use to buy the currency. A government may also be reluctant for its central bank to raise the interest rate to encourage hot money flows. This is because the higher interest rate could reduce economic activity. A government may also devalue the currency to increase the international competitiveness of its products so as to reduce a current account deficit, increase economic growth and reduce unemployment.

A government may instruct its central bank to bring about a revaluation of the currency if it thinks there is too much upward pressure on the currency. The government may not want to sell large quantities of its currency to keep the exchange rate down to its target rate as this action may add to the money supply. A government may also revalue its currency to reduce inflationary pressure. A higher exchange rate will reduce the price of imports, which can increase the pressure on domestic industries to become more internationally competitive.

TIP

Remember in answering essay questions that changes in the exchange rate alter export prices in terms of foreign currency whereas they alter import prices in terms of the domestic currency.

THINK LIKE AN ECONOMIST

Uzbekistan's exchange rate

Figure 49.8: Tashkent, the capital of Uzbekistan

In August 2019, the government of Uzbekistan decided to move from operating a managed exchange rate to a floating exchange rate. Before this date, the government had instructed its central bank to limit movements in the exchange rate of its currency, the somoni, with the US dollar to 5%. The government said it was making the change in its exchange rate system to increase economic growth and living standards. Just before the announcement, the exchange rate had come under downward pressure from an increase in imports.

1. Predict what you would expect to have happened to the price of the somoni in 2020.
2. Research what happened to the somoni's price last year.

49.5 The effects of changing exchange rates on the external economy

The effect of a change in the exchange rate on the current account balance will be influenced by the price elasticities of demand for exports and imports (see Section 28.1). The requirement for the combined elasticities to exceed 1 for the trade balance, and so the current account balance, to be improved by a change in the exchange rate is known as the **Marshall–Lerner condition**. If this condition is met, a fall in the exchange rate would reduce a current account deficit, while a rise in the exchange rate would reduce a current account surplus. The table below uses simplified figures to illustrate the Marshall–Lerner condition in the case of a fall in the exchange rate.

The greater the combined PED for exports and imports, the smaller will be the fall in the exchange rate required to improve the current account position. If the PED is less than 1, a revaluation of the exchange rate would be the more appropriate policy strategy.

Initially £1 (UK currency) = $1.5

- 40 products, which would sell at £10 each in the home market, sell for $15 in the US. Export revenue = £400 ($600)
- 50 imports from the US, which sell in the US at $30, are purchased in the UK at £20 each. Import expenditure = £1000 ($1500)
- Deficit = £400 – £1000 = £600

Then the pound sterling falls in value to £1 = $1.

- PED for exports = 0. Price in US falls to $10 each. Total export revenue is now 40 × $10 = $400 which is now converted into £400, leaving export revenue in pounds sterling unchanged.
- PED for imports = –1.2. Price of the $30 product will rise to £30, a 50% increase. Demand falls by 60% to 20. Total import expenditure now equals £600.
- The deficit is now £400 – £600 = £200. It has fallen by £400.

The **J curve effect** is related to the Marshall–Lerner condition. In some cases, a fall in the exchange rate will actually worsen the current account position before it starts to improve it. This is because, in the short run, demand for imports and exports may be relatively inelastic. It takes time to recognise that prices have changed and then to search for alternative products. In the long run, demand becomes more elastic and the current account position may move from deficit into surplus as shown in Figure 49.9.

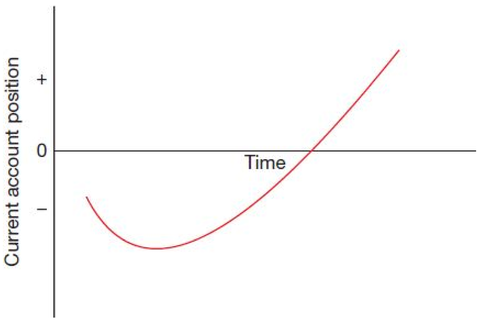


Figure 49.9: The J curve effect

A higher exchange rate may increase a current account deficit or reduce a current account surplus, but the outcome will depend mainly on the price elasticities of demand for exports and imports. The Marshall–Lerner condition and the J curve work in reverse. So, a current account surplus will only be reduced if the sum of the price elasticities of demand for exports and imports is greater than 1. A rise in the exchange rate may increase a current account surplus in the short run before reducing it in the longer run as shown in Figure 49.10

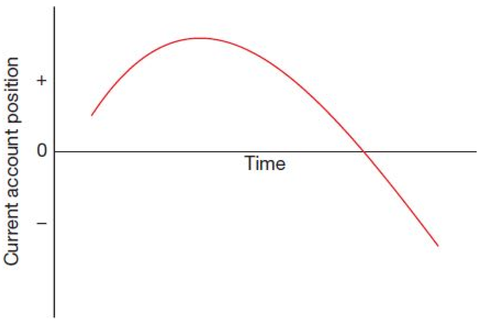


Figure 49.10: The reverse J curve effect

TIP

In explaining the J curve effect, it is useful to draw the diagram.

KEY CONCEPT LINK

Time: Differences in the short run and longer run response to a change in the exchange rate are the reason for the J curve effect.

ACTIVITY 49.4

In a pair, prepare a leaflet for AS Level Economics learners who are studying exchange rates on whether your country's central bank should seek to increase or reduce the value of your country's currency, or leave it unchanged.

REFLECTION

How did preparing the leaflet help you understand the influences on the decisions central banks make about their countries' exchange rates?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A country's currency is the rupee. Its exchange rate is initially 10 rupee = $1. The country's central bank devalues the currency to 15 rupee = $1. A person from the country works in the USA and, each month, changes $300 into rupees to send home to their family. If the person sends the same amount changed into rupees after the devaluation, what is the change in rupees that the family receives?

A – 1500 rupees

B – 1000 rupees

C 1000 rupees

D 1500 rupees

2 What would make a revaluation most likely to reduce a current account surplus?

A elastic supply of imports

B full employment

C inelastic demand for exports and imports

D removal of trade restrictions on the country's products

3 In what circumstances is a government likely to decide to devalue its currency?

	Inflation rate	Unemployment rate
A	high	high
B	high	low
C	low	low
D	low	high

4 What is the role of a central bank in a country with a fixed exchange rate?

A avoid a budget deficit

B improve the terms of trade

C provide loans to exporters

D regulate the price of the currency

5 When would a country with a fixed exchange rate experience a reduction in its reserves of foreign currency?

A a decrease in imports of services

B a decrease in workers' remittances received from other countries

C an increase in exports of goods

D an increase in dividends on shares in other countries' firms

6 What would put downward pressure on a fixed exchange rate?

A an increase in borrowing from foreign banks

B a net outflow of primary income not offset by inflows on the parts of the current account balance

C a reduction in direct and portfolio investment carried out by the country's residents in other countries

D speculation that the country's relative inflation rate will decrease

7 How could a firm, which exports a high proportion of its output, gain from a devaluation?

	By lowering the price of its exports in terms of foreign currency	By keeping the price of its exports the same in terms of foreign currency
A	no	no
B	no	yes
C	yes	yes
D	yes	no

8 When is a devaluation *not* likely to improve the trade balance?

	Price elasticity of demand for exports	Price elasticity of demand for imports
A	0.2	0.6
B	0.4	0.8
C	1.2	0.3
D	2.5	0

9 What would increase the time gap between demand for exports and imports being price inelastic and becoming price elastic after a devaluation?

A increased awareness of price changes

B increased length of contracts

C increased mobility of labour

D increased quality of domestic products

10 A country had a surplus on the current account of its balance of payments. Nine months later, the country's currency was revalued. A reverse J-curve effect was experienced. What would this indicate had happened to the current account surplus?

A It continued to increase.

B It increased before declining.

C It moved into a deficit before returning to a surplus.

D It moved to a balance before returning to a surplus.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain the methods used to measure the price of a currency: nominal foreign exchange rate, real exchange rate, trade-weighted exchange rate			
Analyse how exchange rates are determined in a fixed rate exchange rate system and a managed system			
Explain the difference between revaluation (a rise in the fixed exchange rate) and devaluation (a fall in the fixed exchange rate)			
Analyse the causes of changes in the exchange rate under a fixed exchange rate system and a floating exchange rate system			
Evaluate the effects of changing exchange rates on the external economy using the Marshall–Lerner condition and J-curve analysis			

Chapter 50

Economic development

LEARNING INTENTIONS

In this chapter you will learn how to:

- describe how economies are classified in terms of their level of development and level of national income
- evaluate indicators of living standards and economic development including real per capita national income statistics, purchasing power parity, non-monetary indicators and composite indicators
- explain the Kuznets curve
- compare economic growth rates and living standards over time and between countries.

ECONOMICS IN CONTEXT

Sweden's remarkable economic transformation

In 1870, Sweden was one of the poorest countries in Europe. Today, it is one of the richest countries in the world. Figure 50.1 shows how Sweden's GDP per head took off in 1870.

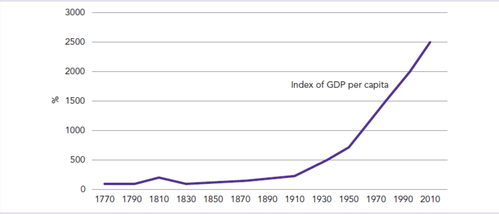


Figure 50.1: Sweden's GDP per capita, 1770–2010

There are thought to be a number of reasons why Sweden made such strong progress in its income growth after 1870. These include land reform, the development of a strong banking sector, removal of trade restrictions and increases in the number of compulsory years of schooling. Between 1870 and 2019, labour productivity rose dramatically.

The improved economic performance helped the country's development. For instance, its literacy rate rose from 61% in 1845 to 99% in 1875. Improvements in nutrition, housing and healthcare increased and continue to increase life expectancy in the country. Figure 50.2 shows that a Swedish person born in 1870 could expect, on average, to live to 43, whereas a Swedish person born in 2020 could expect to live to 82.

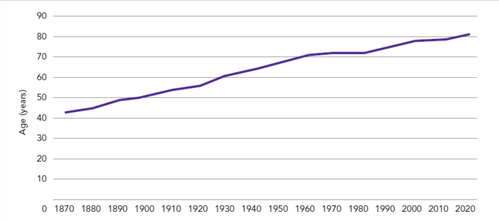


Figure 50.2: Life expectancy in Sweden, 1870–2020

The high quality of life in Sweden today encourages people from other countries to seek to move to Sweden.

Figure 50.3: Leisure time in Sweden

Discuss in a pair or a group:

- How does your country's performance in growth of income and increase in the quality of life during your lifetime compare to Sweden?
- Consider whether all people benefit from living longer.

50.1 How economies are classified in terms of development and national income

Economies can be classified according to their development. Economies with high economic development usually have high incomes, mature markets, high standards of living and high levels of productivity.

Some economists divide countries into developed and developing economies. Developed economies are usually taken to be those with a high income per head, a range of well-established economic institutions, advanced technological infrastructure and a strong tertiary sector. Developing countries are thought to have lower income per head, reliance on fewer products, a larger primary sector and lower productivity. However, some institutions, including the World Bank and some economists are no longer using the terms. This is because, in a sense, all economies are developing or seeking to develop. What these institutions and economists do is to classify economies to the level of development they have currently reached (see the Human Development Index in Section 50.2) or according to income per head.

TIP

Remember when analysing data on how economies are grouped that there will be differences within the groups. For instance, not all countries with a large primary sector have a low income per head. Oil and gas production accounts for 50% of Saudi Arabia's output but it has a high GDP per head.

Classification according to income

Economists and international organisations sometimes concentrate on differences in income per head to classify economies. The best-known way of doing this is by comparing the value of economies' GDP per capita (also known as per head), GNI per capita or NNI per capita. The World Bank uses GNI per capita to classify every country as low-income, lower middle-income, upper middle-income or high-income, as shown in Table 50.1.

Each year there are some changes. In the 2019 classification, Sri Lanka moved from lower middle-income to upper middle-income while Argentina slipped from high-income to upper middle-income.

The thresholds between the categories are updated in July each year to account for the international rates of inflation. As a result, the thresholds are constant in real terms over time.

Classifying economies according to income levels is relatively straightforward and can help to identify those economies in need of help and assistance from aid providers. Since 2018, the World Bank has used the high income threshold as a determinant of the interest rates it charges on loans. A higher interest rate is charged on loans to countries which have been classified as high income for two consecutive years. However, the classifications can be misleading, as some countries' economies may be growing while others may be contracting. Neither does it capture all the influences on development.

Threshold	GNI per capita ($)
Low-income	1025 or less
Lower middle-income	1026 – 3995
Upper middle-income	3996 – 12 375
High-income	12 376 and above

Table 50.1: The World Bank's classification of economies, GNI per head, 2018

Some economies have a low income per head. A number of these suffer from **poverty cycles** which can result in **development traps**. Figure 50.4 shows two poverty cycles.

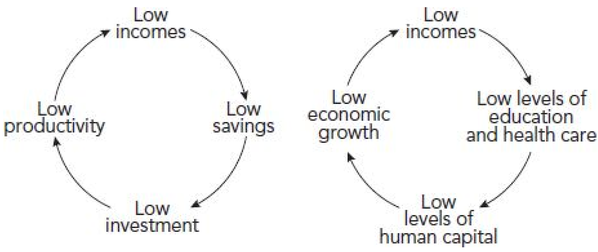


Figure 50.4: Poverty cycles

TIP

Poverty cycles can help you visualise how the pattern of poverty can be broken and can be used to illustrate in essays why some countries experience low economic growth and development.

ACTIVITY 50.1

In a group of four:

1. Write the names of seven countries on cards. You could for example, find seven countries whose names all begin with the same letter.
2. Place the cards face down. Each member of the group should select one card.
3. Each member of the group should research details of the country and try to persuade other members of the group of the advantages of living in the country.

50.2 Other indicators of living standards and economic development

In assessing living standards and economic development, economists use a wide range of indicators. Some of these are measured in monetary terms, such as GDP, GNI, NNI and purchasing power parity (PPP) (see Section 50.3). Others are measured in non-monetary terms including, for example, infant mortality rates and the number of doctors per 1000 of the population.

Composite indicators

There are also a number of composite measures, which include a number of indicators of living standards and economic development with weightings to give a single, combined figure.

Human Development Index

Perhaps the best-known measure of economic development is the United Nation's Human Development Index (HDI). This takes into account GNI per head, education (as measured by expected years of schooling and mean years of schooling) and health care (as measured by life expectancy). Expected years of schooling are the years of schooling that a child of school entrance age can expect to receive. Mean years of schooling are the average number of years of education received by people aged 25 and above. Measures of income, education and life expectancy are included as it is thought that people's welfare is influenced not only by the goods and services available to them but also their ability to lead a long and healthy life and to acquire knowledge.

The HDI value for a country shows the distance a country has to cover to reach the maximum value of 1. Countries are divided into very high human development, high human development, medium human development and low human development. A country's ranking by HDI does not always match its ranking in terms of GNI per head. Indeed, in some cases there are marked differences. For example, in 2019, Cuba's HDI ranking was significantly higher than its GNI per head ranking, while Qatar's GNI per head ranking was significantly higher than its HDI ranking.

Figure 50.5: Havana, Cuba

Table 50.2 shows details of the ten countries and territories/regions with the highest HDI rankings and the ten with the lowest HDI rankings in 2018.

Ranking	Very high human development country	HDI value 2018	Life expectancy at birth (years) 2018	Expected years of schooling (years) 2018	Mean years of schooling (years) 2018	GNI per capita 2011 PPP ($) 2018
1	Norway	0.954	82.3	18.1	12.6	68 659
2	Switzerland	0.946	83.6	16.2	13.4	59 375
3	Ireland	0.942	82.1	18.8	12.5	55 660
4	Germany	0.939	81.2	17.1	14.1	46 946
4	Hong Kong	0.939	84.7	16.5	12.0	60 221
6	Australia	0.938	83.3	22.1	12.7	44 087
6	Iceland	0.938	82.9	19.2	12.5	47 566
8	Sweden	0.937	82.7	18.8	12.4	47 955
9	Singapore	0.935	83.5	16.3	11.5	83 793
10	Netherlands	0.933	82.1	18.0	12.2	50 013
	Low human development country					
176	Liberia	0.465	63.7	9.6	4.7	1 040
177	Yemen	0.463	66.1	8.7	3.2	1 433
178	Guinea-Bissau	0.461	58.0	10.5	3.3	1 593
179	Democratic Republic of the Congo	0.459	60.4	9.7	6.8	800
180	Mozambique	0.446	60.2	9.7	3.5	1154
181	Sierra Leone	0.438	54.3	10.2	3.6	1381
182	Burkina Faso	0.434	61.2	8.9	1.6	1705
182	Eritrea	0.434	65.9	5.0	3.9	1708
184	Mali	0.427	58.9	7.6	2.4	1965
185	Burundi	0.423	61.2	11.3	3.1	660

Table 50.2: The HDI rankings of 20 countries, 2019

Measurable Economic Welfare

Another composite measure is Measurable Economic Welfare (MEW). This was developed in 1972 by two American economists, William Nordhaus and James Tobin. The measure seeks to give a fuller picture of living standards by adjusting GDP figures to take into account other factors that have an impact on living standards. Factors that improve living standards, including increased leisure time, are added to the GDP figure. Factors that reduce living standards, such as environmental damage, are deducted. Of course, in practice, it is difficult and expensive to measure the value of non-marketed goods and services.

Multidimensional Poverty Index

A more recent composite measure is the Multidimensional Poverty Index (MPI). This was developed in 2010 by the Oxford Poverty and Human Development Initiative and the United Nations Development Programme. It measures indicators of living standards (cooking fuel, sanitation, drinking water, electricity, housing and assets), education (years of schooling and school attendance) and health (child mortality and nourishment). The six indicators of living standards are given a total weighting of 33%, the two indicators of education a total weighting of 33% and similarly the two indicators of health have a weighting of 33%. A household is considered to be multidimensionally poor if they are deprived in at least 33% of the weighted indicators. This means a family would be regarded as poor if it has lost a child and has another child who is not attending school.

The aim of the MPI is to help countries understand why people are poor and why some stay poor even when incomes rise. The MPI can help governments and international organisations target the poorest groups in a country, assess and co-ordinate national development plans.

ACTIVITY 50.2

Table 50.3 shows the HDI and its components of different regions.

Region	HDI	Life expectancy (years)	Mean years of schooling (years)	Expected years of schooling (years)	GNI per capita 2011 PPP ($)
Arab states	0.703	71.9	12.0	7.1	15 721
East Asia and the Pacific	0.741	75.3	13.4	7.9	14 611
Europe and Central Asia	0.779	74.2	14.6	10.2	15 498
Latin America and the Caribbean	0.759	75.4	14.5	8.6	13 857
South Asia	0.642	69.7	11.8	6.5	6 794
Sub-Saharan Africa	0.541	61.2	10.0	5.7	3 443

Table 50.3: The HDI and its components of different regions

In a pair, using the information in Table 50.3:

1. Discuss the extent to which the information suggests there is a positive correlation between education (as measured by mean years of schooling) and GNI per head.
2. Decide whether the information shown suggests that the region of sub-Saharan Africa was the least developed in 2012.

TIP

Remember when answering questions on the HDI that life expectancy is influenced by healthcare, but what is actually measured in HDI is life expectancy rather than healthcare.

The Kuznets curve

The Kuznets curve is a U-shaped curve that was first drawn by the American economist Simon Kuznets. The Kuznets curve suggests that as an economy develops, income becomes more unevenly distributed, and then after a certain income level is reached, income becomes more evenly distributed as shown in Figure 50.6.

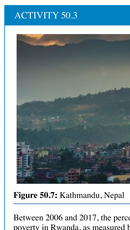


Figure 50.6: The Kuznets curve

The reason why it is thought there will be an initial rise in income inequality is that as an economy develops there will be a movement of labour from low-paid and low-skilled agricultural jobs to higher-paid and more skilled manufacturing jobs.

However, this suggested trend is not being followed in all developing economies. For example, the curve does not explain the rise in income inequality in the high-income economy of the USA.

ACTIVITY 50.3

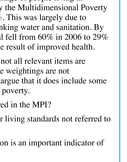


Figure 50.7: Kathmandu, Nepal

Between 2006 and 2017, the percentage of people living in poverty in Rwanda, as measured by the Multidimensional Poverty Index (MPI), fell from 80% to 29%. This was largely due to improvements in access to safe drinking water and sanitation. By the same measure, poverty in Nepal fell from 60% in 2006 to 29% in 2014. This time it was largely the result of improved health.

Some critics of the MPI claim that not all relevant items are included, while others think that the weightings are not appropriate. Defenders of the MPI argue that it does include some of the most important indicators of poverty.

1. How is health poverty measured in the MPI?
2. Identify two indicators of poor living standards not referred to in the passage.
3. Explain why a lack of education is an important indicator of poverty.

Share your answers with another learner.

50.3 Comparison of economic growth rates and living standards

Changes in real GDP, GNI and NNI are used to calculate economic growth rates. For example, the real GDP of Indonesia grew from $1.02 trillion in 2017 to $1.04 trillion in 2013. This meant that the economic growth rate was 1.96%.

Table 50.4 compares the average annual growth rates for five Asian and five European economies. Economic growth was generally low in 2019 but, on average, the Asian economies experienced a higher rate. Singapore was lower than the other four Asian countries and Poland had a higher rate than the other four European countries.

Asian country	Economic growth	European country	Economic growth
Malaysia	4.6	Germany	0.6
Pakistan	3.3	Greece	1.9
Singapore	0.8	Norway	1.9
South Korea	2.0	Poland	4.0
Thailand	2.4	UK	1.4

Table 50.4: Economic growth rates for selected Asian and European countries, 2019

In comparing economic growth rates over time and between countries, care has to be taken over a number of issues. One of these is that the official real GDP, GNI or NNI figures may understate the true change in output. This is because of the existence of, and changes in, what is sometimes called the **shadow economy**. This refers to undeclared economic activity and is also sometimes called the hidden or underground economy. The shadow economy refers to undeclared economic activity. There are two main reasons why people may not declare their earned income to the authorities. One is that they are seeking to evade paying tax. For example, a plumber may receive payment for undertaking jobs in their spare time and not declare the income they receive to the tax authorities. So, some of the services the plumber produces will not be included in GDP, GNI and NNI. Another reason for not declaring economic activity is that the activity is itself illegal, for example smuggling goods.

Some idea of the shadow economy can be found by measuring any gap between GDP as measured by the expenditure and income methods. This is because people will be spending income they have not declared.

If the size of the shadow economy is relatively constant, the rate of economic growth may be calculated reasonably accurately. However, even a shadow economy can make international comparisons of economic growth rates difficult. This is because the size of the shadow economy varies between economies. It is influenced by the marginal rates of taxation, the penalties imposed for illegal activities and tax evasion, the risk of being caught and social attitudes towards, for example, different illegal activities.

Neither may official GDP figures provide an accurate measure of output and changes in output because of low levels of literacy, non-material goods and services and the difficulties of measuring government spending. In countries with low levels of literacy, it will be difficult for the government to gather information about all economic activity. Some people will be unable to fill out tax forms and others will fill them out inaccurately, so estimates will have to be made for some output.

Estimates also have to be made for non-marketed goods and services. The GDP figures only include marketed goods and services, that is goods and services that are bought and sold and so have a price attached to them. Goods and services that are produced and that are either not traded or are exchanged without money changing hands go unrecorded. For example, domestic services provided by homeowners, painting and repairs undertaken by home-owners and voluntary work are not included in the official figures. The proportion of goods and services that people produce for themselves and the amount of voluntary work undertaken vary over time and between countries.

In comparing economic growth rates, it is also important to consider the nature of economic growth. A very high rate of economic growth may initially appear to be very impressive. However, it may not be possible to sustain this for any length of time if non-renewable resources are depleted and pollution is created that reduces the fertility of the land and the health of the labour force.

Comparison of living standards over time

Real GDP per head figures have traditionally been used as one of the main indicators of living standards. If a country's real GDP per head is higher this year than last year, it is generally expected that the country's population will be enjoying higher living standards. This is often the case but may not always be so.

Real GDP per head is found by dividing total real GDP by the country's population to give an average figure. Real GDP is not evenly distributed, so while it is possible that real GDP per head may rise, not everyone will be better off. Indeed, some people may even experience a fall in their income.

The change in real GDP may not reflect the true change in the quantity of goods and services that households can enjoy if the level of undeclared economic activity changes over time. To assess changes in living standards, changes in the type of products produced and the ways in which they are made must be considered. During a war, output may rise because more weapons are being produced, but not many people will say that the quality of their lives is improving. The recruitment of more police to cope with more crime will increase real GDP, but will be unlikely to cause people to feel better off.

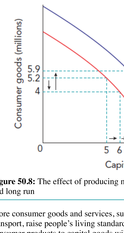


Figure 50.8: The effect of producing more capital goods in the short and long run

More consumer goods and services, such as housing, food, clothing and transport, raise people's living standards. A shift of resources from consumer products to capital goods will enable more consumer products to be produced and enjoyed, but only in the future. However, in the short run if the economy is operating at the frontier of its production possibility curve, such a move will cause people to enjoy fewer consumer products. Figure 50.8 shows a reduction in the output of consumer products in the short run but an increase in the long run.

Even if people are able to enjoy more consumer goods and services, it does not necessarily mean that they will be happier. As access to more and higher quality products rises, the desire for even more and better products may increase at an even faster rate. For example, people who do not have a car are happy when they buy their first car but often, within a short space of time, they want a better model. This has particular implications for people in China and India where incomes and car ownership are increasing rapidly.

Real GDP measures the quantity of output produced but not the quality. Output could rise, but if the quality of what is produced declines then the quality of people's lives is likely to fall. In practice, however, the quality of output tends to rise over time.

Working conditions also tend to improve over time and working hours usually fall. If real GDP per head stays constant from one year to the next but working conditions rise and/or working hours fall, people's living standards will rise.

Although workers tend to enjoy improved working conditions over time, the quality of the environment in some countries declines as a result of pollution and, for example, deforestation. A decline in environmental conditions will lower living standards, but not necessarily real GDP. If more resources have to be devoted to cleaning up the environment, real GDP will increase while living standards decline.

KEY CONCEPT LINK

Progress and development: Economies make progress if their residents can enjoy a higher quality of life.

Comparison of GDP per head and living standards between countries

The citizens of a country with a higher GDP per head are likely to enjoy higher living standards than people living in a country with a lower real GDP per head, but this is not necessarily the case.

To compare living standards between countries, it is necessary to convert the real GDP per capita into a common currency. To avoid the comparison being distorted by exchange rate changes, economists usually adjust exchange rates to take into account their purchasing power parities (PPPs). For example, suppose the exchange rate is 6 Malaysian ringgits equals $1 and the USA has a real GDP per head of $50 000 while Malaysia has a real GDP of 12 000 ringgits. From this information, it might appear that when Malaysia's real GDP is converted into dollars ($2000) people in the USA are, on average, 25 times better off than people in Malaysia. However, if $1 can buy more goods and services in the USA than in Malaysia, then using the exchange rate to convert ringgits into dollars will exaggerate Malaysia's output. A basket of products may sell for $200 in the USA and for 2400 ringgits in Malaysia. This would mean that in terms of ability to buy products (purchasing parities) 12 ringgits are worth $1. Using this as the basis for converting Malaysia's output into US dollars would show that people in the USA are 50 times better off than people in Malaysia.

Each year, *The Economist* magazine publishes a 'Big Mac' index. This is a simplified version of the purchasing power parity between the $ and a number of other currencies. It divides the price of a Big Mac in one country by the price in another country to get the purchasing power parity between the two currencies. For instance, if the price in the USA is $4 and it is £3 in the UK, the purchasing power parity would be $\frac{4}{£3}$, so £1 = $1.33. If the actual exchange rate is £1 = $1.50, it would suggest that the pound is overvalued and may fall in value in the future.

Even if a country is found to have a higher real GDP per head than another country using purchasing power parities, it does not necessarily mean that its population will enjoy higher living standards. For example, Kuwait has one of the highest real GDP per head in the world, but some immigrant workers in the country receive relatively low wages. Where income is very unevenly distributed, only a small number of households may benefit from a high average income.

When assessing living standards between countries, consideration must be given to factors that are not measured in real GDP per head, just as when making comparisons over time. For example, working hours, working conditions, fear of crime and freedom of thought may be taken into account.

TIP

It is useful to give a numerical example in any answer that explains purchasing power parity.

KEY CONCEPT LINK

Efficiency and inefficiency: A good standard of living can promote efficiency as it is likely to make workers more productive.

THINK LIKE AN ECONOMIST

Not everyone benefits from Asia's fast growth

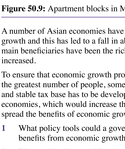


Figure 50.9: Apartment blocks in Mumbai, India

A number of Asian economies have experienced rapid economic growth and this has led to a fall in absolute poverty. However, the main beneficiaries have been the rich. Income inequality has increased.

To ensure that economic growth provides the greatest benefits for the greatest number of people, some economists suggest that a fair and stable tax base has to be developed in a number of Asian economies, which would increase the ability of the governments to spread the benefits of economic growth.

1. What policy tools could a government use to ensure everyone benefits from economic growth?
2. Discuss whether you think that most people in your country have benefited from any economic growth your country has recently enjoyed.

ACTIVITY 50.4

In a pair, prepare a report on whether you think people in your country will enjoy a higher standard of living in 20 years' time than they do now.

REFLECTION

How do you think that working as a pair gave you more ideas? How did you take into consideration the factors that influence development?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Why might an economy experience a rise in GNI per capita over a ten-year period, but a fall in the quality of life that most of its residents experience?

A Income has become more unevenly distributed.

B Income has risen by more than the price level.

C The country's GNI has increased by more than its population.

D The country's GNI now consists of a greater proportion of consumer goods.

2 Which country is likely to have the highest level of development?

Country	Annual GNI per capita ($)	% of the population with access to the internet	% of population who are homeless
A	4000	60	20
B	8000	60	10
C	30 000	90	4
D	40 000	90	2

3 What is purchasing power parity?

A the nominal exchange rate at which a basket of goods and services would cost the same amount in two countries

B the nominal exchange rate which would ensure that credit items on the current account equal debit items

C the nominal exchange rate which would ensure that incomes in two trading partners are equal

D the nominal exchange rate multiplied by the price index in the country divided by the price index in the country's trading partners

4 Which change is most likely to increase a country's Human Development Index (HDI) value?

A a decrease in the death rate

B an increase in emigration

C a reduction in average years of schooling

D a recession

5 What is most likely to have caused a country's relative Human Development Index (HDI) ranking to have decreased over a ten-year period?

A Expected years of schooling exceeded mean years of schooling.

B GNI fell by less than population.

C Income became less evenly distributed.

D Life expectancy remained unchanged.

6 Which characteristic is most often found in a country with high development?

A high illiteracy rate

B high productivity

C low income per head

D low investment

7 What is directly included in the multidimensional poverty index but not the Human Development Index (HDI)?

A leisure time

B sanitation

C tax revenue

D years of schooling

8 Which measure of income is included in Measurable Economic Welfare (MEW)?

A NDP

B NNI

C GDP

D GNI

9 What effect would a rise in income per head be likely to have on a country's HDI, MEW and MPI?

	HDI	MEW	MPI
A	decrease	decrease	increase
B	decrease	increase	increase
C	increase	increase	increase
D	increase	increase	decrease

10 What does the Kuznets curve suggest?

A A cost of lower unemployment is a rise in the inflation rate.

B A current account deficit initially increases before it decreases as a result of a depreciation.

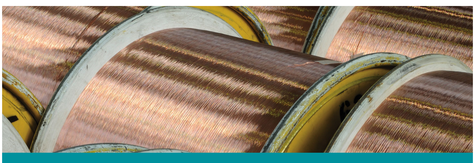
C A necessary cost of progress over the long run is a short-run increase in environmental damage.

D A necessary cost of progress over the long run is a short-run loss in equity.

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Describe how economies are classified in terms of their level of development and level of national income			
Evaluate indicators of living standards and economic development using monetary terms (GDP, GNI, NNI, purchasing power parity), non-monetary terms (such as infant mortality rates) and composite indicators (HDI, MEW, MPI)			
Explain that the Kuznets curve (U-shaped) suggests that as an economy develops, income becomes more unevenly distributed and then after a certain income level is reached, income becomes more evenly distributed			
Compare economic growth rates over time and between countries using real GDP, GNI and NNI			
Compare living standards over time and between countries using real GDP			



Chapter 51

Characteristics of countries at different levels of development

LEARNING INTENTIONS

In this chapter you will learn how to:

- explain how the birth rate, death rate, infant mortality and net migration are measured
- analyse the causes of changes in birth rate, death rate, infant mortality and net migration
- explain the concept of the optimum population
- explain how the level of urbanisation changes as countries develop
- explain how income distribution can be measured
- calculate and interpret the Gini coefficient
- analyse and draw Lorenz curves
- explain employment composition, in terms of primary, secondary and tertiary sectors
- analyse the pattern of trade at different levels of development.

ECONOMICS IN CONTEXT

Japan's shrinking population

The Japanese population increased from 44 million to 128 million from 1900 to 2000. Japan's population is now declining. It fell by 276 000 to 126 million in 2019. On current trends, it is predicted that the population will be only 100 million by 2046, 2 million by 2800 and that there may be only one person living in Japan in 3000.

Figure 51.1: Japan's population is getting older

The Japanese are living longer and having fewer children. The country had the highest average age in the world at 49 years in 2020. Its population structure contrasts with that of Nigeria whose population is growing at 3% a year. Nigeria had a population of 95 million in 1990. By 2019, this had more than doubled to 198 million. The population is forecast to more than double again to 402 million in 2050. Families in Nigeria have significantly more children than families in Japan. The average age of Nigeria's population was only 18 years in 2020. Figures 51.2 and 51.3 show the age structure of the two countries in 2020.

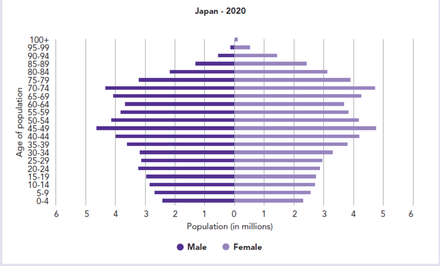


Figure 51.2: Japan's population pyramid, 2020

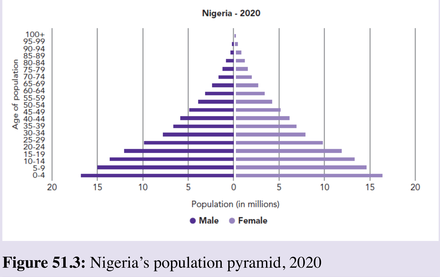


Figure 51.3: Nigeria's population pyramid, 2020

Discuss in a pair or a group:

- Would you prefer to live in a country with a declining population or one with an increasing population?
- Why might the decline in Japan's population be less than predicted?

51.1 Population growth and structure

Government statisticians and **demographers** measure how populations have changed and make predictions about future populations and their structures. The key data they measure include the **birth rate**, the **death rate**, the **infant mortality rate** and **net migration**.

The birth rate is the number of live births per thousand of the population in one year. It is calculated by dividing the number of live births by the population and then multiplying by 1000. This means, for example, that if 800 000 babies are born one year in a country with a population of 60 million, its birth rate will be 800 000 divided by 60 million and then multiplied by 1000, that is 13. The birth rate is sometimes referred to as the crude birth rate as it provides only basic information on births. It does not, for instance, give details on the age of those who are giving birth.

The death rate is the number of deaths per thousand of the population in one year. The death rate includes the deaths of children aged under one, although countries also measure these separately in the infant mortality rate. If the birth rate exceeds the death rate, a country is said to experience a **natural increase in population**.

A country's population size can also be influenced by external migration, that is migration into and out of the country. If immigration into the country is greater than emigration out of the country, the country is said to experience net immigration or **positive net migration**. For example, **net migration rate** of 3 would mean that a country with a population of 45m would have 135 000 $\left(\frac{45m}{1000} \times 3\right)$ more people coming to live in the country than leaving it.

ACTIVITY 51.1

Carry out the calculations related to the questions below:

1 In 2019, there were 790 000 births in Germany, a country with a population of 82.6 million. In the same year, its death rate was 11.3.

a What was Germany's birth rate?

b how many people died in Germany in 2019?

2 A country had a population of 30 million at the start of 2020. It had a birth rate of 15, a death rate of 9 and net migration rate of – 2. What would have been the increase in the size of the country's population at the end of 2020?

Compare your answers with another learner.

KEY CONCEPT LINK

Progress and development: A key indicator of a country's progress and development is an increase in the life expectancy of its residents. Such an increase can be the result of improvements in education, healthcare, housing and nutrition.

TIP

In looking at data on population, be careful to avoid confusing the birth rate and the fertility rate. The birth rate is the number of births per thousand of the population whereas the fertility rate is the average number of children a woman will give birth to.

Causes of changes in population

As countries develop, the growth in their populations tend to decline. While their death rate decreases, their birth rates fall at a greater rate. Better healthcare, education, sanitation, housing and nutrition contribute to people living longer. A decline in infant mortality, increased cost of bringing up children and an increase in women's participation in the labour force usually result in a decline in the birth rate.

Some countries with a high income per head and high development experience a natural rate of decrease in population. A number of these still experience a rise in population because they attract net immigration. People may want to move to the country to gain higher income and to enjoy a higher living standard.

Low development is often associated with high rates of population growth. This is due largely to natural increases in population size with the birth rate exceeding the death rate. There are a number of reasons why the birth rate tends to be high in countries with low development. These include the need to have children to support parents in their old age, lack of availability of methods of birth control, the relatively low costs of raising children and lack of education of women. High infant mortality rates also encourage families to have more children as they will not expect all of them to survive.

The higher birth rate of countries with low development results in a relatively low average age of population. This creates a high proportion of dependent, non-productive members of the population. They are said to have very high **dependency ratios**. This means that a proportionally small working population has to produce enough goods and services to sustain not only themselves but also a large number of young people who are economically dependent upon them.

As income per head, education and healthcare start to rise, the death rate initially tends to fall more rapidly than the birth rate. Then the death rate starts to fall more slowly with the decline in the birth rate overtaking the decline in the death rate. However, high development does not eliminate population problems – it just brings new ones. The most common problem is an ageing population. This arises from a decreasing birth rate and a decreasing death rate. Again, dependency ratios are high, this time because there is a high proportion of old people who are reliant upon the productive proportion of the population for support. With people living longer, the cost of healthcare and pensions have been rising. To reduce the cost of pensions, a number of governments of developed countries have increased the retirement age.

KEY CONCEPT LINK

The margin and decision-making: Economic influences play a role in families deciding whether to have children or not. These influences include the cost of educating children and income that may be lost when raising children.

ACTIVITY 51.2

In the recent past, Spain received more immigrants than any other European country. Spain's population grew from 40 million in 1999 to more than 47 million in 2010. The increase was largely as the result of immigration coming from, for example, Bolivia, Morocco and Romania. However, in 2010, the position changed. Migrants began to return home and more Spanish people emigrated. This reversal from positive net migration to negative net migration combined with one of the world's lowest birth rates caused the population to decline in 2013 for the first time since records began. As net migration became positive again in 2016, the country started to experience a small increase in its population size which had increased to 49 million in 2018.

The slow increase in the size of Spain's population and the rise in its average age are causing a number of problems. One is that they are reducing Spain's economic growth rate. With very little productivity growth, Spain's economic growth rate had been largely driven by increases in the size of the country's labour force. Another problem is that the ratio of workers to pensioners is declining.

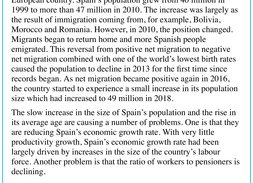


Figure 51.4: Percentage change in Spain's population, 2007–2018

Spain's population changes are in contrast with the relatively rapid rise in population in some African countries. While birth rates have fallen in most parts of Africa, they are still high at more than thirty in a number of countries including Niger, Nigeria and Uganda. The increase in population is increasing urbanisation. For example, the population of Lagos in Nigeria is forecast to grow from 11 million in 2014 to more than 40 million in 2050. The number of children in Africa is rising dramatically. In 2010, there were 411 million African children aged 14 or below. By 2050, it is predicted there will be 839 million.

Figure 51.5: Percentage change in Spain's population, 2007–2018

In a pair, research and then prepare a report on what has happened to the population of Spain and Nigeria since 2018.

The optimum population

In assessing the effects of differences in population size, economists make use of the concept of **optimum population**. The optimum population is said to exist when output per head is the greatest, given existing quantities of the other factors of production and the current state of technical knowledge. This is shown in Figure 51.6.

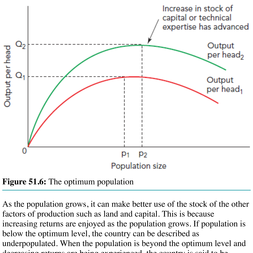


Figure 51.6: The optimum population

As the population grows, it can make better use of the stock of the other factors of production such as land and capital. This is because increasing returns are enjoyed as the population grows. If population is below the optimum level, the country can be described as underpopulated. When the population is beyond the optimum level and decreasing returns are being experienced, the country is said to be overpopulated. In the real world, the situation is more dynamic and the state of technical knowledge is constantly improving. The quantity of the other factors also continuously changes so that the optimum population for a country is not fixed. In addition, the criteria for assessing underpopulation or overpopulation are purely economic and may be disputed by conservationists.

TIP

Be careful not to confuse population growth and population size. Low income countries tend to have high population growth, but not necessarily high population size. For instance, Niger had a population growth rate of 4% in 2019 but a population of only 23.5 million, whereas the US had a lower population growth of 0.5% but a higher population size of 328 million.

Level of urbanisation

Countries with a low income per head tend to have a relatively high proportion of their populations living in rural areas. They also have rapid rates of rural–urban migration. Rural–urban migration can put pressure on the infrastructure, housing and schools in urban areas.

Most countries with a high income per head already have the majority of their populations living in urban areas. As a result, there is relatively little growth in the urban population of high-income economies. In some cases, people are moving out of urban areas to rural areas as advances in technology are allowing more people to work from home. For example, in 2019, 84% of the population of the USA was living in urban areas and the rate of rural–urban migration between 2003 and 2013 was –0.2% per year. In contrast, 30% of the population of Burkina Faso lived in urban areas in the same year and the rate of rural–urban migration was 8.1%.

ACTIVITY 51.3

Discuss as a group whether you might expect to live in an urban area or a rural area in ten years' time.

51.2 Income distribution

It is a characteristic of some countries that income is unevenly distributed. This is partly because income-generating assets, especially land, are owned by a few people. As a result, there are great extremes of wealth and poverty. Income is particularly unevenly distributed in Latin America and in South Africa and Lesotho. Income is relatively evenly distributed in Scandinavian European economies.

The transition of Eastern European countries, including Poland and Russia, from centrally planned to market economies has increased inequality as a small number of people have benefited enormously from the new opportunities that have resulted. Two exceptions are Slovenia and the Ukraine, which have two of the least uneven distributions of national income in Europe.

The Gini coefficient is one of the main measures of income inequality. The **Lorenz curve** can be used to illustrate income inequality.

Gini coefficient

The Gini coefficient is a numerical measure of the extent of inequality. Figure 51.7 shows a 45° line, the line of equality, which shows income being evenly distributed with e.g. 10% of the population receiving 10% of the income, 20% of the population would receiving 20% of the income etc. The Gini coefficient is calculated by dividing the area A by the combined areas A and B.

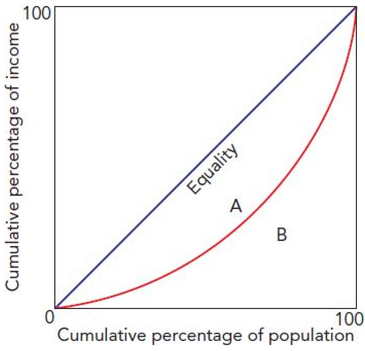


Figure 51.7: A Lorenz curve showing the areas used to calculate the Gini coefficient

The area under the line is 50% of the area of shown. 0 would mean that the income distribution is equal. (0% / 50%). There would be no gap between the actual income distribution and the line of equality. In contrast, 1 (50% / 50%). would mean there is complete inequality. All income would go to one person. Both extremes do not occur in practice. The coefficient will be between the two. The higher the figure the more unequal the distribution of income.

Table 51.1 shows the Gini coefficient for a selected number of countries in 2018.

County	Gini coefficient	Country	Gini coefficient
Argentina	0.41	Russia	0.38
Belarus	0.25	Thailand	0.36
Brazil	0.54	Turkey	0.41
Costa Rica	0.48	Ukraine	0.26

Table 51.1: Gini coefficient for a selected number of countries, 2018

The Gini coefficient is sometimes expressed as the Gini Index. This is the Gini coefficient multiplied by 100, so that, for example, Argentina would have had an index of 41 in 2018.

The Lorenz curve

Figure 51.7 is a Lorenz curve. On the vertical axis, the cumulative percentage of income or wealth is plotted and on the horizontal axis the cumulative percentage of population is indicated. Table 51.2 gives an example of how the cumulative percentage of income is calculated. The 45° diagonal line shows an equal distribution of income or wealth. The actual distribution is plotted on the diagram. The further the curve is from the 45° line the more unequal the distribution.

Percentage of the population	% share of income	Cumulative % of income
Poorest 20%	5	5
Next poorest 20%	8	13
Middle 20%	15	28
Next richest 20%	25	53
Richest 20%	47	100

Table 51.2: The distribution of income in a country

ACTIVITY 51.4

Table 51.3 shows the distribution of income in Sweden in 2015.

Percentage of the population	% share of income	Cumulative % of income
Poorest 20%	7	
Next poorest 20%	14	
Middle 20%	18	
Next richest 20%	23	
Richest 20%	38	

Table 51.3: Income distribution in Sweden, 2015

1. Copy and complete Table 51.3.
2. Use the figures you have calculated to draw a Lorenz curve showing income distribution in Sweden in 2015.

Compare your answers with another learner.

KEY CONCEPT LINK

The role of government and the issues of equality and equity: A more even distribution of income is often the result of government intervention undertaken to promote greater equity.

TIP

In examining differences in income inequality, it is useful to consider not just changes in the income share of the top 10% of income earners but also the share of the top 1%. In many countries, this has been where most change has occurred.

51.3 Economic structure

Employment in different sectors of the economy

As well as population growth and structure and income distribution changing as countries develop, its economic structure can also change.

Countries with high income per head and high development tend to have most of their labour force employed in the tertiary sector. In contrast, economies with lower income per head and development typically have a high dependence on the primary sector. A high dependency on agricultural output and employment makes these economies vulnerable to the forces of nature. In economies that are dependent upon agricultural output for subsistence, a drought can quickly lead to famine. In those countries that are dependent upon agricultural products for their exports, a drought can wipe out their foreign currency earnings.

As an economy develops, the contribution to employment and GDP of the primary sector tends to decline. The secondary sector becomes the major source of employment and as the economy develops further, the tertiary sector usually makes the largest contribution to employment. In some cases, employment moves to a greater extent from the primary sector to the tertiary sector than to the secondary sector. This can occur when there is a growth in, for instance, tourism. It is also the case that a smaller proportion of the economy's labour force may be employed in the primary sector in a country with high development, but the total value of the sector's output may increase given higher labour and capital productivity. The different sectors of production are shown in Table 51.4.

Sector	Description of sector
Primary sector	This covers agriculture and the extractive industries such as oil extraction, gold mining and coal mining.
Secondary sector	This includes all manufacturing industries and the construction industry.
tertiary sector	This covers all service industries such as banking, education, healthcare and tourism.

Table 51.4: The different sectors of production

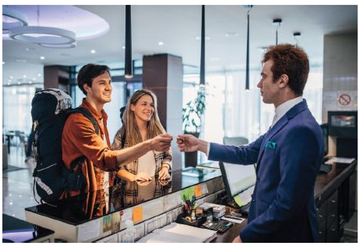


Figure 51.8: Tourism is part of the tertiary sector

Table 51.5 compares the employment composition of three countries with very high human development, according to the UN, and three countries with low human development.

Very high human development	% of labour force employed in agriculture	% of labour force employed in manufacturing	% of labour force employed in services
Australia	4	21	75
Denmark	2	18	80
UK	1	15	84
Low human development			
Democratic Republic of the Congo	35	21	44
Haiti	38	12	50
Niger	80	3	17

Table 51.5: Employment composition of selected countries

Pattern of trade at different levels of employment

In the case of a number of economies with low development and low income per head, primary products account for most of the export revenue earned. This makes them vulnerable in their trading relations because demand and especially supply can change significantly. For example, demand may decrease due to a health scare, and supply may increase due to a good harvest. These changes mean that the market for primary products is subject to frequent and large fluctuations in price.

THINK LIKE AN ECONOMIST

Diversification in Dubai

Figure 51.9: The pearl fishing industry in Dubai

At the start of the 20th century, Dubai's main industry was pearl fishing. During the 20th century, oil production become more important. In 1990, pearl fishing accounted for just under half of the country's GDP. By 2010, this had fallen to just over 1%.

The country has diversified. It has built up a range of manufacturing industries including metals, building materials and aerospace. However, the tertiary sector is now the major contributor to the country's GDP and employment. Among its most important industries are tourism and finance.

Discuss whether you would prefer to live in a country that has:

- a diversified or specialised industrial structure
- a large primary or a large tertiary sector.

In addition, the demand for many primary products, especially food, is income inelastic. This means that as world income rises there is little impact upon the demand for primary products. In contrast, demand for manufactured goods is income elastic. This means that primary goods tend to become relatively cheaper than manufactured goods. As a result, over time there is a tendency for the terms of trade of primary goods to decline relative to manufactured goods. Those countries that are dependent upon agricultural products may receive relatively low prices for their exports while having to pay relatively high prices for their imports.

Countries with high development and high income tend to export mainly manufactured goods and services. They also tend to export a wide range of products. Some low-income countries, in contrast, rely heavily on exporting a narrow range of products. For example, in 2019 exports of coffee accounted for 35% of Ethiopia's export revenue.

TIP

In analysing the pattern of trade at different levels of development, there is a range of concepts from international trade that you can use in your answers. As well as the terms of trade, there is the balance of payments, exchange rate and protectionism.

ACTIVITY 51.5

If you are able to work with an A Level geography student, prepare a report on how the geographical distribution and employment composition of the population of your country has changed over the last 20 years and how you expect it to change over the next 20 years.

REFLECTION

What skills and concepts did you bring to the task in Activity 51.5?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 A country had a population of 10 million. The number of people migrating into the country equalled the number of people who emigrated from it. Its birth rate was 28 and its death rate was 16. What was the increase in the number of people in the country?

A 120 000

B 140 000

C 160 000

D 180 000

2 What is most likely to reduce a country's birth rate?

A a decrease in GDP per head

B a decrease in the proportion of women in the labour force

C an increase in compulsory school education

D an increase in the infant mortality rate

3 What would indicate that a country has a high level of development?

A a high proportion of the population employed in the primary sector

B a high rate of emigration

C a low number of calories consumed per day

D a low population growth rate

4 Why might Country Y with a GDP per head of $8000 have a longer life expectancy than Country Z which has a GDP per head which is twice as high?

A Country Y's income is more evenly distributed than Country Z.

B Country Y has a higher rate of malnutrition than Country Z.

C Country Z has fewer doctors per head of the population than Country Y.

D Country Z has a higher infant mortality rate than Country Y.

5 What effect would advances in technology and an increase in resources have on the size of a country's optimum population?

	Advances in technology	Increase in resources
A	decrease	increase
B	increase	increase
C	no change	decrease
D	decrease	no change

6 Country Y's Gini coefficient rose from 0.32 to 0.41 while Country Z's Gini coefficient fell from 0.52 to 0.43. What must this mean?

A Income inequality has risen in Country Y but fallen in Country Z.

B Income became more evenly distributed in Country Z than in Country Y.

C Income per head has risen in Country Y but fallen in Country Z.

D The gap in total income between Country Y and Country Z fell.

7 What would cause a Lorenz curve to move further from the line of equality?

A a decrease in the unemployment of unskilled workers

B a decrease in the top rate of income tax

C an increase in the national minimum wage

D an increase in transfer payments

8 Which combination of changes would indicate that a country has become more developed?

	Death rate	University enrolments
A	decreased	decreased
B	decreased	increased
C	increased	increased
D	increased	decreased

9 How does the pattern of employment usually change in a country as its development rises?

A manufacturing sector to primary sector to service sector

B manufacturing sector to service sector to primary sector

C primary sector to manufacturing sector to service sector

D service sector to primary sector to manufacturing sector

10 A country's main exports are banking and education services. Its main imports are food items. What level of development and income per head is the country likely to have?

	Development	Income per head
A	high	high
B	high	low
C	low	low
D	low	high

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Explain how the population growth and structure of a country may be measured by the birth rate, death rate, infant mortality rate, net migration			
Analyse the causes of changes in population			
Understand that optimum population is the population which gives the highest output per head			
Recognise that levels of urbanisation tend to increase as an economy develops			
Explain how income distribution can be measured			
Calculate and interpret the Gini coefficient (a measurement of income distribution)			
Analyse and construct a Lorenz curve to show how income or wealth is distributed			
Discuss how employment composition moves from the primary to the secondary to the tertiary sectors as an economy develops			
Analyse the pattern of trade at different levels of development			

Chapter 52

Relationship between countries at different levels of development

LEARNING INTENTIONS

In this chapter you will learn how to:

- describe different forms of international aid
- explain reasons for giving aid
- evaluate the effects and importance of aid
- analyse the role of trade and investment between countries
- define the meaning of multinational companies
- evaluate the activities and consequences of multinational companies
- define the meaning of foreign direct investment
- evaluate the consequences of foreign direct investment
- explain the role of the International Monetary Fund
- explain the role of the World Bank.

ECONOMICS IN CONTEXT

Will Ecuador's economic performance and development improve?

Ecuador in Latin America is an upper middle-income country, but has a high level of income inequality. In 2018, the country's Gini coefficient was 0.45 with a high proportion of its population living in poverty. 25% of the population were classified as living in poverty in 2019, but nearly 60% in total were living close to poverty. As well as a high proportion of the country's population surviving on low income, Ecuador has Latin America's highest rate of child labour.

Figure 52.1: A child at work in Ecuador

In 2019, Ecuador was allowed to borrow $4.2 billion from the **International Monetary Fund (IMF)** over three years. The loan was granted on condition that the government adopted a reform programme designed to reduce the government budget deficit by cutting government spending and increasing taxes. Some Ecuadorean economists said that the loan would drive the economy into a recession and result in thousands of workers losing their jobs and more people experiencing poverty. The reform programme attached to the loan also required Ecuador to make its central bank more independent and to introduce a number of supply-side policies measures. The supply-side policy measures included privatising some industries and changing the law to make it easier for employers to make its workers redundant.

IMF officials argued that the loan would increase international confidence in the country and so encourage foreign private sector banks to lend more to Ecuador. They also claimed that the conditions they had imposed would strengthen the Ecuadorean economy and increase productivity. However, the loan was not popular in Ecuador. There were nationwide protests. For example, thousands took to the streets in the country's capital, Quito, to express their disapproval of the conditions attached to the loan.

Discuss in a pair or a group:

- what effect ending child labour might have on poverty
- the reasons why or why not Ecuador should have accepted the loan.

52.1 International aid

Low-income and middle-income countries that need to borrow often find it relatively expensive to do so. A number of countries have requested **aid** from other countries, often called foreign aid. Aid can take a number of forms. It may be as a grant, a loan at reduced interest rate, technical assistance or direct provision of goods and services.

Aid can be tied or untied, bilateral or multilateral. **Tied aid** is aid that comes with conditions. For example, a grant may be given provided that it is spent on buying products from the donor country. **Untied aid** is aid given without conditions. **Bilateral aid** is aid given by one country to another country. In contrast, **multilateral aid** is aid given by countries to international organisations such as the World Bank or United Nations (UN) agency, which then distributes it to other countries.

Reasons for giving aid

It might be expected that most aid would go to the poorest countries but this is not always the case, as Table 52.1 shows.

This difference in the countries that would be expected to receive the most aid and those that actually do reflects the different reasons for giving aid. Tied, bilateral aid may be given to promote the industries of the donor country. A government may seek to increase the growth of an infant industry by requiring the recipient country that receives the aid to spend on products from its country. For instance, the donor government may provide money for the recipient to buy tractors. The donor government may insist that the recipient imports tractors from firms in the donor's country, even if cheaper or better-quality tractors are available from firms in other countries.

Tied aid directly increases demand for the donor country's exports, but untied aid may also be given in the hope of increasing the donor country's exports. If aid does promote economic growth in the recipient country, it is likely to result in the recipient country buying more imports. The recipient country may be more inclined to buy from the donor country's industries if good relationships have built up as a result of the aid giving.

A motive behind some bilateral aid is to gain political influence. A recipient government may feel obliged to support the donor government in its disputes with another country or countries. For instance, a donor government may be imposing trade restrictions on another country and may put pressure on the recipient country to do the same.

Both bilateral and multilateral aid may be given to influence the economic policies of the recipient government. For example, a government may give aid to another country on condition that it ends the use of child labour or that it reduces its budget deficit.

Both bilateral and multilateral aid can be given for humanitarian motives, that is out of a desire to do good. This may be the case with crisis aid, that is aid given to save lives during natural disasters and famines. Governments and international organisations can also recognise that the development of other countries can increase global GDP and international trade and reduce the risk of negative external shocks.

Country	Aid received ($m)	GDP per head ($)
Syrian Arab Republic	9991	2033
Yemen Republic	7985	944
Ethiopia	4930	772
Afghanistan	3789	521
Nigeria	3302	2028
Bangladesh	3040	1698
Jordan	2524	4242
Democratic Republic of the Congo	2510	562
India	2454	2010
Tanzania	2453	1051

Table 52.1: The top ten recipients of aid in 2018

ACTIVITY 52.1

Figure 52.2: UN aid is used to provide education in some countries

The UN sets national governments of high-income countries a target for aid to other countries of 0.7% of their GNI. In 2016, only six countries met the UN's target. They were Denmark, Luxembourg, Norway, Sweden, the UK and the USA. In that year, 11% of bilateral aid went towards education.

In pairs, discuss whether governments of high-income countries should increase the percentage of their GDP that they spend on aid.

TIP

Keep up to date with how the World Bank classifies countries: Each year a few countries' classifications are changed. For example, Georgia's classification was changed from a lower middle-income to an upper middle-income country in 2019. You can use the causes and consequences of these changes in your answers to questions about how countries are classified.

The effects and importance of aid

Aid can help the recipient country to experience increases in its income per head and development. Aid can provide the investment, or the finance, for education, healthcare and new industries that the recipient country may be lacking.

Investment may not be easy for some low-income and middle-income countries to achieve. This may be because of the lack of savings and the lack of financial institutions to channel those savings that do exist from lenders to entrepreneurs wanting to establish new firms and to expand the output of existing firms. There may also be a shortage of entrepreneurs.

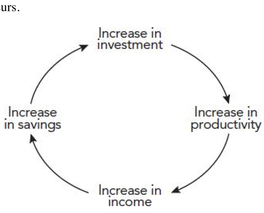


Figure 52.3: A virtuous circle

However, if investment can be encouraged, a **virtuous cycle** may be created as shown in Figure 52.3.

A number of countries rely heavily on aid. For example, in 2019, 40% of Burundi's income came from aid. Heavy reliance on aid can have a number of disadvantages. Some forms of aid can result in countries becoming increasingly indebted. In some cases, low- and middle-income countries transfer more money to high-income countries in terms of interest on past loans (even if given on favourable terms) than they are currently receiving in aid. Advice given and policies suggested or imposed on low- and middle-income economies by international organisations, such as the International Monetary Fund (IMF) and the World Bank, are not always suitable given the conditions in the low- and middle-income countries. For example, it may not be the best advice to recommend an economy use capital intensive methods when it has a shortage of capital but lots of labour. In addition, requiring a government to cut spending on primary education to cut a budget deficit may harm an economy's development and longer-term economic growth prospects.

TIP

Find out the top five countries that either your country gives aid to or receives aid from. You can then use these as examples in the answers you write about aid.

52.2 Trade and investment

International trade can be dominated by high-income countries. The terms of trade are more likely to benefit high-income countries since they can exercise more power in trade negotiations. As a result, low-income countries and some middle-income countries are often forced to concentrate on primary products.

Trade

The governments of low-income countries and some middle-income countries often argue for trade rather than aid. What they are actually arguing for is trade on fair terms. There are several reasons why international trade can act as an engine for growth. It can improve supply conditions and can reduce costs, which can lead to more efficient production as:

- economies of scale become possible because of the larger market
- the increased competition encourages domestic entrepreneurs to innovate and look for new techniques of production
- trade leads to a transfer of skills and technology from high-income to low- and middle-income economies
- specialisation and trade increases incomes and so provides the increased savings which can be used for investment.

Trade may also stimulate demand. The expansion of production to cater for the export market may increase employment. The result will be an expansion of spending power in the home market that will create demand for domestic output.

Low-income countries have tended to specialise in primary products. Those low-income and middle-income countries that have specialised in agricultural products have been at a disadvantage in trading relations since the prices of agricultural products have declined relative to the prices of manufactured goods and services over time. This is for three main reasons:

1. The income elasticity of demand for primary products is low so that, as world incomes have risen, there has been little extra demand for agricultural products and demand has shifted to manufactured goods and services.
2. Producers of manufactured goods in high-income economies have an element of monopoly power, which they have used to maintain high prices.
3. Subsidies provided to farmers in the USA and Europe put downward pressure on global agricultural prices. For instance, it is claimed that US subsidies given to its cotton farmers have deflated the global price and have given US cotton farmers an unfair competitive advantage.

As trading patterns have been seen by some governments as exploitative, a number of countries, such as Venezuela, have adopted import substitution policies and attempted to diversify their economies. They have tried to prevent imports of manufactured goods from high-income economies in order to develop their own manufacturing industries. Others, such as the Philippines, have gone for export-led growth. Generally, the secondary sector is becoming more important in low- and middle-income economies and some are gaining comparative advantage in industries formerly dominated by high-income economies.

KEY CONCEPT LINK

Efficiency and inefficiency: On fair terms, international trade can promote efficiency, with countries concentrating on what they are best at producing.

TIP

It is useful to give examples of the pattern of trade in answers to questions on international trade. The pattern of trade changes, so try to keep up to date with the main countries your country trades with and the main products your country exports and imports.

Investment

Investment flows between countries in search of profits, interest and dividends. Many low-income and middle-income countries have a deficit on the current account of their balance of payments. This requires a surplus on the financial account to cover it and is a reason why the governments of low-income and middle-income countries often seek to attract direct and portfolio investment from other countries.

Much investment initially went between high-income countries. More recently, there has been an increase in investment in and from what are sometimes referred to as **emerging economies**. These are economies that have high rates of economic growth and are expected to have high rates of return while, in some cases, carrying a greater risk than investment in high-income countries.

In 2001, Jim O'Neill, an analyst working at an investment bank, labelled four countries, Brazil, Russia, India and China as the BRICs. He identified these countries as the ones with the greatest potential for economic growth and the ones providing the best opportunities for investment. The governments of the four countries now meet regularly. In 2010, they were joined by the government of South Africa, so now the term used is BRICS and it covers Brazil, Russia, India, China and South Africa.

The BRICS, particularly China and India, are important investors in other countries. For example, state-owned Chinese firms have invested in infrastructure projects in Africa and Indian firms have invested in a range of European countries.

ACTIVITY 52.2

Figure 52.4: A cotton farm in West Africa

The governments of a number of low- and middle-income countries argue for 'trade not aid'. What they are asking for is trade on equal terms. They want high-income countries to remove both the trade restrictions they impose and the subsidies they give their domestic producers. The low- and middle-income countries think that free trade may enable them to export more and grow, so not need aid.

A number of West African countries, including Benin, Burkina Faso, Chad and Mali have complained about the subsidies the US government gives to its own cotton farmers, The West African countries argue that these subsidies keep the price of cotton artificially low and make it difficult for the West African farmers to sell cotton at home and overseas. The downward pressure on prices also makes it difficult for West African farmers to invest in improving their production methods.

In a pair, research US government subsidies to its cotton producers and then produce two posters:

- one promoting 'trade not aid'
- one promoting subsidies for US cotton farmers.

52.3 The role of multinational companies

As mentioned above, one way that low- and middle-income countries can achieve a rise in investment is to attract multinational companies. A multinational company (MNC) is defined as a firm that operates in more than one country. An MNC is a business with a parent company based in one country but with production or service operations in at least one other country. The largest MNCs are global operations, with manufacturing and retail outlets in many countries of the world. Examples of the largest MNCs include Apple, Huawei, Samsung, Tata, Toyota and Unilever.

The activities of MNCs on the economies of the host countries have been the subject of much debate and discussion by economists and politicians. MNCs can bring in new technology, new ideas, can add to GDP and exports and may generate employment. In the Caribbean area, for example, the impact of **foreign direct investment (FDI)** from MNCs has been substantial. It has been particularly significant in the bauxite, alumina, petroleum and natural gas industries. There has also been considerable FDI in sugar, tourism and utilities. US MNCs especially have been investors in these businesses. Recent decades have seen the growth of MNCs from a greater range of countries, particularly China and India.

Not all MNCs are well-liked in the countries where they invest, for a number of reasons. MNCs may not create higher employment and higher incomes if they replace domestic firms, they may deplete non-renewable resources and may create pollution. They may also send most of their profits back to their home countries and may employ foreign rather than home labour, especially in the top-paid jobs. Some of the products they sell may not improve people's living standards. In addition, MNCs put pressure on governments to pursue policies that are beneficial to them but not the economies in which they are producing. Their mobility and considerable economic powers mean that they often negotiate favourable tax breaks and exemption from some environmental laws. A number also develop monopsony power and use this power to drive down the price they pay to the host countries' suppliers of raw materials.

Foreign direct investment

Through their activities, MNCs provide FDI to the countries in which they operate. This is investment that is necessary to produce a good or service in a foreign country. FDI, therefore, involves capital flows between countries.

Low-income and some middle-income countries lack savings to finance investment. Foreign direct investment can overcome this shortfall; MNCs can purchase capital equipment and help to develop the country's infrastructure.

Some countries attract large inward flows of FDI. These tend to be countries that are expected to grow rapidly and so provide large markets for the MNCs' products or ones with low costs of production or abundant supply of raw materials.

There is a range of measures that governments take to attract FDI. These include low corporation tax, a good education system, few rules and regulations for firms and government subsidies.

THINK LIKE AN ECONOMIST

Indian MNC invests in technical centre in the UK

Figure 52.5: A car production line

An Indian car firm bought a UK-based car firm in 2008. The Indian MNC employed 44 000 people producing cars in 2019. It had also invested millions of dollars in a technical centre at a UK university. This centre employed more than 1000 engineers and scientists in that year. In that year, the MNC received $15 million in financial assistance from the UK government.

In a pair, select a foreign MNC that produces in your country and prepare a presentation on the effects of the MNC on your country's development.

KEY CONCEPT LINKS

Progress and development: In debating the effects of MNCs on low- and middle-income economies, the concepts of progress and development are significant. The presence of an MNC in a low- and middle-income economy may or may not increase its economic growth rate and its effects on living standards may or may not be beneficial.

The margin and decision-making: In deciding where to locate its factories, offices or shops an MNC will consider several locations. It will take into account, for example, the size of the market, the corporate tax rate, whether any government subsidies are available and the quality of the labour force.

TIP

Remember to take care when assessing in a written answer the effect an MNC may have on wages. While an MNC may pay lower wages in a host country than it pays in its country of origin, it may still benefit workers in the host country if it pays more than paid by domestic employers to similar workers.

52.4 The causes and consequences of external debt

External debt includes loans which have not been repaid and interest payments on loans which have not been made to foreign banks, foreign governments and international organisations.

More than 40% of low-income countries are heavily indebted to other countries and international organisations. There are four main reasons why countries get into debt. One is that the country has a structural current account deficit. Even in good times, the country may spend more on imports than it earns from its exports or may have net outflow of primary and secondary income.

A second reason is that the country may have been overconfident in the value of loans it could repay. A third, connected reason is that good use is not made of the funds borrowed. A government may, for instance, estimate that investing the loan in building up a new industry may give a return of 8% while the interest on the loan is 5%. If it has miscalculated, and the return is 3%, the government will have problems making the interest payments.

The fourth reason can cause a significant rise in external debt: unexpected events can occur. For instance, there could be an unforeseen depreciation of the exchange rate. This would be likely to increase debt repayments as interest is usually paid in dollars. There may also be negative demand and supply-side shocks. For example, there may be a global recession reducing demand for the country's exports or a natural disaster reducing the supply of its exports and creating a need for greater assistance.

External debt can be a major obstacle to future economic development. As mentioned earlier, repaying the debt can divert funds away from improving the welfare of the population and increasing the economy's growth potential.

A high level of external debt can make it difficult and expensive for low-income and middle-income countries to attract more funds for development. A country's credit rating may be reduced, resulting in the country being charged a higher interest rate.

Some governments reduce their ability to borrow more in the future by defaulting (refusing to pay) on past loans. These governments may consider that, for instance, avoiding cutting spending on education and healthcare may be more important than meeting their obligations to repay loans.

ACTIVITY 52.3

Some low- and middle-income countries have had some or all of their external debt written off. This means that they were not required to repay it. For example, in 2018 the Chinese government wrote off some of the loans it had given to Botswana and Ethiopia.

Discuss as a group whether a low- or middle-income country should be allowed not to repay its debts.

52.5 The role of the International Monetary Fund and the World Bank

The International Monetary Fund (IMF) and the World Bank are two of the best known and most influential international organisations.

The International Monetary Fund

The International Monetary Fund (IMF) was set up in 1944 to help promote the health of the world economy. The IMF's headquarters are in Washington, DC. In 2019, the IMF had 189 members. Not all countries are members. Cuba and North Korea, for example, are not members.

The primary aims of the IMF include:

- to promote international monetary cooperation
- to facilitate the expansion and balanced growth of international trade
- to promote exchange rate stability
- to assist in setting up a multilateral system of payments
- to make resources available (with adequate safeguards) to members experiencing balance of payments difficulties.

These activities have been central to the development of global trade since a stable system of international payments and exchange rates is necessary for trade to take place between two countries. In carrying out its responsibilities, the IMF has three main functions, which are known as surveillance, technical assistance and lending. The first two are in line with its mission of promoting global growth and economic stability by encouraging countries to adopt sound economic policies. The third function is used where member countries experience difficulties in financing their balance of payments.

The World Bank

The World Bank was established in 1944. Its initial aim was to help rebuild European countries devastated during World World II. Like the IMF, the World Bank's headquarters are in Washington DC. There were 189 member countries in 2019.

The World Bank has set two goals for the world to achieve by 2030: to end extreme poverty by decreasing the percentage of people living on less than $1.90 a day to no more than 3 per cent; and to promote shared prosperity by encouraging income growth of the bottom 40 per cent for every country. The World Bank offers support to low- and middle-income countries through internal investment payments such as building new roads, improving infrastructure and constructing new health facilities.

The World Bank Group comprises five institutions. These are:

- International Bank for Reconstruction and Development (IBRD)
- International Development Association (IDA)
- International Finance Corporation (IFC)
- Multilateral Investment Guarantee Agency (MIGA)
- International Centre for Settlement of Investment Disputes (ICSID).

The IBRD assists middle-income and creditworthy poorer countries while the IDA focuses on the poorest countries. Grants are only provided to the world's poorest economies. Loans cover areas such as:

- health and education – in order to enhance human development in a country for improving sanitation and combating HIV/AIDS
- agriculture and rural development – for irrigation programmes and water supply projects
- environmental protection – for reducing pollution and for ensuring that there is compliance and pollution regulation
- infrastructure – roads, railways, electricity
- governance – for anti-corruption reasons.

Figure 52.6: A World Bank irrigation project to help Peruvian farmers improve agricultural production

Loans tend to be linked to conditions that involve wider-reaching changes being made to the economic policies of the recipient economies. The IMF and World Bank have been criticised for imposing the so-called 'Washington Consensus' on middle- and low-income countries. The Washington Consensus was devised by a US economist, who proposed ten economic policy prescriptions. These policy prescriptions, which include privatisation, deregulation and trade liberalisation, are based on increasing the role of market forces. Such an approach may increase efficiency, which would increase productive potential. However, it may increase income inequality, and may not work if the problem that is holding back development is not too much government intervention but market failure and lack of financial markets.

ACTIVITY 52.4

In 2020, Barbados, a high-income country, had the fourth largest debt to GDP ratio in the world of 175%. The country had low economic growth, a budget deficit and a current account deficit. It asked international organisations for a loan of $290 million to help it manage its external debt, reduce its current account deficit, improve its economic growth and reduce unemployment.

At the start of 2020, Ethiopia, Kenya and Somalia experienced the worst locust plague for 70 years. Swarms of the insects destroyed more than 200 000 hectares of crops. A million people needed emergency food and the countries asked for $153 million in aid.

In a group of four to six, assume that you are the members of an international aid organisation with a fund of $300 million. Decide:

1. whether you would have helped Barbados or the three east African countries
2. whether you would have charged interest on the loan
3. whether you would have imposed any conditions that the recipient/recipients had to meet.

REFLECTION

How easy did you find it to come to an agreement? What did you take into account in reaching your decision?

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 Why might aid in the form of the provision of advanced capital equipment *not* be the best way to increase development in a low-income country?

A The country has an even distribution of income.

B The country has a good education system.

C The country has a large supply of unskilled labour.

D The country has a lack of saving.

2 What would indicate that aid is helping a country to develop?

A a decrease in the country's infant mortality rate

B a decrease in the country's tax revenue

C an increase in price instability in the country

D an increase in the country's death rate

3 Why do the prices of primary products usually fluctuate more than the prices of exports of manufactured goods and exports of services?

	Price elasticity of demand for primary products	Price elasticity of supply of primary products
A	more elastic	more elastic
B	more elastic	more inelastic
C	more inelastic	more inelastic
D	more inelastic	more elastic

4 What effect is a rise in external debt likely to have?

A a decrease in the interest that has to be paid

B a decrease in demand-pull inflation

C an increase in future claims on the country's resources

D an increase in the number of willing lenders

5 A government receives foreign financial aid. Which form of spending will be *least* likely to promote development?

A debt repayment

B education

C healthcare

D infrastructure

6 A government of a country borrows $20 million from a US bank. What would increase the burden of this external debt?

A a decrease in the country's exchange rate

B a decrease in US interest rates

C an increase in the country's real GDP

D an increase in US real GDP

7 Which of the following is an example of an MNC?

A an Italian bank that lends to a Nigerian firm

B a Pakistani school that educates children from Afghanistan

C a South Korean firm that exports cars to Myanmar

D a Sri Lankan firm that produces clothes in India

8 Why might foreign direct investment coming into a country increase the country's exchange rate in the long run?

A MNCs buy raw materials from their home countries.

B MNCs export to their home countries.

C MNCs purchase capital goods from their home countries.

D MNCs send profit back to their home countries.

9 Would a domestic economic boom and a global economic boom be likely to increase the aid a government gives to low-income countries?

	Domestic economic boom	Global economic boom
A	no	no
B	no	yes
C	yes	yes
D	yes	no

10 What is *not* an aim of the IMF?

A to discourage exchange rate instability

B to encourage the growth of international trade

C to lend to countries which need help to finance current account deficits

D to promote protectionism to help low-income countries build up their infant industries

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Recognise that international aid may be tied, untied bilateral or multilateral			
Explain that aid may be given for economic, political or humanitarian reasons			
Consider the effects and importance of aid to receiving countries			
Analyse the role of trade and investment between countries			
Describe the role of multinational companies (MNCs)			
Analyse the impact of MNCs' activities on different economies			
Evaluate the impact of foreign direct investment provided by MNCs to the countries in which they operate			
Explain the roles of the International Monetary Fund and the World Bank			

Chapter 53

Globalisation

LEARNING INTENTIONS

In this chapter you will learn how to:

- define the meaning of globalisation
- analyse the causes and consequences of globalisation
- analyse the difference between a free trade area, a customs union, a monetary union and full economic union
- explain the difference between trade creation and trade diversion.

ECONOMICS IN CONTEXT

Bangladesh and the global economy

Bangladesh's economy is becoming more integrated into the global economy. More of its output is being exported and the country is attracting more foreign direct investment. Figure 53.2 shows how the country's exports of goods and services and how foreign direct investment coming into the country have increased since 1980. It also shows how the country's economic growth rate has increased, although not consistently.

Figure 53.1: A seafood farm in Bangladesh

The export of a higher proportion of the country's output and the attraction of more investment from other countries have contributed to a number of changes in Bangladesh. For instance, they have helped to increase the country's GDP per head by more than 500% between 1990 and 2018. Poverty has declined in the country and life expectancy has increased. The country's HDI has risen from 0.318 in 1990 (when HDI was first measured) to 0.614 in 2018.

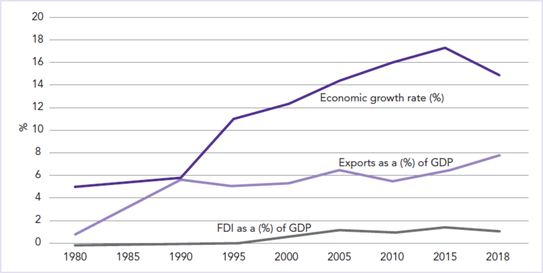


Figure 53.2: Bangladesh and the global economy

International trade has also brought some disadvantages to Bangladesh. Not all of these have been obvious at first. For example, the removal by other countries of trade restrictions on the import of seafood has enabled Bangladesh's seafood industry to grow at an average rate of 5.25% between 2010 and 2019. However, this growth has resulted in environmental damage. Salt from the ponds where the fish are kept leaks on to farmland, making some of it barren. Rice farming, for example, has declined near seafood farms. Pesticides and insecticides used to clean out the ponds also leaks into water used by other farmers and, in some cases, into drinking water. In addition, seafood farming does not create many high-quality jobs. It employs mostly very low paid, low-skilled workers.

Discuss in a pair or a group:

- Whether FDI always increases a country's economic growth rate.
- How do you think that international trade affects living standards?

53.1 What is globalisation?

Globalisation involves the world becoming one market as a result of a reduction in the barriers to the movement of goods and services, direct and portfolio investment and workers. The world is becoming more like one country where there are fewer restrictions on where people buy products from, where they set up firms and where they work.

Households now buy products from a wide range of countries, stock exchanges sell shares and government bonds throughout the world and MNCs spread their production throughout the world. There is currently more restriction on the movement of workers, but a number of countries are heavily reliant on migrant labour and within trade blocs there is usually the opportunity for workers to work and stay in any member country.

The causes of globalisation

The breaking down of barriers between product, capital and labour markets in different countries has resulted from four main reasons. One reason is advances in communications and technology. This has made it easier for firms to keep in contact with their production plants from a greater distance and to co-ordinate the production process across the world. As a result, there has been a growth in the number and influence of MNCs. Advances in communications and technology have also made it easier for households to buy products and firms to sell their products to countries throughout the world.

Linked to advances in technology are improvements in transport. Greater speed, more reliability and lower cost of transport have made it cheaper and easier to move parts between factories and for households to buy goods from other countries.

The third reason is the removal of some trade restrictions. Removing tariffs, for instance, enables firms to compete on more equal terms and so can promote international trade.

The fourth reason is the removal of restrictions on the countries in which a firm can base part of its production. Some countries still have some limits on, for example, foreign firms buying out domestic firms or foreign firms setting up in the countries, but these limits have declined in recent decades.

Indicators of globalisation

Globalisation can be measured in a number of different ways. One is to consider how world trade has grown in comparison to world output. The world trade to world output ratio is also examined. A connected indicator is the exports to GDP ratio of different countries. This can indicate how integrated individual countries are in the global economy.

Flows of portfolio and direct investment can be examined. A popular indicator, as shown in Figure 53.2 with the exports to GDP ratio, is the FDI to GDP ratio. This again can be measured for an individual country or for the world. Flows of migrant workers and international migration of figures are also considered.

The consequences of globalisation

Globalisation can drive economic growth. It can encourage countries, and regions within those countries, to specialise in what they are best at producing. A country that makes greater use of comparative advantage should increase global output which can, in turn, increase living standards.

Where firms in different countries are allowed to compete on more equal terms, through the removal of trade restrictions and lower transport costs, lower prices which would increase consumer surplus may result. Consumers may also benefit from a greater variety of products.

The free movement of direct and portfolio investment has the potential to reduce income inequality between countries. If, for instance, an MNC sets up in a low-income country, it may help to raise productivity and wages throughout the country.

However, there are some potential disadvantages of globalisation. One is that it can create structural unemployment. This is because while opening up an economy to greater international competition will cause some industries to expand, it will also cause some industries to decline. If workers who lose their jobs are not mobile, they may remain unemployed for some time.

Countries are more susceptible to demand and supply-side shocks when they become more closely linked with other economies. These may be negative shocks. For instance, a natural disaster in a major supplier of a country's raw materials could cause disruption to the output of one of its important industries. The free flow of portfolio and direct investment will create the risk that it can be withdrawn quickly, causing a negative multiplier effect.

The increase in competition from other countries and greater mobility of factors of production can constrain domestic government policy. If, for instance, other governments are setting low tax rates, it may make it difficult for a government which wants to spend more to reduce poverty in the country. There is the possibility that there may be a reduction in the provision of social welfare. Globalisation may also make it difficult for a government to implement stricter pollution controls, as some MNCs may threaten to leave the country. Globalisation creates a greater need for international co-ordination of policies, but this is not always easy to achieve.

Just as some individuals in a country can benefit while others lose out, some countries gain and some countries can be disadvantaged by globalisation. Figure 53.3 shows the ten countries that are thought to have benefited the most from globalisation in recent years.

A number of countries have lost out on the benefits of globalisation. For example, in recent years, Burundi has experienced very low and negative economic growth and exports only 5% of its GDP.

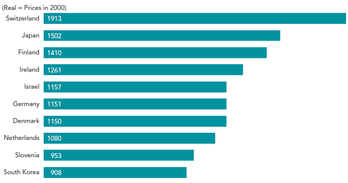


Figure 53.3: The top ten beneficiaries from globalisation between 1990 and 2016 (based on average annual gain in real GDP per capita ($) due to increasing globalisation)

ACTIVITY 53.1

Figure 53.4: Jamaica attracts many tourists due to its beautiful beaches

Jamaica is a relatively small, upper middle-income economy with limited resources. Its exports as a percentage of its GDP have fallen from 45% in 1985 to 38% in 2019. Unemployment among agricultural workers has increased as the country's bananas, coffee and sugar have struggled to compete with those from other countries in a world of greater free trade. However, its tourism industry is doing well and the country receives a significant inflow of workers' remittances. The country is also hoping to benefit from inflows of investment, including through increased tax revenue. There is a risk, though, that capital investment can be withdrawn quickly.

Jamaica is a member of Caricom, a regional trade bloc, which provides a large market for the country's products. The members of Caricom tend to produce the same products which can limit the scope for trade.

In pairs, discuss:

1 a how Jamaica's industrial structure is likely to change
  b how FDI can increase tax revenue
  c how joining with other countries and removing trade restrictions between them could increase Jamaica's output.

2 Prepare a presentation on how your country has been affected by globalisation.

REFLECTION

How did answering the parts to the questions in the first question of this activity help you with your presentation? Were you able to bring in many economic concepts into your presentation?

TIP

Remember correlation does not mean causation. Two sets of figures may move in the same direction, but this does not mean that one has caused the other. If a positive or negative relationship is found, economists will examine it in more detail.

53.2 Trade blocs

A large part of the b[illegible] and the movement of portfolio and dir[illegible] countries takes place within trade b[illegible] of **trade blocs**. A trade bloc is a regi[illegible] preferential trade agreements betwee[illegible] are four of the main trading blocs, [illegible]mic integration.

> a regional group of countries that have entered into trade agreements

Free trade areas

In a **free trade area**, the governments of the member countries agree to remove trade restrictions between each other. The members are allowed to determine their own external trade policies towards non-members and do not share a common external tariff. An example of a free trade area is the one between the USA, Canada and Mexico. The three countries signed the US-Mexican-Canadian Agreement (USMCA) in 2019. This replaced the North American Free Trade Agreement (NAFTA), which was signed in 1994.

Customs union

A **customs union** goes a stage further than a free trade area in terms of economic integration. As well as removing trade restrictions between members, members of a customs union agree to impose a common external tariff on trade with non-members. The world's oldest customs union is the Southern African Customs Union (SACU) which was established in 1910. Its members include Botswana, Lesotho, Namibia, South Africa and Eswatini. These countries impose the same tariff on goods being imported from outside the trading bloc. The countries share tariff revenues and coordinate some trading policies.

Monetary union

A **monetary union** includes even more economic integration. In this case, restrictions are usually removed on the movement not only of goods and services, but also capital and labour. The aim is to create a single market across members. The key feature of a monetary union is that the member countries all use the same currency and follow the same monetary and exchange rate policies. The European Union (EU) is even more integrated. It operates a single market and its members have adopted the same policies on a number of labour market and social issues. Many of the members have adopted the same currency, the euro, and the European Central Bank operates a single interest rate. Figure 53.5 shows the membership of the EU in 2020.

Figure 53.5: Member countries of the European Union, 2020

ACTIVITY 53.2

Canada's international trade is mainly with its neighbour, the USA – 75% of Canada's exports are sold to the USA and the country buys 51% of its imports from the USA.

Figure 53.6 shows the top five destinations of Canadian exports with their percentage shares and the top five sources of its imports with their percentage shares.

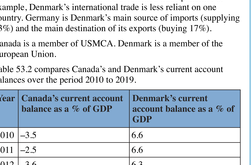


Figure 53.6: Canada's trade pattern, 2019

Most other countries have a more diversified trade pattern. For example, Denmark's international trade is less reliant on one country. Germany is Denmark's main source of imports (supplying 23%) and the main destination of its exports (buying 17%).

Canada is a member of USMCA. Denmark is a member of the European Union.

Table 53.2 compares Canada's and Denmark's current account balances over the period 2010 to 2019.

Year	Canada's current account balance as a % of GDP	Denmark's current account balance as a % of GDP
2010	–3.5	6.6
2011	–2.5	6.6
2012	–3.6	6.3
2013	–3.2	7.8
2014	–2.4	8.8
2015	–3.5	8.2
2016	–3.2	7.8
2017	–2.8	7.8
2018	–2.6	7.0
2019	–1.5	7.9

Table 53.2: Canada's and Denmark's current account balances as a % of GDP 2010–2019

1. Explain one advantage and one disadvantage of trading mainly with one country.
2. Identify one difference between a free trade area, such as USMCA, and a monetary union, such as the EU.
3. Compare the changes in Canada's and Denmark's current account positions over the period shown.

Discuss your answers with another learner.

Full economic union

A **full economic union** is the final stage of integration. A full economic union involves the members having the same currency and following the same monetary, fiscal and exchange rate policies. In effect, the different economies become one economy. This occurred when the 13 original states formed the United States of America in 1776.

TIP

It is useful when answering questions about trade blocs to give examples, but note that the membership, degree of integration and the aims of trade blocs often change. Try to keep up to date with at least two trade blocs.

Activity 53.3

In pairs:

1. find out which countries belong to Mercosur and what type of trade bloc it is
2. find out which countries belong to ASEAN Economic Community and its aims
3. decide which of the following features are likely to increase the success of a trade bloc:
   - a geographical closeness of members
   - b similar government budget balances in % terms of members
   - c similar current account balances in % terms of members.

Produce a poster for the classroom wall.

THINK LIKE AN ECONOMIST

The Gulf Cooperation Council

The Gulf Cooperation Council (GCC) was founded in 1981 as the Cooperation Council for the Arab States of the Gulf. The GCC's members are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The GCC adopted a common external tariff in 2003. It formed a common market in 2008, resulting in what is now an almost unrestricted movement of goods and services, labour and portfolio and direct investment within the bloc.

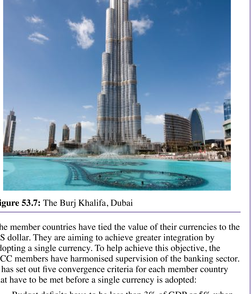


Figure 53.7: The Burj Khalifa, Dubai

The member countries have tied the value of their currencies to the US dollar. They are aiming to achieve greater integration by adopting a single currency. To help achieve this objective, the GCC members have harmonised supervision of the banking sector. It has set out five convergence criteria for each member country that have to be met before a single currency is adopted:

1. Budget deficits have to be less than 3% of GDP or 5% when oil prices are weak.
2. Public debt to GDP ratio has to be less than 60%.
3. Foreign exchange reserves have to be greater than four months' imports.
4. Interest rates must not be higher than two percentage points above the average of the lowest three member countries.
5. Inflation must not be higher than 2% points above the average rate of the six member countries.

In a pair, research whether the GCC countries have met the convergence criteria and prepare a presentation on whether the group should share a common currency.

53.3 Trade creation

Membership of a trade bloc may result in **trade creation**. Trade creation occurs when the removal of tariffs allows members to specialise in those products in which they have a comparative advantage. More expensive domestic products can be replaced by imports from another member country that are lower in price. The efficient firms within the trade bloc will be able to sell to a larger market and this may enable them to lower prices even further because they will be able to take greater advantage of economies of scale.

Figure 53.8 shows the effect of trade creation. Before joining the trade bloc, the price of the product in the country is P and the quantity consumed is Q. Of this amount, Qa is supplied by domestic producers and Qa – Q amount is imported. When the country joins the trade bloc, it can import the product without paying the tariff. This pushes down the price to P_1 and the amount consumed increases to Q_1. Consumers clearly gain from the lower price and the greater quantity consumed. Domestic producers lose as their sales fall and they gain a lower price. However, they may be shifting resources to making products that have now become more price competitive relative to those of member countries, because of the removal of other tariffs. Indeed, trade creation permits both imports to be purchased more cheaply but also additional exports to be sold as other members lose their tariff protection. The domestic government will lose out on tariff revenue but there is nevertheless a welfare gain.

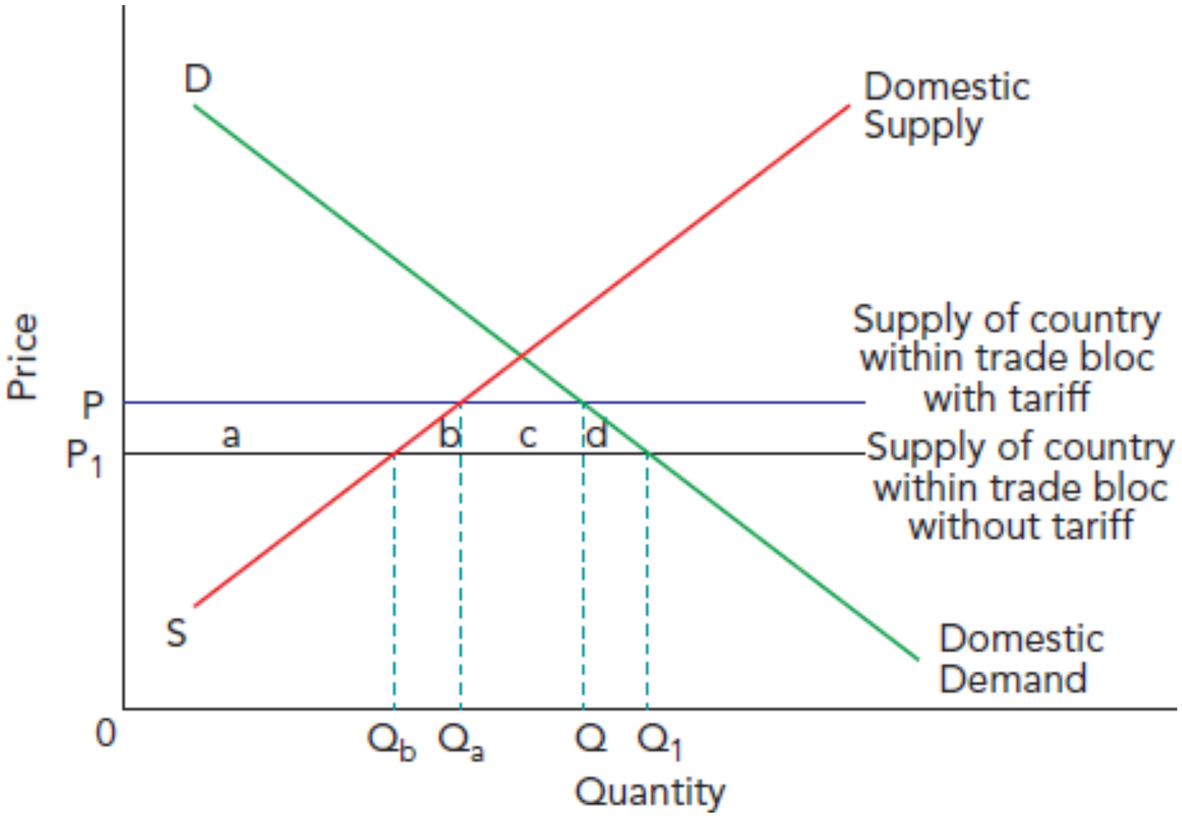


Figure 53.8: Trade creation

The lower price increases consumer surplus by a, b, c and d amount. Producer surplus falls by a amount and tariff revenue by c amount, giving a net gain of b and d amount.

53.4 Trade diversion

Trade diversion occurs when membership of a trade bloc results in a country buying imports from a less efficient country within the trade bloc rather than from a more efficient country outside the trade bloc. Trade diversion results in a less efficient allocation of resources. Efficient countries outside the trade bloc may lose as they are not now able to trade on equal terms. A country joining the trade bloc may also lose. Figure 53.9 shows that originally the country buys a product from the most efficient country and places a tariff on imports of the product. The price paid is P, the quantity consumed is Q and the tax revenue earned is c + e. When the country joins the trade bloc, trade is diverted to a member country. The price to consumers falls to P_1 and the quantity consumed rises to Q_1. Consumer surplus increases again by a, b, c and d amount. Producer surplus falls by a amount, but this time, tariff revenue will fall by c and e amount. Welfare will be reduced if the areas b and d are smaller than area e.

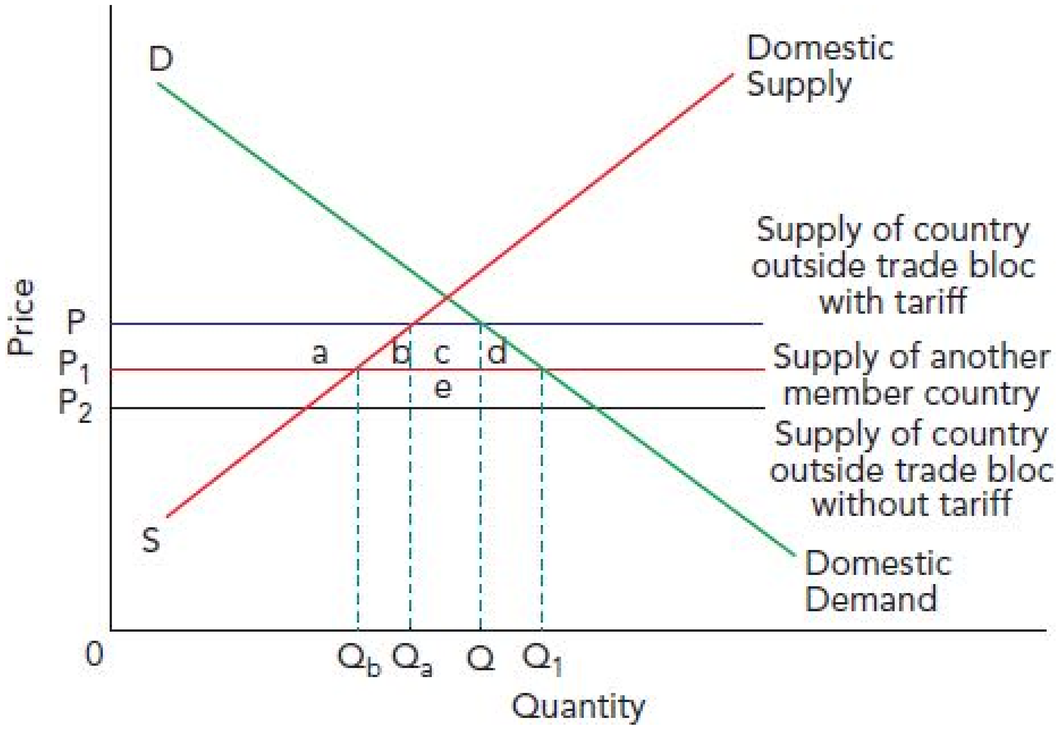


Figure 53.9: Trade diversion

KEY CONCEPT LINK

Time: Some of the effects of joining a trade bloc are experienced immediately, such as the price of imports from other member countries falling. Other effects are experienced over time, such as the growth of industries through being able to sell to a larger market and take advantage of economies of scale.

Efficiency and inefficiency: Trade creation and trade diversion illustrates that membership of a trade bloc may have different effects on efficiency.

TIP

In explaining trade creation and trade diversion, it is very useful to draw the diagrams.

EXAM-STYLE QUESTIONS: MULTIPLE CHOICE

1 What would reduce globalisation?

A a decrease in the restrictions on the flow of capital between countries

B a decrease in transport costs

C an increase in the mobility of factors of production

D an increase in protectionism

2 What would reduce the development of a global labour market?

A improvement of education in low-income countries

B an increase in visas given to migrant workers

C a reduction in the differences in housing prices throughout the world

D tighter immigration controls

3 Why may globalisation result in higher global output?

A It can allow greater exploitation of comparative advantage.

B It can increase government tariff revenue.

C It can result in countries being more exposed to negative external costs.

D It can result in firms experiencing diseconomies of scale.

4 What is *not* an indicator of globalisation?

A an increase in countries' export to GDP ratio

B an increase in countries' external debt to GDP ratio

C an increase in direct investment

D an increase in portfolio investment

5 What would indicate that a low-income country has benefited from globalisation?

	Capital to labour ratio	Saving ratio
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

6 A country's government removes trade restrictions, but its firms cannot respond to the challenges created by globalisation. What type (or types) of unemployment is likely to increase as a result?

	Cyclical unemployment	Frictional unemployment	Structural unemployment
A	✓	✗	✓
B	✗	✓	✓
C	✗	✓	✗
D	✓	✗	✗

7 When is the entry of a country into a customs union most likely to result in trade diversion rather than trade creation?

	Cost difference between members and non-members	Custom union's external tariff
A	high	high
B	low	high
C	low	low
D	high	low

8 Which types of trade blocs have a common external tariff?

	Customs union	Free-trade area	Full economic union
A	no	no	no
B	no	yes	yes
C	yes	no	yes
D	yes	yes	yes

9 What is the most likely reason why a country will leave a trade bloc?

A to gain control of monetary policy

B to gain control of population policy

C to trade more with countries of a similar income per head

D to trade more with its close neighbours

10 A country in a monetary union has a persistent current account deficit.

What is the likely consequence of this?

	Inflation	Unemployment
A	high	high
B	high	low
C	low	low
D	low	high

SELF-EVALUATION CHECKLIST

After studying this chapter, complete a table like this:

You should be able to:	Needs more work	Almost there	Ready to move on
Understand that globalisation involves the world becoming one market as a result of a reduction in the barriers to the movement of goods and services, direct and portfolio investment and workers			
Analyse the causes and consequences of globalisation			
Recognise the difference between the different types of trade bloc: free trade area, customs union, monetary union, full economic union			
Explain that membership of a trade bloc can increase trade (trade creation) or divert trade (trade diversion) away from more efficient producers to less efficient producers			

End-of-unit questions

EXAM-STYLE QUESTIONS: DATA RESPONSE AND ESSAY

Data response

1 Africa's new trade bloc

In May 2018, Africa's Continental Free Trade Area (CAFTA) started to operate. The CFTA aims to create a single market for goods and services in Africa. In that year, only 17% of African exports were sold to African countries in comparison with 68% of European exports being sold to European countries and 59% of Asian exports being sold within the Asian continent.

The first aim of the CFTA is to eliminate tariffs on nearly 90% of products. Some tariffs imposed by African governments on their neighbours' products are high, and higher than the tariffs that they impose on countries outside Africa. They are not, however, thought to be the main barriers to intercontinental trade. Differences in health and safety regulations and red tape are thought to be more significant.

The CFTA has the potential to become the world's largest free trade area, to gain a larger share of world trade and to attract more direct investment and portfolio investment into Africa. It is predicted that the continent will have a growing market for goods and services. This is partly because of increasing income per head, but also because of a fast growth in population. The continent currently has the world's lowest average income per head and the highest birth rate, although both of these vary between African countries. Figure 1 shows the birth rate and GDP per head of six African countries.

Figure 1: Birth rates and GDP per capita of selected African countries, 2019

Africa at the moment has the lowest average HDI ranking. This again varies. In 2019, the Seychelles was the only African country to be classified as having very high human development. Mauritius and Botswana, for example, were classified as having high human development, Ghana and Zambia having medium human development and Burundi and Chad having low human development.

a Why might the formation of CFTA reduce prices in Africa in the future? **[4]**

b Explain how portfolio investment could affect a country's balance of payments. **[4]**

c Consider whether countries with a high birth rate have a low GDP per capita. **[5]**

d Discuss the view that HDI is the best measure of living standards. **[7]**

Essays

2 Assess whether a high level of external debt will make it more difficult for a country to increase its economic growth rate. **[20]**

3 Assess whether a low-income country is more likely to increase its development by increasing spending on education or devaluing its currency. **[20]**

4 Assess whether expenditure-switching or expenditure-reducing policies are more effective in reducing a current account deficit. **[20]**

〉Chapter 54

Preparing for assessment

LEARNING INTENTIONS

In this chapter you will learn how to:

- understand the meaning of assessment objectives
- structure essay questions
- revise in an effective way
- be aware of some of the problems learners experience with economic terms
- understand the structure of the AS and A Level qualifications and how they are assessed.

The guidance in this section has been written by the authors. References to assessment and/or assessment preparation are the publisher's interpretation of the syllabus requirements and may not fully reflect the approach of Cambridge Assessment International Education.

Introduction

There is more to preparing for assessment than just learning a few key terms or memorising how to draw some diagrams. It is important that you are aware of the skills you have developed during your course. These skills will be assessed alongside your knowledge of economics.

Assessment objectives

There are three assessment objectives:

- Knowledge and understanding (AO1)
- Analysis (AO2)
- Evaluation (AO3)

Knowledge and understanding (AO1)

You must always show that you have knowledge and understanding when answering all assessment questions. 35% of all marks are for this assessment objective.

The starting point is to acquire essential knowledge from the outset of your economics course. This knowledge is the core of the subject and is something you will progressively acquire on a week-by-week basis. The 'key terms' in each chapter (and in the glossary at the back of this book) are a useful foundation for this. You should aim to know what each term means.

Understanding is something that you can develop from your knowledge. This understanding often comes from being able to apply your knowledge to a particular situation or issue.

Taking an example from Chapter 8:

You should now understand that price elasticity of demand can be used by a business to estimate the reduction in sales of a product when its price increases.

How to recognise when knowledge and understanding is required

There are some specific questions which require you to demonstrate this skill. They are mainly on multiple choice and the early parts of data response assessments. The clue to recognising when knowledge and understanding is required is the so-called 'command word' of the question.

These command words are indicative that your answer should consist only of knowledge and/or understanding.

Command words requiring knowledge and understanding are: calculate; define; describe; identify; outline; state.

Your answers to questions with these command words should be short and to the point of the question.

Analysis (AO2)

The analysis of economic problems and policies is central to what economics is about. Professional economists working in banks, industry, government and the media, spend most of their time analysing a wide range of microeconomic and macroeconomic situations.

Analysis involves separating an issue or problem into basic elements or components and establishing the relationship between them. To do this, economists have a 'tool kit' that consists of a range of microeconomic and macroeconomic concepts, corresponding theories and in some cases, empirical or real world experience; all of these tools can help when analysing a particular issue.

40% of marks are allocated to this assessment objective. You will need to write in an analytical way in order to produce a successful answer. A good analytical answer should have short sentences. In this way, the point of the sentence can be clearly made.

How to recognise when analysis is required

There are two command words that are widely used in questions that require you to demonstrate the skill of analysis: analyse, explain.

These command words will appear regularly in data response questions and part (a) questions in Paper 2.

The skill of analysis also underpins all questions where AO3 Evaluation is required.

Writing in an analytical style requires practice. You can get this through homework tasks and answering activities in other chapters of this book. When writing an answer, try not to lose sight of the question. This is easily done. To retain a focus on your answer, Figure 54.1 will help you understand this point:

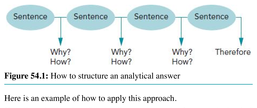


Figure 54.1: How to structure an analytical answer

Here is an example of how to apply this approach.

Question: *Analyse how fiscal policy can be used to increase the level of employment in an economy.*

1st sentence:	Definition of fiscal policy (how?)
2nd sentence:	Increasing government spending or reducing taxes or a combination of both (why?)
3rd sentence:	These measures will increase consumption and investment (why?)
4th sentence:	Leading to an increase in the level of aggregate demand (therefore)
5th sentence:	Increasing the level of employment

An alternative analytical approach is to include an AD/AS diagram in the answer. You should make sure that you refer to the diagram in your answer.

Evaluation (AO3)

Have you noticed how economists often disagree? Have you experienced any difference of opinion when comparing your answers to an activity with the answers of another learner? The answer has to be 'Yes'.

Economics is a social science. It is not an exact science, and this is why there will be different interpretations or different policy suggestions being put forward.

A useful way of explaining what is meant by evaluation is to remember the 'two-handed economist.' When asked for a suggested policy, economists often say 'on one hand if you do this, that will happen,' or 'on the other hand, if you do this, something else will happen'.

The crucial final stage of most answers that require evaluation is to make a judgement as to which side receives the most support. You might also need to judge if both sides have the same level of support.

The evaluation skill accounts for 25% of the total marks available.

How to recognise when evaluation is required

The following command words indicate that the answer to a question should contain evaluation: consider; discuss; assess*; evaluate* (*normally used in Paper 4, Sections B and C).

The key to writing an answer that requires evaluation is to give a balanced view, if you can. Where a concluding judgement is required, it is essential that you base this judgement on the evidence you have presented in your answer.

Here is an example of how to apply this approach.

Question: *Assess the extent to which a progressive income tax policy is the best way to reduce income inequality in a lower middle-income country.*

Case for a progressive income tax policy: analysis of a progressive tax system, effects on earned income and reducing income inequality.

Case against a progressive income tax policy: effects on leisure time, incentive to work, employment of women.

Judgement: Summarise weight of evidence, refer to alternative policies like means-tested benefits and negative income tax.

Answers to questions that require an evaluation should always finish with a clear conclusion. Typical ways of starting this paragraph are:

'In conclusion…'

'As the above evaluation has shown…'

'In the short run…but in the long-run…'

'Both arguments have equal weight….'

When writing this last paragraph, it is also good practice to revisit the original wording of the question. This demonstrates that you are still aware of the subject that you are writing about.

How to structure essay questions for assessment

There are two types of essay question in the Cambridge International AS and A Level Economics qualifications. At AS Level, there are two parts to each essay question. At A Level, the question has just a single part.

All essay questions can be broken down into two components:

i Command word or words – these are drawn from the assessment objectives and provide a clear indication of the style of answer that is required.

ii Content phrases – these are drawn from the subject content of the syllabus. In some cases, they can be a quotation or a statement rather than a topic drawn from the syllabus.

Question: *Evaluate the view that the traditional profit maximisation objective has no relevance as an objective for firms in the twenty-first century.*

This A Level question can be broken down as follows:

Command word: Evaluate, meaning judge the quality, importance or value of this view.

Content: Profit maximisation and other objectives of firms

Here is a possible structure for the answer, with the assessment objectives shown in brackets.

Paragraph 1:	Explanation of profit maximisation objective where MC = MR (Knowledge and understanding)
Paragraph 2:	Analysis of profit maximisation objective for firms in a perfectly competitive market structure; reference to other market structures. (Analysis)
Paragraph 3:	Critique of profit maximisation objective. (Evaluation)
Paragraph 4:	Analysis of other objectives of firms such as profit satisficing, survival, sales maximisation or revenue maximisation. (Analysis)
Paragraph 5:	Elaboration of one or two of these other objectives, especially survival objective. (Analysis)
Paragraph 6:	Concluding evaluation with clear statement as to

Paper 4	whether profit maximisation objective has no relevance in the twenty-first century. (Evaluation)

What about revision?

Revision is not something you just do the night before an assessment; nor is it something you begin to do a week before. Revision is a continuous process of learning that should begin from the start of your course and continue until you have sat the final assessment.

Revision involves:

- reading your own notes from your classes
- reading chapters from this book and making notes.

It is important that you bear in mind that knowledge of material from the AS Level syllabus content is assumed when you are answering A Level questions based on the A Level syllabus. This requirement emphasises the earlier point that revision is a continuous process of learning.

Revision also involves what are known as 'active learning' techniques. It is good to discuss your work with other learners and to identify any common revision issues you might be facing.

The structure of this book provides many opportunities from active learning. These include:

- activities in each chapter.
- 'Economics in context' and 'Think like an economist' features that provide questions for discussion.
- end of chapter and end of unit exam-style questions.

Further resources and support for your revision and preparation for assessment can be found in the *Cambridge International AS & A Level Economics Workbook*, which contains new features and questions in each of its chapters.

Common confusions

In some respects, economics is a bit like learning a foreign language. It is therefore hardly surprising that from time to time, learners confuse economic terms. Tables 54.1 and 54.2 show a few examples – you can add others as they arise. It is important that you use the correct term as required in your answer; an incorrect term can make an answer meaningless.

Term	Often confused with
Budget deficit	Current account deficit
Balance of trade	Balance of payments
Capital	Land
Cost	Price
Deflation	Disinflation
Direct taxes	Indirect taxes
Elastic demand	Inelastic demand
Income	Wealth
Investment	Savings
Merit goods	Public goods
Real income	Nominal income
Subsidies	Substitutes

Table 54.1: Key AS terms

Term	Often confused with
Allocative efficiency	Productive efficiency
Equality	Equity
External economies of scale	Internal economies of scale
External costs / benefits	Social costs / benefits
Functions of money	Characteristics of money
Government failure	Market failure
Monopoly	Monopolistic competition
Production	Productivity
Profit	Revenue
Rate of interest	Foreign exchange rate

Table 54.2: Key A Level terms

Assessment overview

The information in this section is taken from the Cambridge International AS & A Level Economics (9708) syllabus for examination from 2023. You should always refer to the appropriate syllabus document for the year of your examination to confirm the details and for more information. The syllabus document is available on the Cambridge International website at www.cambridgeinternational.org.

Paper	Duration	Types of question	Maximum mark	% total marks
1	1 hour	Multiple choice: 30 questions	30	33%
2	2 hours	Data response: compulsory question, approx. 6 parts Structured essays: one from a choice of two on micro topics and one from a choice of two on macro topics	20 40	67%

Table 54.3: AS Level

Paper	Duration	Types of question	Maximum mark	% total marks
3	1 hour 15 mins	Multiple choice: 30 questions	30	33%
4	2 hours	Data response: compulsory question, 4 parts Essays: one from a choice of two on micro topics and one from a choice of two on macro topics	20 40	67%

Table 54.4: A Level*

***Questions are based on the A Level syllabus content; knowledge of the material from the AS Level syllabus is assumed.**

Component	AO1	AO2	AO3
Paper 1	47%	40%	13%
Paper 2	33%	37%	30%
Paper 3	47%	40%	13%
Paper 4	33%	37%	30%

Table 54.5: Assessment objectives by component

A final word

We hope that this final chapter will help you achieve success with your course. We have tried to give you what you need to understand the assessment element of your economics course. You will also be able use the advice when you are preparing in-class assessments. Economics is a fascinating subject and in some respects, there is no better time to be studying it. Take care in your preparation and the outcome will, we hope, meet your expectations.

Good luck!

Appendix: Key formulae

AS Level

aggregate demand (AD)

AD = consumer expenditure + investment + government spending + (exports – imports)
= C + I + G + (X – M)

average rate of taxation (art)

$$\text{art} = \frac{\text{tax paid}}{\text{income}} = \frac{T}{Y}$$

cross elasticity of demand (XED)

$$\text{XED} = \frac{\text{\% change in quantity demanded of product A}}{\text{\% change in the price of product B}}$$

equilibrium income in an open economy

equilibrium income in an open economy is achieved when investment + government spending + exports = saving + taxation + imports

I + G + X = S + T + M

income elasticity of demand (YED)

$$\text{XED} = \frac{\text{\% change in quantity demanded}}{\text{\% change in income}}$$

marginal rate of taxation (mrt)

$$\text{mrt} = \frac{\text{change in tax paid}}{\text{change in income}} = \frac{\Delta T}{\Delta Y}$$

price elasticity of demand (PED)

$$\text{PED} = \frac{\text{\% change in quantity demanded}}{\text{\% change in price}}$$

price elasticity of supply (PES)

$$\text{PES} = \frac{\text{\% change in quantity supplied}}{\text{\% change in price}}$$

real GDP

$$\text{real GDP} = \text{nominal GDP} \times \frac{\text{price index in base year}}{\text{price index in current year}}$$

terms of trade index

$$\text{terms of trade index} = \frac{\text{index of export prices}}{\text{index of import prices}} \times 100$$

total revenue (TR)

TR = price × quantity = P × Q

unemployment rate

$$\text{unemployment rate} = \frac{\text{number of people unemployed}}{\text{number of people in the labour force}} \times 100$$

A Level

average fixed cost (AFC)

$$\text{average fixed cost (AFC)} = \frac{\text{total fixed cost}}{\text{output}}$$

average product

$$\text{average product} = \frac{\text{total product}}{\text{number of workers}}$$

average revenue (AR)

$$\text{AR} = \frac{\text{total revenue}}{\text{quantity}} = \frac{TR}{Q}$$

average propensity to consume (apc)

$$\text{apc} = \frac{\text{consumption}}{\text{income}} = \frac{C}{Y}$$

average propensity to save (aps)

$$\text{aps} = \frac{\text{saving}}{\text{income}} = \frac{S}{Y}$$

average total cost (ATC)

$$\text{ATC} = \frac{\text{total cost}}{\text{output}}$$

average variable cost (AVC)

$$\text{AVC} = \frac{\text{total variable cost}}{\text{output}}$$

bank credit multiplier

bank credit multiplier (after loans have been made)

$$= \frac{\text{value of new assets created}}{\text{value of change in liquid ssets}}$$

$$\text{Bank credit multiplier (in advance)} = \frac{100}{\text{liquidity ratio}}$$

concentration ratio

4 firm concentration ratio = market size of top 4 firms ÷ total size of market x 100%

consumption function

consumption = autonomous consumption + induced consumption

C = a + bY

equi-marginal principle:

$$\frac{MU_A}{P_A} = \frac{MU_B}{P_B} = \frac{MU_C}{P_C} \ldots = \frac{MU_N}{P_N}$$

where MU = marginal utility

P = the price

A, B, C and N = different products

Fisher equation

money supply × velocity of circulation = price level × transactions (output)

MV = PT

Gini coefficient

$$\text{Gini coefficient} = \frac{\text{area A}}{\text{area A + area B}}$$

marginal cost (MC)

$$\text{MC} = \frac{\text{change in total cost}}{\text{change in output}}$$

marginal propensity to consume (mpc)

$$\text{mpc} = \frac{\text{change in consumption}}{\text{change in income}} = \frac{\Delta C}{\Delta Y}$$

It can also be found by 1 – mps.

marginal propensity to import (mpm)

$$\text{mpm} = \frac{\text{change in spending on imports}}{\text{change in income}} = \frac{\Delta M}{\Delta Y}$$

marginal propensity to save (mps)

$$\text{mps} = \frac{\text{change in saving}}{\text{change in income}} = \frac{\Delta S}{\Delta Y}$$

marginal revenue (MR)

$$\text{MR} = \frac{\text{change in total revenue}}{\text{change in quantity}} = \frac{\Delta TR}{\Delta Q}$$

multiplier

$$\text{multiplier} = \frac{\text{change in income}}{\text{change in injection}} = \frac{\Delta Y}{\Delta J}$$

$$\text{multiplier} = \frac{1}{\text{marginal propensity to withdraw}} = \frac{1}{\text{mpw}}$$

(mpw = mps + mrt + mpm)

profit

profit = total revenue – total costs, including normal profit

real exchange rate

$$\text{real exchange rate} = \frac{\text{nominal exchange rate} \times \text{domestic price index}}{\text{foreign price index}}$$

savings function

savings = – autonomous dissaving + induced saving

savings = – the amount that will be dissaved when income is zero + the marginal propensity to save × income

S = –a + sY

social benefits (SB)

social benefits = private benefits + external benefits

social costs (SC)

social costs = private costs + external costs

supernormal profit

supernormal profit = total profit – normal profit

total cost (TC)

total cost = total fixed cost (TFC) + total variable cost (TVC)

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Coursebook answers

Chapter 1

Economics in context

Learners' answers might include:

- Walking or cycling more; not owning a scooter or motor cycle; using public transport rather than a car or taxi; eating less meat (non-vegetarians); using local shops and convenience stores rather than travel to supermarket; buy more locally produced food in markets; use both sides of a piece of paper; avoid one-use disposable plastics.
- Economists could provide impartial information to assist decision-making by governments and other organisations; provide advice to a government on what goods and services should be subsidised or taxed in relation to their greenhouse gas emissions.

Activities

Activity 1.1

Learners' own answers.

Activity 1.2

Learners' discussion might include:

Alternatives to air transport, for example rail, for longer journeys; reasons why it is necessary for some people to travel by air; impact of restrictions on air transport for places and areas that are heavily dependent on international tourism; impact on producers of goods such as flowers and fresh vegetables that depend on air freight.

Activity 1.3

Learners' answers might include:

a More goods and services such as walking aids, pre-prepared meals, healthcare, and accessible local transport will be required by older people. Housing may have to be adapted as more old people will live with younger relatives. More resources will be required for community services.

b Production of goods ans services will have to be more efficient as there will be less people of working age. The emphasis of design will need to address the needs of the aging population. Recycling and the greater use of sustainable material will be essential.

c The Japanese government will have to make difficult decisions as it is likely to have less revenue from taxation due to less people of working age. Criteria for determining who receives government benefits will have to be reviewed along with which goods. if any, should receive a subsidy.

Think like an economist

Learners' discussion might include:

1 There are two possible sources of additional funding for healthcare: governments of high-income countries and non-governmental organisations (NGOs). (NGOs are private organisations that

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seek to relieve poverty and provide various services to low- and lower middle-income countries.) The economist's task is to convince governments and NGOs that current funding is inadequate. Impartial data on the scale of the problem is essential when making such a case.

2 The geographical diversity of healthcare priorities makes the economist's task even more difficult. Ideally a study identifying the benefits in relation to the costs could be used to show where there will be the best net benefit for additional resources.

Exam-style questions: Multiple choice

1 A D makes no reference to scarce resources. C does but links scarce resources to needs and not to wants. B is irrelevant.

2 A A is correct because wants are what people would like to have but cannot always have because of limited income. The other options do not address this fundamental issue.

3 A A government has to tackle the fundamental economic problem as stated in A. The other options are specific issues that face a government.

4 C The key point is that opportunity cost is the next best alternative that is foregone when a choice is made. This is the $900 fee that the teacher would receive for marking examination papers. Although the teacher saves $600 by doing the maintenance work herself, it is at the expense of the loss of the fees from marking examination papers.

5 B The same argument applies as in question 4. Playing football is the opportunity that is the next best alternative that is being foregone. The opportunity cost of this is the money that would have been spent on bus fares. There is no guarantee that the student will get a higher mark for the assessment.

6 C Options A, B and D are the three key questions that have to be addressed in any economy because of the fundamental economic problem.

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Coursebook answers

Chapter 2

Economics in context

- Learners' own answers. The Business section of a good newspaper or a specialist business newspaper (paper copy or online) should generate a good number of key economic terms.
- Learners' own answers.

Activities

Activity 2.1

Learners' answers might include:

1 a The price of onions increased by 5 rupees a kilo this month due to a prolonged drought.

b A 10% increase in spending by the Indian government on the railways leads to a 20% increase in total employment which is higher than for any other area of government spending.

c Data shows that for some planned economies income inequality is higher than in some market economies.

2 Positive statements provide a greater degree of certainty. Normative statements by definition are subjective.

Activity 2.2

Learners' own answers. The presentation builds upon the second task in the Economics in context feature. The content of the presentation should consist of a summary of the main points of the article chosen and a few reasons why these points are likely to be of interest to economists.

Think like an economist

Learners' discussion might include:

UK:

a Consumers are not as attracted by low interest rates as might be expected. Consumers are reluctant to spend borrowed money on expensive 'Big Ticket' consumer goods such as cars and electronics goods even though savings are losing value when left in banks.

b The chief executive is unwilling to commit new capital investment due to uncertain future economic prospects.

c The Finance Minister is likely to get criticism from savers and would not be willing to reduce interest rates further.

Japan: Negative interest rates mean that money held in banks as savings is actually losing value.

a Consumers tend to hold back on many purchases in anticipation of further price reductions.

b The chief executive would be wise to look to invest elsewhere in an economy where economic prospects are more certain than in Japan.

c The Finance Minister is likely to look to other policies to stimulate the economy.

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The economist's models are a simplified view of what can be expected. The problem is that what is expected does not necessarily match reality. This is especially true of Japan's economic experience over many years.

Exam-style questions: Multiple choice

1 **B** All other options include statements that involve a value judgement.

2 **A** A normative statement is one that is subjective and cannot be tested using real world evidence.

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Coursebook answers

Chapter 3

Economics in context

Learners' discussion might include:

- Possible qualities are Dyson's determination to ensure that his revolutionary bag-free vacuum cleaner was ready for the commercial market; the need to justify his heavy debt; the willingness to move production from the UK to a lower cost country; the ability to diversify into new product areas.
- Dyson might have failed if the prototype vacuum cleaner had been unreliable when launched onto the commercial market; if the bank had withdrawn his loan, making Dyson and his company bankrupt; if by keeping production in the UK, Dyson's products could have become uncompetitive in terms of their retail price.

Activities

Activity 3.1

Learners' answers might include: Land – agricultural land, climate, coal; Labour –railway workers, call centre staff, IT technicians, teachers; Capital – clothing factory, goods vehicles, offices, roads; Enterprise – local business people, nationally recognised heads of firms.

Activity 3.2

Learners' answers might include:

1. Each producer produces sugar but specialises in a different crop; sugar cane in lower middle-income countries and sugar beet in the UK.
2. In both cases, the benefits are in terms of employment in the growing and processing of the sugar. For lower middle-income countries, the revenue from sugar exports is likely to provide a valuable flow of foreign currency. Most of the UK's sugar is produced for home consumption; this reduces the need to import a larger quantity of sugar cane and the associated cost in terms of foreign currency.

   Both producers will suffer risks to supply due to effects of weather on crop yields. These effects are likely to be more severe and have a bigger impact on sugar cane farmers and producers in lower middle-income countries.

Activity 3.3

Learners' own answers. Specialisms might include garment and footwear manufacturing, vehicle assembly, pharmaceutical production, international tourism, oil and gas production.

Possible suggested answer for garment production (rank order): land – necessary for factory building; capital – required to start up a garment manufacturing business; labour – needed to produce output of garments; enterprise – to develop the business and take risks.

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Think like an economist

Learners' discussion might include:

In some cases, wealth may have been passed down in the family from one generation to the next. In other cases, someone from a poor background may have 'been in the right place at the right time' and taken risks in pursuit of an ambition. Others may have had the foresight to invest in a new opportunity such as IT, software or online retailing.

The main reason many people are poor is likely to be because of their family background. Another factor is the lack of education and skills which can restrict the earning capacity of many people. In some countries, where one lives can determine whether a person is destined to be poor. This is especially the case in rural areas in most low-income countries.

Exam-style questions: Multiple choice

1 **B** A and D are examples of different factors of productions. The wording of the question requires a more general answer. C is not correct since it is not concerned with current resources in an economy.

2 **A** A recognises that factors of production are required to produce goods and services in an economy. B, C and D consider capital in its monetary context; as a factor of production capital has a wider meaning.

3 **D** All options could apply to an entrepreneur. D is the 'best' one since it relates to the wider function of an entrepreneur, in particular the willingness to take risks.

4 **B** A and C are labour and capital respectively. Aircraft fuel is not strictly land as it has been processed by other factors of production.

5 **C** The point about specialisation is that it can only occur when a firm has an advantage over another firm in the same type of business. These advantages make the firm more efficient.

6 **C** Before specialisation, each worker produced 180 shoes, a total of 540 shoes. If each worker specialises in that part of the production process where they are most efficient, each can produce 3×100 or 300 shoes, a total of 900 shoes. The increase in production is therefore 360 shoes.

7 **B** All options are acceptable reasons why an entrepreneur is prepared to take risks. The 'most likely' one is B since this is why an entrepreneur is prepared to take risks to develop a business.

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Coursebook answers

Chapter 4

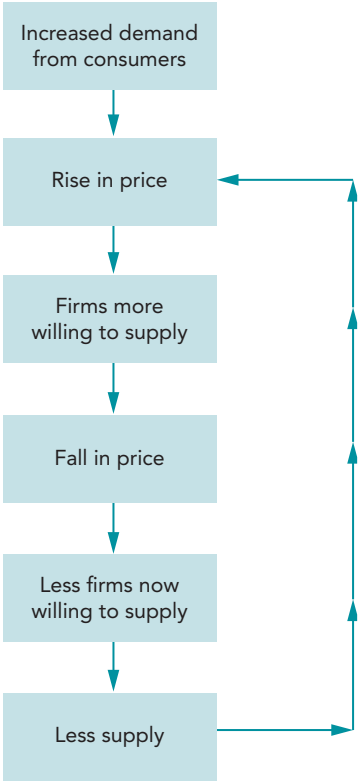
Economics in context

Learners' discussion might include:

- Unusually, Vietnam's economy has the advantages and disadvantages of both a state planned and a market economy. Possible suggested advantages include private sector businesses allocating resources in an efficient way through the market mechanism; the benefit of state regulations to control market failure; state planning to create a more equal distribution of income. Possible disadvantages include: a high level of bureaucracy affecting private sector businesses; convincing multinational companies that Vietnam welcomes new firms; a shortage of quality labour resources.
- Future growth prospects seem to be promising. Vietnam's growth is dependent on the production of relatively cheap consumer goods for export to the US and to Europe. Low labour costs, compared to China, are likely to continue to give Vietnam a relative advantage compared to some of its neighbours.

Activities

Activity 4.1



The price mechanism

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Activity 4.2

Learners' answers might include, for example Slovakia (data for 2019):

1. Government spending 43% GDP; private sector 57% GDP.
2. Manufacturing: motor vehicles 33%, computer products 7%, machinery and equipment 5%, metals 5%, rubber products 4%; 85% of exports are to the rest of the EU.
   Biggest firms: Volkswagen, Kia, Samsung, PSA Group, MOL Group.
3. % change in GDP: 5 to 10%, 2004 to 2008; 3 to 4% after 2012.

Think like an economist

Learners' answers might include:

1. For example, Mauritius (rank 25) Index of Economic Freedom 73.0; compares to New Zealand (rank 3) Index of Economic Freedom 84.4.
2. The Index is compiled from 12 different measures split between four groupings. Not all of the data is easy to quantify. Comparisons will in part depend on the quality of data available. Some of the data estimates are not easy to quantify accurately. Comparisons are most meaningful for countries at about the same level of development.

Exam-style questions: Multiple choice

1 **D** The characteristics given in the question can only apply to a planned economy. All other types of economy have some role for the market.

2 **C** B and D are consequences of the emphasis when producing capital goods rather than consumer goods. A is a general statement only. C is a common criticism of a planned economy.

3 **C** The second sentence of the question gives a strong hint as to the correct answer. It refers to the 'composition' of what is produced. A, B and D may well come true, but they are not consequences of the changing composition of an economy.

4 **A** B, C and D are all features of a mixed economy. In contrast, A is the correct answer as it is looking at the mixed economy in an overall way.

5 **D** D is the most likely option since it recognises that market forces will now determine rail fares following privatisation. A, B and C may well be particular outcomes from privatisation, but they are by no means certain.

6 **B** A fall in the proportion of household income that is saved means that there will be an increase in the proportion of income that is consumed. B is indicative of how the increased proportion could be spent. C is ruled out because not all consumers will need increased consumption of merit goods. D is not possible since a fall in income will lead to less consumption of superior goods. A is irrelevant.

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Coursebook answers

Chapter 5

Economics in context

Learners' discussion might include:

- The restructuring is likely to have come about to reduce Nigeria's dependence on oil production. The price of oil is volatile and this can affect Nigeria's export earnings. Although Nigeria is a member of the Organization of the Petroleum Exporting Countries (OPEC), OPEC does not have the same control over the global price of oil that it once had. Government planning is likely to have been important in attracting domestic and foreign firms to invest in Nigeria. This seems to have been particularly successful in the service industries.
- The changing structure of the economy seems to have come about very quickly. The reliability of the data is questionable especially in the case of agriculture where it can be assumed that many producers are small scale. There could also be issues with measuring and classifying what is covered by the service sector.

Activities

Activity 5.1

a 1200 television sets, 500 cars.

b 200 more cars can be produced, but 325 fewer televisions will be made.

c Moving from A to B involves making a *choice* of producing more television sets at the expense of fewer cars. Any point on the PPC shows the maximum use of *scarce* resources.

Activity 5.2

1 The new PPC should have the maximum production of cars at 1200 on the vertical axis. Television production is unchanged.

2 100 more cars (approximately).

3 The number of cars produced increases more than proportionately to the fall in television production.

Activity 5.3

1 a The PPC for Qatar will have shifted outwards.

b The PPC of the home economies of migrant workers will have shifted outwards.

2 Learners' answers might include:

Benefits: increased income for workers and their dependents; money can be sent back to home country; construction costs in Qatar are likely to be less than if home labour is used; new infrastructure can boost economic prospects and ability to host conferences and sporting events.

Costs: loss of skills to home economies; separation from families; danger of low pay and exploitation; short-term employment that depends on the state of Qatar and the global economy; earnings could vary with exchange rate changes.

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Think like an economist

Learners' discussion might include:

1 The data indicates that the agricultural sector is inefficient when compared to other sectors of the economy. Oil is relatively the most efficient and yet has been subject to rationalisation and cutbacks.

2 Government policy should focus on making agriculture more efficient, especially as Nigeria has an expanding population. The export potential for agricultural products should be assessed. Private sector investment, especially from other countries, in service industries and manufacturing should be encouraged through a range of fiscal incentives.

Exam-style questions: Multiple choice

1 **B** B states the standard assumptions for the PPC model. C is only partially correct as it lacks reference to the state of technology. D is incorrect as production can take place within the PPC when not all resources are used. A is incorrect since the PPC is drawn on the assumption that there are limits to the production of both goods.

2 **D** A point within the PPC indicates that more of each good could be produced with no increase in the resources available. A fall in unemployment means that additional workers can produce more of each type of good. A and B involve an outward shift of the PPC; C requires a movement along the PPC.

3 **D** D is the correct option since A, B and C could apply to a straight line PPC. D is the only option that explains why a PPC can curve outwards from the origin.

4 **A** The outward shift of the PPC means that more of each of the two goods can be produced. The discovery of a new valuable oil reserve will improve the efficiency of production of each of the goods.

5 **B** The opportunity cost of producing OC cars increases as more smartphones are produced. PM was the opportunity cost before the increase in smartphone production. This is now QN.

6 **C** The increased production of smartphones has increased the opportunity cost of producing cars since more smartphones can now be produced for the same amount of cars. There are increasing returns for producing smartphones.

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Coursebook answers

Chapter 6

Economics in context

Learners' discussion might include:

- Fire and rescue services are provided free and are paid for out of tax revenue
- Funding could be levied locally or nationally or a combination of both. Some services may result in a charge being made, for example attendance after a road accident, to deal with a loss of fuel or spillage of a load from a freight vehicle. There may be considerable variation in how the service is funded and what is chargeable to users of services. The feasibility of charging for all services is unlikely and impractical; exceptions could be made where non-life threatening services are used, say, by private sector businesses, for example a routine fire safety check in a factory.

Activities

Activity 6.1

1 and **2** Possible suggested learners' answers are shown in italics:

Rival and excludable: chocolate bar; satellite television dish; *takeaway food; ticket for cinema*.

Rival and non-excludable: public park, public cricket pitch; *sandy beach; cycle route*.

Non-rival and excludable: toll road; *public swimming pool; museum with paid-for ticket entry*.

Non-rival and non-excludable: firework display; *street lights; local police force*.

3 Learners' discussion might include:

- Problem of public goods that are not 'pure'. These are called quasi-public goods. These goods are excludable because consumers must pay a charge to use them even though they are provided for the public by the public sector.
- Another set of examples of quasi-public goods are goods that are non-excludable but could be rival if too many people want to use them at the same time.
- Examples can be compared and discussed in terms of the two characteristics of public goods.
- There should be no issue with private goods.

Activity 6.2

Learners' own answers. Possible suggested answers might include:

1 Consumption of high-sugar energy drinks:

a Recent feature in college newsletter on health issues due to over-consumption.

b Written by someone who is not an expert; assumes all such drinks have the same sugar content.

c Many students may ignore the health warnings.

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2 Over-consumption of junk food:
   a Public service information and social media posts.
   b No cause to doubt the information.
   c Growing obesity in young adults which can lead to health problems.

Activity 6.3

Learners' discussion might include:

Merit goods: compulsory secondary education, wearing a seat belt, emergency health services, visiting a museum

Demerit goods: Chewing gum is a demerit good when discarded in an anti-social way; chewing gum that is sugar-free may be a merit good if it is used to clean teeth. Playing loud music and shouting at a cricket or football match is a demerit good where the noise is unwanted and reduces spectators' enjoyment; it may be a merit good if the music and shouting add to the atmosphere and the spectators' experience. In some cases, a good can be either a demerit good or a merit good depending on personal opinion.

Activity 6.4

Learners' possible answers might include:

1 Public goods: traffic lights, flood defences, roads, police. Merit goods: vaccinations, public hospitals, student bursaries.
2 Some but not all roads could be provided as private goods. It may not be practically possible in other cases.
3 Much will depend on whether a government feels that more people can afford to pay for private sector healthcare. There may be reduced funding of merit goods if a government is facing serious debt problems.

Think like an economist

Learners' discussion might include:

1 The reasons for funding could be historical since many roads were built with public funding. Variations between countries may depend on the extent that fuel is taxed; a high rate of fuel tax usually generates funds for road maintenance and construction; funding may be a function of the priorities in the government's budget; there is a possibility of external funding.
2 Singapore's ERP system is unique in the way it funds roads:
   - A charge is paid by drivers when vehicles are used within a designated area;
   - The charge depends on the time of day, the volume of traffic and time spent in the designated area;
   - Revenue from the ERP is also used to subsidise a mass transit system;
   - There are measures in place to make it expensive for residents to own a car;
   - It is not easy to copy such a system elsewhere although there have been experiments in other cities.

Exam-style questions: Multiple choice

1 B A pure public good is one which is non-excludable and non-rival. This therefore rules out A where consumption is rival. A pure public good can be produced by the government although the government can produce many other types of goods and services. This excludes C. A pure public good is free of charge at the point of use but this can also apply to other goods such as an art gallery which is funded by the government. This excludes D. B includes reference to non-excludability which is one of the two characteristics of a pure public good.

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2 B A merit good is so-called because of the positive effects its consumption has for the individual and for the community. A refers to demerit goods and is therefore incorrect. C could apply to merit goods but governments also fund public goods and so C is therefore not the correct option. D implies that the consumption of merit goods is restricted which is not always true. B states the main reason for the provision of merit goods due to information failure.

3 A A demerit good is so-called because it is over-consumed and over-produced in the market. B refers to merit goods and not demerit goods. C is not possible given the nature of demerit goods. D is true of demerit goods but it is also true of all goods that are purchased in the market.

4 C Since the museum charges an entry fee, this means that it is possible to exclude anyone who does not pay the fee. This rules out A and B. With 'very few visitors', anyone paying the charge will be admitted. So, D, 'rival' is not valid.

5 A A merit good is where there is under-consumption due to information failure. B, cigarettes, is a demerit good with over-consumption. C is a public good while D is a private good.

6 C Vaccination against polio has positive effects for the individual and community/economy since it reduces the spread of this disease. D is therefore irrelevant in terms of the question. A could be applicable but is not essential to match the characteristics of a merit good. B is true but again has no link to a merit good's characteristic of being under provided due to information failure.

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Coursebook answers

Chapter 7

Economics in context

Learners' answers might include:

- Passenger car market in China; price of cars, consumers' income, range of models available
- Carbon permits in the EU; price of permits, number required by heaviest polluters, number of permits available on open market, change in GDP
- Interest rates in Australia; interest rate, effect of interest rate on consumer spending, effect of interest rate on investment by firms, effect on savings
- Foreign exchange market for ringgits; demand for ringgits from firms investing in Malaysia, demand for $ from Malaysian firms exporting to the US
- Global sugar market; supply of sugar cane from producers, demand from processors and food industry, health concerns over excessive consumption of sugar.

Activities

Activity 7.1

Learners' answers might include:

1 a Demand will depend on price of meals and income available to spend on meals.

b As a, but demand is most likely to be determined at household level.

c Consumers need to research the market to find the best deal due to the high price relative to other products.

d The transport used is likely to depend on a person's age, where a person lives and the price of alternative means of transport.

2 Effective demand is demand that is supported by the means to pay. This makes price more important when purchasing most goods and services. Notional demand is more likely to include a range of non-price factors.

Activity 7.2

1 a 5500 PCs

b $1930

c Price is the only factor that determines the demand for PCs.

2 If the price of PCs is $1200, then 5000 PCs will be demanded. Total expenditure/revenue is shown in Figure 7.3 by the area of the four squares closest to the origin: 0 to 1200 on the y axis and 0 to 5000 on the x axis. Total expenditure/revenue is $6m (1200 × 5000).

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Activity 7.3

1 2500 PCs; $870.

2 Price is the only factor that determines the supply of PCs.

3 A diagram shows the various combinations of price and the quantity that producers are willing to supply. It can be used to estimate the quantity that a firm or the market will supply at any price in the range covered. A disadvantage is that any information that a supplier draws from the diagram is entirely dependent on the accuracy of the original information that has been collected.

Think like an economist

Learners' discussion might include:

1 The use of machinery to harvest coffee beans may not be an ethical solution because it will be likely to cause unemployment among coffee pickers who may have no other job prospects. The production and use of these machines will increase greenhouse gas emissions compared to when the coffee beans were harvested by hand.

2 There is too much supply in the market. Established producers may have increased their coffee bushes and new producers may have entered the market in a bid to benefit from high prices. Another reason could be that there has been an exceptional harvest.

Exam-style questions: Multiple choice

1 **B** A and C refer to supply. D refers to a market demand curve and not an individual's demand curve.

2 **D** See answer to Q1 above.

3 **A** B and D refer to demand and not to supply. C refers to a market supply curve and not to an individual's supply curve.

4 **C** See answer to Q3 above.

5 **C** B is incorrect because a fall in price will lead to an increase and not a fall in the quantity demanded. D refers to demand and not quantity demanded. It therefore relates to a shift of the demand curve. A is incorrect because the quantity demanded changes at a different rate to a change in price.

6 **D** Iced tea and cola can be assumed to be substitutes. An increase in the price of one of them will lead to an increase in demand for the substitute. This is shown by a shift to the right of the demand curve for the substitute product.

7 **C** A and D will be likely to shift the demand curve for Range Rover Evoques to the right, not to the left. B will result in a movement down the demand curve and not a shift of the demand curve.

8 **C** B and D will cause a shift to the right of the supply curve. A leads to a movement up the supply curve. An increase in the wages of production workers increases costs and a shift to the left of the market supply curve.

9 **C** This is the correct option as a subsidy leads to a shift to the right of the market supply curve.

10 **C** Imposing an indirect tax has the opposite effect to a subsidy. This means that the market supply curve will shift to the left.

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Coursebook answers

Chapter 8

Economics in context

Learners' discussion might include:

- Competition is 'fierce' with low fares; airlines need to be fully aware of prices being charged by competitors (and Indian Railways); online booking systems allow airlines to keep up to date with competitors' prices; getting the price right is essential in order to avoid heavy losses in this very competitive market.
- Possible relevant factors include: price of tickets, growth of consumer incomes, GDP growth, price of fares to substitute destinations. Other possible considerations include: response of customers following COVID-19 pandemic; growing concerns over impact of air transport on climate change.
- This is a difficult topic due to many uncertainties that are involved. Possible advice might include: the need for more fuel efficient aircraft to reduce emissions; the need to develop alternative fuel sources for air travel; customers are likely to be more selective in deciding when to travel and to where.

Activities

Activity 8.1

1 a $\text{PED} = \frac{2.5\%}{5\%} = 0.5$; price inelastic

b $\text{PED} = \frac{20\%}{1\%} = 20$; highly price elastic

2 Learners' diagrams should be similar to Figure 8.2: a D_A and b D_B. The annotation should refer to the relative changes in price and quantity demanded.

Data on the percentage change in quantity demanded and the percentage change in price should be inserted into the PED formula to arrive at 1.5 and 0.6 respectively. For example,

$1.5 = \frac{30\%}{20\%}$ $0.6 = \frac{30\%}{50\%}$

There any many possibilities to arrive at the two PED estimates.

Activity 8.2

1 Learners' answers might include:

Price elastic demand: d, f, g

Price inelastic demand (on account of the strength of the brand image): a, b, c, e.

2 The PED of 1 for local market stalls indicates the competitive nature of this type of market. There is no point in changing price as there will be no resulting change in revenue. Fashion stores can be assumed to sell a high-end product which will be price inelastic. The PED of the online shop is price elastic since consumers can easily compare prices across a wide range of shirt manufacturers.

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Activity 8.3

1 The PED estimates are 10, 9.1, 4, 2.4, 1.6, 1, 0.64, 0.43, 0.24, and 0.

2 Learners' demand curves should be similar to Figure 8.6

Activity 8.4

1 % change in quantity demanded is 50%; % change in income is 20%. Therefore YED = 2.5.

2 % change in quantity demanded is 125%; % change in income is 20%. Therefore YED = 6.25.

3 Normal good, since the quantity demanded at each price per room increases as income increases.

4 Superior good, since YED is above 1.

Activity 8.5

1 a Demand for PCs would fall by 8%.

$$4 = \frac{X}{-2\%} = -8,$$

where X is the change in quantity demanded for PCs.

b XED would now be 5.

$$\text{XED} = \frac{-10\%}{-2\%}$$

2 $$\text{XED} = \frac{+25\%}{-10\%} = -2.5$$

indicating that the two products are complements.

Activity 8.6

Learners' answers might include:

1 In Australia, electricity is a necessity. The low YED can be explained by the fact that most families do not need more electrical appliances with rising incomes. In Pakistan and Bangladesh, electricity is a superior good; as incomes increase, families are about to purchase more electrical goods and therefore, demand more electricity.

2 The first thing to determine is whether the YED for the company's products should be positive or negative. A positive YED would generate an increase in sales when the economy is growing or doing well. At a time of recession, sales of products with a negative YED will increase. The risks would be reduced if the company produced a mixture of both types of product.

3 For example, a positive YED for cars should over time result in more roads having to be built. A negative YED for local bus services could prompt a cutback in government subsidies due to a fall in demand. It should be stressed that the relationship between government spending and YED is at best only an approximate guide to how governments might spend their income. Such decisions are complex and involve many other considerations.

Activity 8.7

This is a challenging activity which requires learners to use all three measures of elasticity to put forward a meaningful set of findings. Learners' answers might include:

1 Data from the restaurant owner on sales of chicken and rice for a recent range of prices; data on the price of chicken and rice in neighbouring restaurants would also be useful; this data could provide estimates of PED and XED.

2 Past records, if available, from the restaurant owner; a survey of prices in neighbouring restaurants; data on local income changes could be collected although it would have little value unless it was very recent.

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3 The point is to recognise that the data used in this type of enquiry are estimates, and often not accurate; the data should be used in conjunction with any other information that is available. Even with a reasonable set of data, it is very difficult to identify the precise reasons for the meal. There are many factors at work, other than price; these factors are difficult to identify.

Think like an economist

1 The PED estimates seem to confirm that the demand for natural gas is price elastic in the short run, an increase in price leading to a fall in the quantity demanded.

2 The long-run estimate is unusual because of its positive sign – this means that an increase in the price of natural gas will lead to an increase in the quantity demanded. This could be due to consumers of energy seeing natural gas as a superior item.

3 Learners' discussion might include: the government should try to increase the use of natural gas for production of electricity; this could be done by price or maybe regulations that limit use of coal and oil in the generation of electricity; consumers could be provided with information on how their electricity is generated; estimated long-term data are inconclusive.

Exam-style questions: Multiple choice

1 **D** A is incorrect since the item refers to 'change in demand' and not change in *quantity* demanded. B is also incorrect because it has the relationship between price and quantity the wrong way round. The last part of C refers to a change in in price rather than a *percentage* change in price.

2 **A** The PED is elastic when the price of the good is high. PED then becomes more inelastic as the quantity demanded increases. B is incorrect as the relationship is the wrong way round. C is also incorrect as the PED is not constant at every point on the demand curve. The level of expenditure is irrelevant, so D is wrong.

3 **C** A is arrived at by getting the equation for PED the wrong way round, (a common mistake). With B, the calculation for the numerator is incorrect. The new quantity and not the original quantity has been used. A numerical error has been made in D.

The correct calculation is PED = $\frac{-20\%}{10\%}$. This gives a PED of −2.

4 **B** The correct answer follows from an understanding of the significance of a PED of 1. This means that the % change in quantity demanded and the % change in price are the same. It then follows that total spending on the product is unchanged irrespective of price or quantity demanded. This therefore rules out A, C and D.

5 **B** The question states when '*its price*' increases. This should immediately rule out C and D which refer to the prices of other goods. An increase in the price of a price elastic product would see a fall in the quantity demanded and therefore, a fall in total spending. This rules out A.

6 **C** The point about an inferior good is that the quantity demanded falls as income increases or the quantity demanded increases as income falls. This definition is consistent with C. A is incorrect as it refers to a normal and not an inferior good. D refers to a necessity and not an inferior good. Supply is irrelevant and so B is incorrect also.

7 **C** A necessity is a type of good where the YED is low and can be close to zero. A and D are both normal goods as the YED is positive and greater than 1. A visit to KFC or McDonalds may be a necessity for some people, but petrol is more of a necessity as it has a lower value of YED.

8 **C** The question hints that the two brands are substitutes; this is confirmed by the + sign for XED. This therefore rules out A and B. The value of XED is elastic since it is above 1. It is not inelastic so D is not correct.

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9 D This question is rather unusual in so far as it gives an estimate of XED and a price change. The correct answer can be derived using the formula for XED.

$$\text{XED} = \frac{\text{\% in quantity demanded of product A}}{\text{\% change in price of product B}}$$

So, if XED is 2.4, then 2.4= % change in $\frac{Q}{5}$

Therefore Q = 2.4 × 5 = 12%.

10 A The second sentence of the question gives a hint. If incomes are rising, it makes sense for the business to make products that have a positive income elasticity of demand. This excludes C and D. Comparing A and B, the price inelastic demand for product A means that the quantity demanded will not be as adversely affected by a price increase as product B. The XED figure indicates that the demand for A will not be too affected by a change in price of a competing product. B is therefore ruled out.

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Coursebook answers

Chapter 9

Economics in context

Learners' discussion might include:

- Cashew nut prices vary considerably because of weather conditions, especially if there is a lack of rainfall. Prices are also affected by the total volume of cashew nut trees cultivated by global producers.
- The guide price is set by the government to ensure that farmers receive a minimum level of income for their crop. This price will have to be fixed before the full extent of the crop is known. The market price was above the guide price in 2019. In 2018, due to excess supply, the market price was below target, requiring the government to enter the market to buy up excess supplies from farmers.
- A cashew nut processing industry would add value to the crop of cashew nuts. It would create jobs and generate additional export revenue. The price of processed nuts might be more stable than the price of unprocessed nuts.

Activities

Activity 9.1

Learners' answers might include:

- Producer A: factory working at full capacity, inefficient working practices, untrained workforce
- Producer B: move to 24/7 working, new machinery installed, specialisation in the garment production process.

Activity 9.2

1. Supply curve is upward sloping; steeper at top end of price range.
2. PES estimates: 0. 1.3, 3.1, 5.9
3. PES estimates become more elastic as the price of a sack of tea falls. This indicates that the producer needs to offload supply as price falls. No more tea can be supplied even though the price increases above $80 – perfectly inelastic supply.

Think like an economist

Learners' discussion might include:

1. The three growing seasons make it difficult to store onions. The farmers' produce goes straight to market. Volatility of prices also shows that PES is price inelastic.
2. More information is required on actual prices and quantities traded. A reasonable estimate can be made for early 2017 using the percentage data. There is no information on quantities supplied for November 2017.
3. Supply and demand can be assumed to be price inelastic. An increase in supply will see prices change to a relatively greater extent than when there is a fall in supply.
4. It is not possible for an individual farmer or even a small co-operative of farmers to influence prices. This is due to the way in which onions are traded in a big open market. Farmers are unable to control the weather.

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Exam-style questions: Multiple choice

1 **D** A refers to a change in supply and not to a change in the quantity supplied. B and C contain no indication of percentage change.

2 **B** The calculation for A uses the new supply and not the old supply. The answer for C uses the correct data but has been inserted the wrong way round in the formula for PES. For D, the new price rather than the old price has been used.

3 **B** Given PES = 4, applying the formula for PES, $4 = \frac{X}{25\%}$, where x is the % change in quantity supplied. x is therefore 100%, meaning that a total of 20 units will now be supplied at $60 per unit.

4 **A** This is most likely as the supply can be expected to be price inelastic.

5 **D** Green beans in principle can be stored longer than cut flowers which are more perishable.

6 **B** This is the correct answer since a perfectly elastic PES is where a product has infinite supply. This is not the case for A, C and D.

7 **B** PES is zero when the price increases since the ice cream manufacturer is unable to increase supply. After one week, although supply increases, the percentage increase in supply is less than the percentage change in price.

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Coursebook answers

Chapter 10

Economics in context

Learners' discussion might include:

- The PED for cut flowers appears to be price inelastic with an estimated value of 0.2.
- The market for passion fruit can react to the shortage in two ways, increasing price or in the long run, increasing supply. A combination of both seems most likely.

Activities

Activity 10.1

Learners' posters might cover:

Cut flowers:
- supply potential uncertain due to weather, delays in air freight supply chain, uncertain prices in European market, changing tastes of consumers, perishable product
- demand not steady with peaks and troughs, need to maintain a quality product, affected by state of UK economy.

Passion fruit
- under supply, relatively short growing time, subject to unexpected weather conditions, attractive crop for farmers, very many global producers
- demand seems to be increasing, need to be price competitive, future demand seems good.

A successful poster might include demand and supply diagrams with explanations. A few statistics and pictures will enhance the poster's appearance.

Activity 10.2

The new demand curve will shift downwards from D. 1000 less PCs will be demanded at each price. Price will therefore be lower and the quantity demanded lower compared to the former equilibrium position.

Activity 10.3

In a and b, the demand curve shifts left. In c and d the demand curve shifts right.

Activity 10.4

1 a An increase in price of Lipton's tea will lead to an increase in demand for Tetley tea. Substitutes.
  b An increase in the price of ink cartridges will lead to a decrease in demand for computer paper. Complements.

2 a A decrease in the price of duck meat will lead to a decrease in demand for chicken. Substitutes.
  b A decrease in the price of cricket bats will lead to an increase in demand for cricket balls. Complements.

Activity 10.5

1 The outbreak of chicken flue is expected to lead to a decrease in demand for chicken. The demand curve for chicken will shift downwards to the left. The price and quantity traded will fall.

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2 The demand for this type of tea will increase. The demand curve will shift outwards to the right. The market price and quantity traded will increase.

Activity 10.6

The activity is one that could engage a class for a few weeks. A good approach is to show how the four markets have changed (or otherwise) and what future prospects have been identified. This activity will develop the investigative skills of learners and their ability to assess information at two periods in time.

Learners' answers might include:

- Cocoa market. Increasing demand but over supply in some years puts downward pressure on prices. Supply can vary due to weather problems. Stockpiling tends to be widespread. Multinational companies tend to secure supplies by issuing future contracts for supply from the global market.
- Market for biscuits. The increase in GST resulted in reduced supply. An increase in price reduced demand particularly among millions of people on very low incomes. The fall in sales increased fears of unemployment at the factory and is likely to have an effect on family well-being.
- Demand for avocados. Increasing global demand led to increasing prices. New suppliers entered the market and can be expected to do so in the future. There may be uncertain market conditions if the attitude towards the health benefits of avocadoes changes.
- Car market. A unique reason is given for the reduction in new car sales. The cost of borrowing for a vehicle purchase is very high and may put off potential purchasers.

Think like an economist

Learners' discussion might include:

1 The volatility in the world price of coffee would seem to be mainly on the supply side – supply is unpredictable due to extreme weather conditions that can affect coffee growing regions. The global demand for coffee seems to be increasing year on year.

2 The answer should be 'Yes' but the majority of coffee drinkers may not think about this issue. Big retailers like Starbucks and Costa are said to pay a fair price to their suppliers, but not all coffee farmers will benefit in this way.

3 Governments, coffee retailers and processors could do more to stabilise the market. With higher guaranteed prices, the well-being of coffee farmers could be improved. In addition to a fair price, multinational companies could provide housing and welfare facilities in areas that supply them with coffee.

Exam-style questions: Multiple choice

1 **B** The supply curve will shift to the right. The equilibrium price will fall and there will be an increase in the quantity of goods traded.

2 **A** A fall in supply is represented by a shift to the left of the supply curve. The increase in demand should increase the quantity traded. The combined effect is an increase in both equilibrium price and equilibrium quantity.

3 **B** The equilibrium price is where demand and supply are equal. So, $100 - 5p = -20 + 10p$.

Therefore $p = \$8$.

4 **D** A fall in production costs of Red Bull will shift the supply curve downwards to the right. The rise in price of the substitute drink shifts the demand curve for Red Bull to the right.

5 **A** The definition of disequilibrium in a market is when demand and supply are not equal. B, C and D make no mention of this essential requirement.

6 **D** Lemon juice comes from a lemon. So the demand for lemon juice is derived from the demand for lemons. Lemon juice and lemons are not in joint supply – only the lemons are supplied. They are not substitutes as lemon juice comes from the lemon fruit.

7 **C** A derived demand is one where the demand for a good or service depends on the use that can be made of it. A train journey is not demanded other than to provide a means of transport for someone to get to work.

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Coursebook answers

Chapter 11

Economics in context

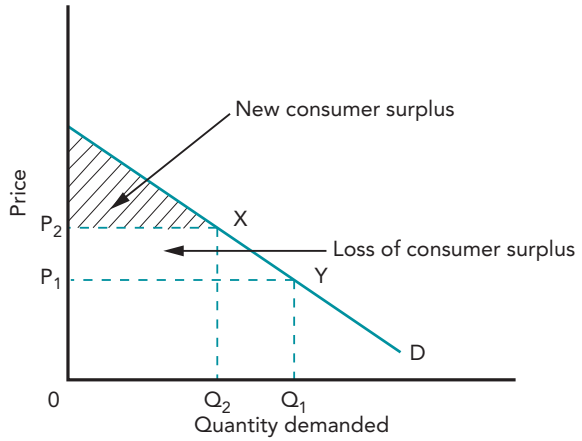
Learners' answers might include:

- The price of flights might differ because of differences in the demand and supply for flights. There would seem to be a greater demand in October than in September. Supply is likely to be unchanged. The price of flights in October is likely to be price inelastic.
- The lack of variation in price may be due to the airline's policy of having a simple fare structure that is easy for its customers to understand.
- An airline gains if passengers are paying above the minimum price that it is prepared to accept for travel. Consumers who have paid more than this minimum lose out. Consumers gain if the price they pay is less than the price they would have been prepared to pay.

Activities

Activity 11.1

1 a



Change in consumer surplus

b Consumer surplus falls to the shaded triangular area. Consumers in area P_1P_2XY lost their consumer surplus when the price increased.

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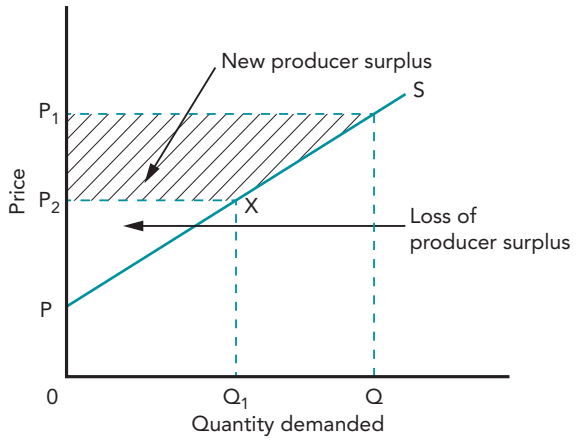
2



Think like an economist

Learners' discussion might include:

1 In theory, low knock-down prices should increase consumer surplus.

2 The media excitement associated with Singles Day could result in some consumers paying higher prices than if they had bought the goods at another time. Producers would then be turning consumer surplus into producer surplus. Not all prices may be bargain prices.

Exam-style questions: Multiple choice

1 B This is consistent with the definition of consumer surplus. C is true but only to a limited extent. A and D are irrelevant.

2 C This is consistent with the definition of producer surplus. The other options make no reference to the price that the producer is willing to accept.

3 B The *gain* in consumer surplus is the difference between the old consumer surplus and that when the price has fallen. At P, the consumer surplus is area 'a'. The new consumer surplus is the area under the demand curve. The gain is therefore this area minus 'a'.

4 B Producer surplus is the triangular area above the supply curve and below the equilibrium price. The area of a triangle is 0.5 × base × height, that is 0.5 × 30 × 200.

5 C Consumer surplus can be turned into producer surplus if the producer can identify a consumer or group of consumers who are willing to pay a price above the producer's minimum acceptable price. A unique product or restricting supply does not guarantee that the product will be bought by consumers at a higher price. D will result in a loss of producer surplus.

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Coursebook answers

Chapter 12

Economics in context

Learners' discussion might include:

- A good education can help the individual to find improved employment opportunities. This can lead to a reasonable income. It can also give an individual self-esteem and respect for others who are not as fortunate. The wider benefits are that a good education for individuals can spill over into increased output and competitiveness for the economy. Better qualified people can be at the leading edge of science and technology. Improved access to education of women can have very particular benefits for an economy.
- Additional funding is an obvious way to improve education. In some countries, there are fewer educational opportunities for women compared to men largely for cultural reasons. Education can also be improved through economic growth – this increases living standards and incomes which can lead to more family expenditure on education.

Activities

Activity 12.1

Learners' own answers.

Activity 12.2

Learners' answers might include:

- Information on packaging to show fat and sugar content; recommendations for daily maximum consumption.
- Use of media, social media and posters to provide quality information on problems arising from excessive consumption.
- Regulations banning or limiting sale of unhealthy products to children.
- Restrictions on advertising of unhealthy products or on where these products can be located in supermarkets.

The discussion should focus on similarities and differences in the approach to different types of products.

Think like an economist

Learners' discussion might include:

1. Various possibilities include a tax on private health care providers or an increase in certain indirect taxes. A more direct method would be to charge those who can afford to pay for healthcare services.
2. Benefits include: greater worker productivity, hence greater output and economic growth; less risk of spreading diseases, especially with increased immunisation; better health in the population can produce benefits for education in terms of improved attendance at schools and colleges.

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Costs include: additional government funding may have to be paid for through increased taxation; some funding may have to be re-allocated from other forms of government spending.

Exam-style questions: Multiple choice

1 **C** A and D are plausible but not the reason why governments provide public goods. B is not true as public goods are freely available to all.

2 **C** B and D are plausible but the point about a merit good is that it is so-called because of information failure. A is not true because private firms often provide healthcare services alongside those provided by the government.

3 **C** To be effective, a maximum price must be below the equilibrium market price. This is used to support low-income families who may consume a lot of staple food like bread. A and B are consequences of imposing a maximum price. D may still occur because of shortages but is not the reason for a government's action.

4 **D** A minimum price for agricultural goods is set to provide farmers with the security of a guaranteed income depending on the volume of crops produced. A minimum price is a way of trying to stabilise farm income as supply is variable. B and C may still happen but they are not the reasons for a minimum price. A will be the result of a maximum price.

5 **C** This is the only option that recognises that demerit goods are so-called because of information failure relating to their consumption. The other options are possible but not consistent with the definition of demerit goods.

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Coursebook answers

Chapter 13

Economics in context

Learners' discussion might include:

- Microeconomic issues: demand for vegetable oil is price inelastic; extra tax is designed to switch consumption to domestic cooking oil.

  Macroeconomic issues: an extra 5% tax will increase government revenue; aim is to reduce imports of cooking oil; impact on current account of balance of payments; could create more employment through scheme to promote oilseed production.
- Winners: Indian farmers who increase their production of oilseed will receive a higher income; reduced import bill.

  Losers: consumers faced with higher prices; loss of Indian market for producers elsewhere.
- The additional 5% tax on vegetable oil imports may lead to a fall in demand, reducing government revenue. Farmers may not want to switch to oilseed production.

Activities

Activity 13.1

Imposing an *ad valorem* tax will shift the supply curve S to the left but as price increases, the new supply curve S_1 will diverge upwards away from the original supply curve. The higher the price, the greater will be the amount of the *ad valorem* tax. The incidence of the *ad valorem* tax will fall more heavily on consumers as the price of the product increases.

Activity 13.2

1 New Zealand has a higher tax regime than Indonesia and Malaysia with a higher income tax rate on low earners. Sales tax is significantly higher. There are similar corporate tax rates.

Learners' answers might include:

2 The lower sales tax in Indonesia and Malaysia is a way of helping lower income families. Marginally lower income tax rates may provide more of an incentive for top earners to work and remain in Indonesia and Malaysia. New Zealand is likely to have a higher government spending requirement, requiring higher taxes.

3 More information is needed on which products are covered by the respective sales taxes and the income thresholds before income tax is levied.

Activity 13.3

Learners' answers might include:

- poultry production – cheaper poultry meat for consumers, incentive for farmers to meet market demand, increased employment on poultry farms, possibly reduced imports, better for the environment than other types of meat production.

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- long-distance rail services – more environmentally acceptable than road or air travel, more opportunity for workers to travel from remote rural areas to work in urban manufacturing and service centres, may result in more international tourist visits.
- university education – investment in human capital for future economic development and growth, benefits students from lower-income families.

Activity 13.4

Learners' answers might include:

1 It can be assumed that the maximum fare is lower than the free market fare. This is designed to protect the interests of customers. When there is heavy traffic, the free market fare would be higher. This is why some yellow cab drivers prefer not to work at such times. The maximum fare is designed to be competitive with other means of transport in New York, including Uber.

Think like an economist

Learners' discussion might include:

1 The OECD's data might appear to support the argument put forward by Australian farmers. Subsidies from other developed economies, like the USA, EU, Norway and Switzerland are a much higher percentage of gross farm receipts. Compared to farmers in other high-income economies, farmers in Australia do not appear to receive much government support.

2 The argument will be helped with further data such as the prices farmers in Australia receive for their products and, significantly, comparable data for low- and middle-income countries that are important producers of agricultural products. It is invariably these countries that complain to the WTO about subsidies paid to farmers in high-income countries.

Exam-style questions: Multiple choice

1 **C** To be effective, the maximum price of rice should be below the equilibrium price. Potentially, this can lead to a shortage of rice. This rules out option 2 and therefore D. A subsidy will encourage rice farmers to produce more rice since at the maximum price, demand is greater than supply. Rationing is also a valid policy since there are likely to be shortages in the market. So, given both are relevant, C is the correct response.

2 **B** At the minimum price, above the equilibrium, supply is greater than demand. This rules out both of the selling options, C and D. To retain P_1 as the minimum price, the government must buy all of the excess supply in the market. This must be Option B, KR; just buying KL would still lead to more supply in the market than is demanded.

3 **B** Imposing a new specific tax will lead to the supply curve shifting to the left. This rules out options A and D. The crucial point from the diagram is that the demand curve is price elastic and the supply curve price inelastic. This means that the producer is unable to shift much of the tax incidence onto consumers; most will therefore fall on producers.

4 **C** The inelastic supply curve is the most important thing to look out for with this style of question. This means that consumers pay a higher percentage of total tax receipts than producers. The area P_1 YZP_2 represents total tax receipts of which consumers have paid P_1YWP.

5 **C** The payment of a subsidy will increase corn production. The effect on corn prices is uncertain as there is no indication of the likely change in supply. This rules out A and B. The effect on corn oil prices cannot be determined.

6 **A** The market price for wheat will only fall when there is an increase in supply. B is not correct since buying more supplies will increase the market price. C and D are not components of a buffer stock scheme.

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Coursebook answers

Chapter 14

Economics in context

Learners' answers might include:

- A general statement or a statement that is supported by data from a reputable source such as the World Bank. The distinction between income and wealth should be made clear. It is difficult to obtain data on the distribution of wealth in an economy.
- Income inequality: increase taxes on those who earn above a given level of income; provide more benefits to those in most need; devote more resources to detecting corruption and tax evasion; increased support from foreign governments and NGOs (non-governmental organisations) to provide more services and opportunities for those on low incomes.

  Wealth inequality: introduce a tax on assets such as property, businesses, financial assets and gold; government to require an annual wealth declaration from high earners and others known to have a high value of assets.

Activities

Activity 14.1

The data in the table do not fully support the view that low-income countries have a more unequal distribution of income than developed economies. Hong Kong and the USA have a more unequal distribution of income that is comparable to some low-income countries in the table. At the other end of the scale, the Gini coefficients for Bangladesh and Pakistan are similar to those of the UK and Australia.

Activity 14.2

Learners' own answers. The list of policies will depend on the choice of country. Comparisons are likely to be most meaningful when made between two countries with a similar level of income.

Think like an economist

Learners' own discussion might include:

This is an important issue for many countries, Malaysia included. The distribution of income appears to be becoming more equal. A high rate of growth benefits most people as it is through growth that living standards in most economies have increased. At the same time, it is important that enterprise and innovation continue to be encouraged and that high incomes can be achieved by those who merit or deserve them. Perhaps in the future growth will have to be sacrificed for greater inclusivity.

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Exam-style questions: Multiple choice

1 **B** This is the correct description of a Gini coefficient. It should not be confused with A, which refers to wealth inequality. C and D are off the point.

2 **C** A lower Gini coefficient indicates a more equal distribution of income. B and D are incorrect as they are outside the specific scope of the Gini coefficient. A is not correct as the income distribution in Zambia is more equal than in Botswana.

3 **C** The key to reaching the correct answer is to be very clear that a progressive income tax seeks to make the distribution of income more equal. A sales tax is regressive. This last point should then rule out A and B. Looking at C and D together, D would not produce a more equal distribution of income since a lowering of the top rate of income tax would give more money to top earners.

4 **D** Remember this question is about 'wealth', not income. This should immediately rule out A, B and C since these policies are designed to achieve a more equal distribution of income.

5 **D** A lower middle-income country is likely to have a large elderly population. Providing free meals to this group is a way of increasing their real incomes. The benefits of the other options are less quantifiable.

6 **D** A more equitable distribution of income and wealth provides an incentive for people to work harder. They can see the inequality gap narrowing. The other options contain too many uncertainties.

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Coursebook answers

Chapter 15

Economics in context

Learners' discussion might include:

- Governments need to assess what is happening to average incomes in the country and to compare the country's economic performance with other countries.
- Nigerians' income could have changed by only a very small amount overnight. They could not have been significantly richer on 5th April 2013 than on 4th April 2013 as there be would hardly any time for output to have changed.
- Nigerians are likely to be richer now than they were in 2013 as the output of most countries rises over time and so more incomes are generated.

Activities

Activity 15.1

a Learners' own answers.

Learners' answers might include:

b China, India, Indonesia and Mexico are predicted to be in the top ten in 2050 but did not appear there in 1991. The countries which are predicted to fall out of the top ten are Italy, Canada, France and Spain.

c In 2050, the top 10 countries currently have larger populations, in total, than those in 2018. In 2018, three countries come from Asia. In 2050, it is predicted to increase to four. In contrast, the number of European countries is predicted to fall from four to three (including Russia).

Activity 15.2

Learners' own answers.

Activity 15.3

a Philippines

b Japan or US

c Qatar.

Activity 15.4

The pay of civil servants, the pay of nurses and the profits of firms should be included in the income method of measuring GDP. This is because they are payments made to factors of production in return for producing goods and services. However, government subsidies to farmers and state pensions should not be included as they are transfer payments. Government subsidies to farmers should increase output but that output will be measured by farmers' higher incomes (income method) and consumers' higher spending on food (expenditure method).

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Activity 15.5

$980 billion − $60 billion (NDP at basic prices) + $30 billion (GDP at basic prices) + $40 billion − $15 billion = GDP at market prices = $975 billion.

Think like an economist

Learners' discussion might include:

1 Whether all the national income measures place Vietnam ahead of Laos. The information may be gathered from a number of sources such as The World Factbook (CIA), World Bank, IMF.

2 National income figures can be used to compare economic activity over time and to help in determining government policy.

Exam-style questions: Multiple choice

1 **D** A, B and C are all measures of GDP and are different ways of measuring what is produced in a country. In contrast, wealth is a stock of assets that have been built up over time.

2 **B** Net property income from abroad includes profit, interest and dividends.

3 **B** Net income from abroad is included in GNI but not GDP. If there is no property income from abroad, the two measures would be equal. Both measures are adjusted for indirect taxes and subsidies. Transfer payments are not included in either measure.

4 **C** $500bn − $20bn. This converts GNI at basic prices to GDP at basic prices. $480 + $40bn − $10bn change GDP at basic prices to GDP at market prices. Unemployment benefits are transfer payments and so are not included in either GNI at basic prices or GDP at market prices.

5 **C** GNI is GDP plus net income from abroad. If net income from abroad is negative, a figure would be deducted from GNI. Capital goods, consumer goods, net exports and indirect taxes are treated the same in GDP at basic prices and GNI at basic prices.

6 **B** There is a loss of $200 000 from loss of initial jobs but an extra plus $108 000 from the new jobs gained. A state pension and unemployment as transfer payments and so are not included.

7 **D** GDP, measured by the expenditure method, is consumer expenditure, government spending, investment and net exports. In this case, this is $490bn + $80bn + $100bn + ($50bn - ?) = $640bn.

8 **A** To convert from basic prices to market prices, indirect taxes are added and subsidies are deducted. To go from net to gross, depreciation has to be added and to go from national income to domestic income, net income from abroad has to be deducted.

9 **C** Consumer expenditure plus investment plus government spending plus expenditure minus imports is GDP at market prices. In this case, this is $700bn + $2000bn + $100bn − $50bn = $950bn. GDP at market prices – indirect taxes and subsidies = GDP at basic prices. Here this is $950bn - $30bn + $15bn = $935bn. A is NDP at basic prices, B is NNI at market prices and D is GNP at basic prices.

10 **C** In calculating GDP by the output method, it is important to avoid double counting. Measuring the value of finished products would mean that image processors would already have been counted in the output of the smartphones industry.

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Coursebook answers

Chapter 16

Economics in context

Learners' discussion might include:

- Higher output will increase expenditure. Output = income = expenditure.
- Different households have different incomes and so different abilities to spend. They also have e.g. differences in family size, expectations and wealth.

Activities

Activity 16.1

1 Learners' own answers.

2 Learners' answers might include:

Opening up an economy to international trade would increase exports and imports. Whether this will result in more income flowing round the economy will depend on whether the value of exports exceeds the value of imports.

3 Learners' own answers.

Activity 16.2

1 a Households buy products from firms and firms sell products to households.

b Households as factors of production sell their services to firms and firms pay for their services.

2

	Closed economy without a government	Closed economy with a government	Open economy with a government
Economic agents	Households and firms	Households, firms and the government	Households, firms, government and international economy
Injections	Investment	Investment and government spending	Investment, government spending and exports
Leakages	Saving	Saving and taxation	Saving, taxation and imports

Activity 16.3

Learners' own answers.

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Think like an economist

Learners' discussion might include:

1 A decrease in export revenue and an increase in import expenditure, with no other changes, would decrease GDP as it would mean that less income would be entering the circular flow and more would be leaving it.

2 If government spending is greater than tax revenue, the government will be adding more spending to the circular flow than it is taking out of it – a net injection.

3 To make a full assessment to what was happening to Venezuela's circular flow, it would also be necessary to know what was happening to investment and saving in the country.

Exam-style questions: Multiple choice

1 C Injections add to a country's income, output and expenditure. As leakages reduce a country's income, output and expenditure, a fall in leakages will effectively act as an injection. For example, if injections were initially $50bn and leakages were $40bn, there would be a net injection into the circular flow of $10bn. If then leakages fall to $30bn, there would be a net injection of $20bn.

2 B Leakages involve income that leaves the circular flow of income. This means that it is income which is not used to purchase the country's goods and services.

3 C A, B and D are all injections. C is a leakage.

4 D Spending by Mauritian firms on capital goods from France involves importing goods into Mauritius and so is a leakage. A and B are flows of income within the circular flow of Mauritius. C is an injection of government spending.

5 B The economy is in equilibrium when injections equal leakages, that is when G + I + X = S + T + M. In this case, this is $90bn + ? + $60bn = $65bn + $75bn + $50bn. So $150bn + ? = $190bn.

6 D An open economy has an international trade sector. It is also assumed that it will have a government sector. All economies have households and forms.

7 B An injection is an addition of spending that enters the circular flow. A is an example of a leakage and D is a general description of a leakage. C arises within the circular flow.

8 D Households provide their factor services to firms and pay for the products that firms sell them. A is two flows from firms to households. B and C each have one flow from households to firms and one from firms to households.

9 B A decrease in tax on income will allow more to be spent. More spending will lead to more output and more income. A is a decrease in an injection and C and D are leakages. A decrease in an injection and an increase in a leakage will reduce the income flowing around an economy.

10 D An open economy has three injections and three leakages. A would give equilibrium in a closed economy without a government sector. B would give equilibrium in the unlikely situation of an economy that is open to international trade but has no government sector. C would mean there is equilibrium in a closed economy with a government sector.

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Coursebook answers

Chapter 17

Economics in context

Learners' discussion might include:

- If, for instance, the circular flow of a country increases, its people will have higher incomes and will be able to buy more goods and services. The higher output is also likely to increase their opportunity of gaining a job.
- The relative size of the government sector will decline if a country moves closer to a more market economy.
- If an economy becomes more open, it will have more exports and more imports. As a result, the size of both its injections and leakages will increase.
- Countries do not always produce the amount of goods and services of which they are capable. For example, some workers may be unemployed and not all machines may be used.

Activities

Activity 17.1

a China and Russia.

b Consumer expenditure is likely to be lower. This is because while it is predicted to be a higher percentage, the GDP of Pakistan is likely to be noticeably smaller than that of the USA.

c Consumer expenditure.

Activity 17.2

Learners' answers might include:

a Influences on household expenditure may include changes in income, interest rate, optimism, availability of credit, wealth and population size.

b Ugandan firms and foreign firms will be able to sell more products. This may enable them to earn higher profits if their revenue rises by more than their costs. Higher incomes in Uganda may mean that not only will Ugandans buy more, they may also buy more luxury products. Foreign firms may produce more products in Uganda or more sell more exports to Uganda.

c A consumer boom in Zambia might reduce Zambian exports as Zambian firms may switch some of the products they sell from the export market to the home market.

Activity 17.3

Learners' own answers.

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Think like an economist

Learners' discussion might include:

1 Information would be needed on the percentage of GDP accounted for by investment, government spending and imports.

2 Investment can increase both AD and AS. Using AD/AS analysis, including a diagram, would suggest an increase in output. The effect on the price level would depend on the size of relative size of the two shifts and the initial level of economic activity.

Activity 17.4

Learners' own answers.

Activity 17.5

a A reduction in the rate of interest would be likely to increase aggregate demand, aggregate supply and national output. The effect on the price level will depend on the relative shifts of AD and AS.

b An increase in government spending on healthcare will also be likely to increase AD, AS and national output. The effect on the price level will again depend on the relative shifts of AD and AS.

c Advances in information technology will increase AS, result in an expansion in AD and an increase in national output and put downward pressure on the price level.

d Net emigration suggests more people are leaving the country than entering and therefore a possible reduction in the size of the labour force. This will shift the LRAS curve to the left and will cause a decrease in AD. National output will fall. The effect on the price level will depend on the relative change in the size of the decrease in LRAS and AD.

e A cut in income tax will increase AD. It may also increase AS if it acts as an incentive for existing workers to work more hours and for more people to enter the labour force. It will increase national output and again the effects on the price level will depend on the relative size of the two shifts.

f An increase in wealth will increase AD. This is likely to cause an extension in AS, an increase in national output and possibly a rise in the price level. Note: in all cases the outcome will be influenced by the initial level of economic activity.

Activity 17.6

1 The AD and LRAS curves had shifted significantly to the left by 2010 but were beginning to shift right. However, the Irish economy was still operating on the horizontal section of the Keynesian LRAS curve in 2013 as there was still plenty of spare capacity, as indicated by the high unemployment rate. By 2019, the economy was closer to full capacity and so nearer the vertical part of the LRAS curve.

2 With significant pay cuts and rises in income tax, consumer expenditure would have been severely limited leading to a shift left of the AD curve.

Exam-style questions: Multiple choice

1 A A fall in the price level will enable people to buy more with any savings they have. This will be likely to cause an extension along the AD curve as price falls. B is not the answer as the rate of interest usually moves in the same direction as the price level. C would mean a rise in the price level would be likely to reduce imports and D would mean an extension in aggregate supply.

2 A Lower government spending would reduce the total amount of spending in an economy. Imports make a negative contribution to a country's aggregate demand. A reduction in imports can increase net exports. Investment also makes a positive contribution to aggregate demand. An increase in wages would be likely to raise consumer expenditure and so increase aggregate demand.

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3 C An increase in business optimism may increase investment which will increase aggregate demand. A, B and D would all be likely to reduce aggregate demand. A would probably cause an increase in expenditure on imports, B a reduction in export revenue and D a reduction in consumer expenditure.

4 B A decrease in the skills of workers will reduce their productivity and so reduce firms' productive capacity. A would cause a fall in the price level and so a contraction rather than a decrease in aggregate supply. C and D would cause an increase in aggregate supply and so a shift to the right of the AS curve.

5 D A, B and C would shift both the SRAS and LRAS curves. However, changes in wage rates only shift the SRAS curve. The LRAS curve is drawn on the basis that full adjustment has been made to changes in input prices.

6 B When GDP is not changing the economy will be in equilibrium. In this situation, AD = AS and injects equal leakages. Consumer expenditure is only one component of aggregate demand. It may not be changing but other components of AD may be and AD may not equal AS. C includes two injections and D two leakages but for the economy to be in equilibrium, the sum of injections must equal the sum of leakages.

7 C An increase in consumer expenditure will raise AD, shifting the AD curve to the right. A rise in the price of raw materials will cause a decrease in AS, shifting the AS curve to the left.

8 A The diagram shows that the equilibrium position has changed because of a decrease in AD and an increase in AS. Lower government spending will reduce AD and advances in technology would increase AS, B would cause an increase in supply because an increase in the quality of education would raise labour productivity. However, B would increase AD as lower income tax would raise consumer expenditure. C would decrease AS and raise AD as less saving would increase consumer expenditure. D would increase AS but would also increase AD.

9 B Shifts in the LRAS curve are caused by changes in the quantity and quality of resources. Advances in technology will increase the quality of capital. A would cause a decrease in AD, C an increase in AD, and D a movement up or down the LRAS curve.

10 C If there is a considerable amount of spare capacity, firms may increase their output without their average costs rising. They may not have to raise wages and may not have to buy more machinery. In the circumstances of A, B and D, an increase in aggregate demand would increase the price level.

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Coursebook answers

Chapter 18

Economics in context

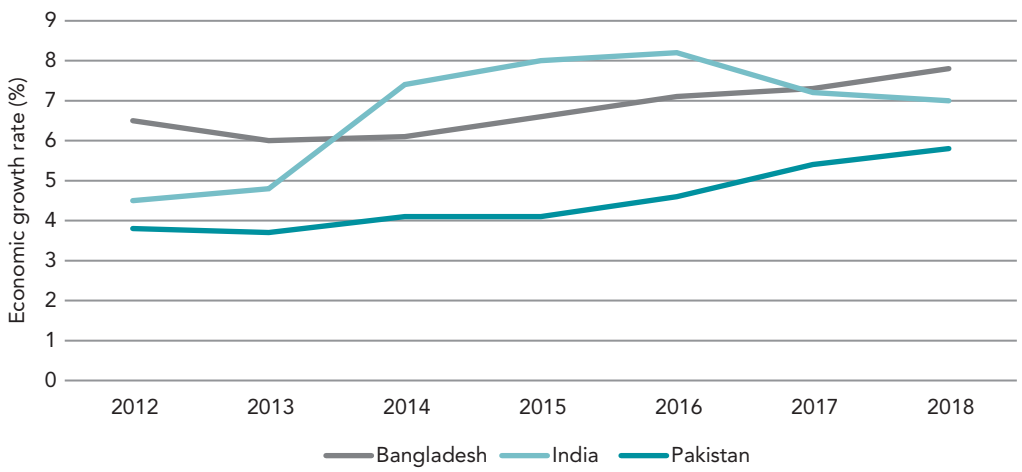
Learners' discussion might include:

- Firms are likely to experience an increase in demand for their products. Producing a larger output may enable the firms to take advantage of economies of scale. The world's largest economy may have good infrastructure which would reduce firms' costs of production.
- Higher income per head is usually accompanied by a rise in life expectancy as people are likely to be able to afford better nutrition, a better quality of housing, better healthcare and better and more education.
- This is debatable. Job opportunities may be greater in cities. Income may be higher and there may be more schools, hospitals and shops. However, there is likely to be less pollution and congestion in villages and life may be less pressured.

Activities

Activity 18.1

Suggested possible example for Bangladesh, India and Pakistan:



Economic growth rates of Bangladesh, India and Pakistan, 2012–2018

Activity 18.2

a Real GDP = \$1092bn × $\frac{100}{104}$ = \$1050bn

b The percentage increase in real GDP is $\frac{50}{100} \times 100 = 5\%$

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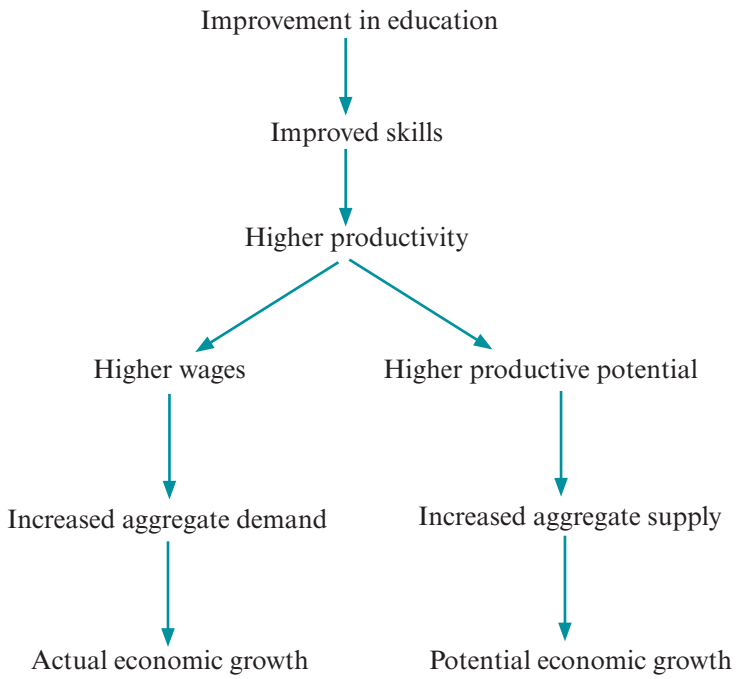
Activity 18.3

1 Suggested possible reasons why workers might want to leave: greater job opportunities, higher income and better living standards.

Suggested possible reasons why workers might want to stay: income may not be rising but it may be high, family ties, immigration controls.

2



Activity 18.4

Learners' answers might include:

1 Whether Germany experienced a recession in 2019 would have been determined by whether output also fell in the third quarter of the year. If it had, output would have declined over two consecutive quarters (six months). This is the definition of a recession.

2 Labour productivity is likely to have fallen. This is because more workers produced a lower output.

3 Consumer spending may cause economic growth as the higher consumer expenditure is likely to encourage firms to produce a higher output.

Activity 18.5

1 Learners' answers might include:

- high expenditure on research and development
- high expenditure on training
- high flexibility of the labour force
- low inflation
- high investment
- low level of political instability
- high level of spare capacity
- high quality of transport links
- high skill levels.

2 Learners' own answers.

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Activity 18.6

Learners' discussion might include:

Economic growth is likely to reduce absolute poverty as more jobs are likely to be created, higher incomes are likely to be paid and there may be more tax revenue to spend on reducing poverty. The effect on income inequality is more uncertain. While absolute poverty may be reduced, there may also be a rise in the income of, for example, chief executives, owners of firms and bankers.

Think like an economist

1 and **2** Learners' own answers.

3 Sources might include: The World Factbook (CIA), World Bank, African Development Bank.

4 Learners' answers might include: the primary sector will continue to decline, population will continue to increase, the world economy will continue to grow, demand for chocolate will continue to increase.

Exam-style questions: Multiple choice

1 D Changes in real GDP show how a country's output has altered over time. Real GDP can be measured in terms not only of output but also income and expenditure. However, consumer expenditure is only one component of total expenditure. Economic growth is often accompanied by a rise in living standards but not in every case. Changes in population size indicate how population has grown or declined rather than how the country's output has changed.

2 D Real GDP is adjusted for inflation whereas nominal GDP has not been. If growth in nominal GDP is the same as the growth in real GDP, it must mean that no adjustment had to be made for inflation.

3 A Economic growth caused by an increase in aggregate demand is shown by the movement of a production point within a PPC towards or on to the PPC. An increase in a country's productive capacity is illustrated by a shift to the right of the PPC. A movement from a point on one curve to a point on or inside a PPC to the right of the original one would show that both aggregate demand and productive capacity have increased.

4 D If a higher proportion of income is saved, consumer expenditure may fall, resulting in a slowdown in economic growth. In the long run, more available funds for investment may make it easier and cheaper to borrow. This could encourage more investment and an increase in economic growth. A decrease in government spending on healthcare is likely to reduce output by lowering aggregate demand. It will also be likely to reduce aggregate supply by lowering labour productivity. A decrease in the size of the labour force would reduce productive capacity and the ability of the economy to produce goods and services. An increase in the inflation rate will be likely to increase nominal GDP but may reduce real GDP if it results in the country's firms losing their price competitiveness.

5 A A decrease in business optimism may reduce investment. It may also cause some firms to reduce their output and dismiss some workers. Such actions would reduce aggregate demand which could lower the price level. In contrast, B, C and D would all increase aggregate demand.

6 A Advances in technology would increase aggregate supply. This may reduce the price level and increase output. In contrast, B, C and D would be likely to reduce aggregate demand which may cause deflation.

7 C An increase in labour productivity would mean that more could be produced with fewer workers. For unemployment not to increase, economic growth would have to match the increase in labour productivity. A and B would tend to increase the demand for labour, D would reduce unemployment.

8 C A rise in real GDP occurs when output rises. Higher output may reduce poverty but may also be associated with greater income inequality. Higher output may be achieved as a result of aggregate supply rising in line with aggregate demand and so the price level may not rise. An increase in population, especially if it involves an increase in the working age population is likely to increase output. This, however, may not occur if employment does not rise or if productivity falls.

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9 C There will always be an opportunity cost of higher government spending on one area. For example, the government could have spent more on healthcare. Poverty may fall because some of the poor may gain jobs or may receive higher state benefits because the government will receive higher tax revenue. Unemployment is likely to fall as aggregate demand will be higher. With higher incomes and more expenditure, tax revenue will rise without having to increase tax rates.

10 B Some non-renewable resources will still be used up even if the level of output remains unchanged. However, the rate of depletion will slow down. Unemployment may occur if output is unchanged as the size of the labour force may be growing. A government is likely to want to increase real GDP per head in order to raise the population's living standards. Governments seek to increase rather than reduce living standards.

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Coursebook answers

Chapter 19

Economics in context

Learners' discussion might include:

- There are a number of possible reasons. Firms may not be able to employ them if they lack sufficient funds to pay their wages. They may also not be willing to employ them if they think demand will not last or consumers may not be prepared to pay for them. The workers who could make them may not be aware of the job vacancies, they may live in different areas and they may not like the wages or working conditions on offer.
- The children of the unemployed may, for instance, have to leave school early and may not receive good quality healthcare as parents may have low income. These disadvantages may reduce their skills and qualifications and chances of gaining a job when they are adults. The experience of their parents may also reduce their expectations of gaining a job and they may give up searching after a short period of time.

Activities

Activity 19.1

Learners' discussion might include:

1. Achieving higher qualifications may make women keener to pursue a career. This is because higher qualifications will increase their chances of gaining a well-paid and interesting job. Well-qualified women also tend to marry later and have fewer children which makes it more likely they will pursue a career.
2. Other factors may include: the wages on offer (the higher the wages, the more rewarding it will be to find a job); non-wage benefits on offer (for instance, holidays); the need to earn an income (for example, if an individual's partner is made redundant, they may need to search for a job to maintain the family); the provision of childcare (this would make it easier to combine work with raising a family); the provision of adapted work places (enabling disabled people to work).

Activity 19.2

1. For example, using the 2019 version of the CIA World Factbook for Malaysia, learners' answers might include:

   The unemployment rate was 3.4%.

   The number of people unemployed was 0.51m (3.4% of a labour force of 14.94 m).

   The labour force participation rate is 70.84% $\left(\frac{14.94\,\text{m}}{21.09\,\text{m}}\right)$ The labour force figure is given. The working age population is calculated by adding the males and females in the 15–64 age groups.
2. Learners' own answers.

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Activity 19.3

Learners' answers might include:

1. A rise in a country's output may be accompanied by a rise in employment as more workers may be needed to produce the extra goods and services. More workers may work with more capital equipment. However, it is possible that advances in technology and shifts from the primary to the secondary and tertiary sectors may result in a rise in output without an increase in employment.
2. A reduction in the labour force participation rate may have a harmful effect on an economy if it is due to an increase in discouraged workers. However, if it is due to a higher proportion of school leavers going on to study at university, it can be a benefit in the long run. This is because the quality of the labour force will increase.
3. Where two quantities have a direct, or even indirect, relationship, it is not possible to conclude that one has influenced the other. It is important not to confuse correlation with causation. This is why it is useful to consider whether economic analysis can explain any correlation or lack of correlation found.

Activity 19.4

1. Learners' answers might include:

   A U-shaped unemployment age distribution graph shows higher unemployment rates among young and old workers. A higher proportion of young workers may be unemployed because they lack experience, costs may be involved in training them and it may take time for them to find a suitable job. It is possible that older workers may experience a higher rate of unemployment. This may be because older workers may be out of date with advances in technology and may lack some physical strength.
2. Learners' discussion might include:

   Most other countries are likely to show that the unemployment rate is highest among the young. This is because the lack of experience, need for training and time required to find a suitable job is likely to apply to all countries whatever their industrial structure.

   Whether the unemployment rate will be higher among older workers will depend on a number of factors. These include the industrial structure as physical strength is more significant in e.g. agriculture and mining. Other factors include the quality and availability of healthcare in the countries; other advantages older workers may have include being less likely to leave to take up another job.

Activity 19.5

Learners' answers/discussion might include:

1. Low-income countries' unemployment figures based on a claimant count measure may understate the full extent of unemployment because unemployment benefits may be low or non-existent. Unemployed workers will have to find work quickly. This may be very low-paid work or work on their family's farms.
2. The decision of the government of Laos in 2017 to exclude subsistence farmers from its measure of the labour force would have increased its unemployment rate. This is because any given number of unemployed would account for a larger percentage of a smaller labour force.
3. A decrease in a country's unemployment rate does not always indicate a fall in the number of people without jobs. As well as different reasons for people ceasing to be unemployed, the unemployment rate can be reduced by a change in the way the government measures either the size of the labour force or unemployment.

Activity 19.6

Learners' discussion might include:

1. A labour survey measure is likely to record a higher unemployment figure than the claimant count as it will include those who are actively seeking employment but who are not entitled to receive unemployment benefit or who chose not to apply for it.

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2 An increase in geographical labour mobility is likely to increase the difference between unemployment measured by the claimant count and the labour force survey in China. This is because more people will be away from where they could register to receive unemployment benefit. They will not be included in the claimant count but will be included in the labour force measure.

3 As the answer to Q2 indicates, who is included in the claimant count can differ between countries. Not all countries require the unemployed to register in their home towns to receive unemployment benefit and the groups entitled to unemployment benefit can vary between countries. In contrast, the labour force survey (ILO) measure includes the same people as unemployed.

Activity 19.7

Learners' discussion might include:

1 a In theory, the voluntarily unemployed should not be counted as unemployed. This is because they are not actively seeking employment. However, in practice, it is difficult to determine whether someone is voluntarily unemployed. For instance, is someone who turns down a job that involves very long hours and pays a very low wage, voluntarily unemployed?

b You could assess whether unemployment is voluntary or involuntary by asking the unemployed, as the labour force survey does, whether they are seeking employment. However, they might lie. You could ask for proof, such as job applications. These may be difficult to interpret as those who do not want to work may apply for jobs they do not expect to get or may underperform at any interviews they are asked to.

2 Learners' own answers.

Activity 19.8

Learners' answers might include:

1 a unemployed miners may not have filled job vacancies in financial services as they are unlikely to have the skills and qualifications required. They may also live in different areas of the country.

b the type of unemployment that would arise if unemployed miners cannot gain jobs in another industry is structural unemployment. The industrial structure of the country has changed with the demand and supply of the products mined declining while the demand and supply of another industry, in this case financial services, is increasing.

2 Some people become discouraged workers because, after a period of job search, they lose faith they will find a job. As a result, they have given up looking for work.

3 Structural unemployment may result in discouraged workers for a number of reasons. One is that the qualification the workers have and the skills that they have built up in one industry may not be transferable to other industries. The workers may become frustrated in employers not being impressed by their qualifications and skills. In some cases, some ex-miners may receive job offers in financial services or more likely other industries, but the jobs may be in other areas of the country where housing is more expensive. The families of ex-miners may not be prepared to move.

Think like an economist: Unemployment in Greece

Learners' answers might include:

1 Aggregate demand and aggregate supply, demand and supply of a particular product, efficiency, market failure (including information failure and lack of geographical and occupational mobility of labour), production possibility curves and opportunity cost.

2 Possible suggested reasons: fewer job vacancies available, so the period of unemployment may be longer; no state benefit or lower state benefits, so standard of living may fall; low or no savings held by the unemployed to support them before they get another job; low labour mobility which is likely to mean the unemployment will last longer.

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Activity 19.9

1 A zero rate of unemployment would mean that everyone who wants a job immediately gets one. This is very unlikely to occur.

2 The unemployment rate may be low in a country with high incomes as demand in the country is likely to be high and because anyone without a job may not identify as such, since they may be able to rely on rich relatives.

3 The loss of jobs in Qatar results in a rise in the unemployment rate of other countries as migrant workers may fail to find jobs when they return home.

Think like an economist: Long-term unemployment

Learners' discussion might include:

It is important to compare different countries' unemployment data from one source as unemployment taken from different sources may use different measures and may have taken the figures at different time periods.

Exam-style questions: Multiple choice

1 **D** An increase in a country's unemployment rate, by definition, must mean that there is an increase in the proportion of the labour force without jobs. A is a cause rather than a consequence of a rise in the unemployment rate. In the case of B, the unemployed are not economically inactive. C – an increase in the unemployment rate may mean an increase in the number of people unable to find jobs. However, this is not always the case since there could be an increase in the unemployment rate and fewer people unable to find jobs if the size of the labour force has fallen.

2 **B** A fall in a country's unemployment rate means greater utilisation of existing resources. This is shown by a movement from within the PPC towards the PPC. A shows a change in the allocation of resources with the economy operating at full employment. C shows an increase in productive capacity resulting from an increase in the quantity or quality of resources. D indicates an increase in a country's ability to produce consumer goods due to, for instance, greater productivity of workers employed in the consumer goods industries.

3 **B** A reduction in gender discrimination in labour markets is likely to mean that more women will enter the labour force. A rise in the size of the labour force could mean that both the number of people employed and unemployed could rise. A, C and D would all reduce the size of the labour force.

4 **B** Workers are frictionally unemployed when they are in between jobs. The farm workers may gain new jobs when they find out about the job vacancies. A and C are examples of structural unemployment, arising from changes in the pattern of demand (A) and the pattern of supply (C). D is an example of cyclical unemployment.

5 **A** Cyclical unemployment is caused by a decrease in aggregate demand.

6 **C** One of the causes of frictional unemployment is information failure.

7 **D** Structural unemployment occurs when workers who have lost their jobs due to changes in the structure of the economy experience difficulties switching from one type of job to another type of job.

8 **D** Output is sacrificed as a result of unemployment. A and B are financial costs of unemployment. In the case of C, more not less leisure may be experienced as a result of unemployment.

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9 C Unemployment may give some people time to find a more suitable job. Unemployment is likely to reduce tax revenue as incomes and spending are likely to decline. Wages are more likely to fall, or at least remain unchanged as a result of unemployment especially if it is cyclical unemployment. The existence of unemployment is also more likely to increase rather than reduce the number of discouraged workers.

10 A A decrease in government spending on unemployment benefits may reduce the time the unemployed spend between jobs. They may have a greater incentive to find work. B, C and D are likely to increase the frictional rate. A decrease in the quality of labour market information, unlike A, would increase frictional unemployment. C may also increase frictional unemployment as higher income tax could reduce the gap between paid work and unemployment benefits. An increase in trade union membership might result in wages being pushed above the equilibrium level, and so causing some workers to lose their jobs.

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Coursebook answers

Chapter 20

Economics in context

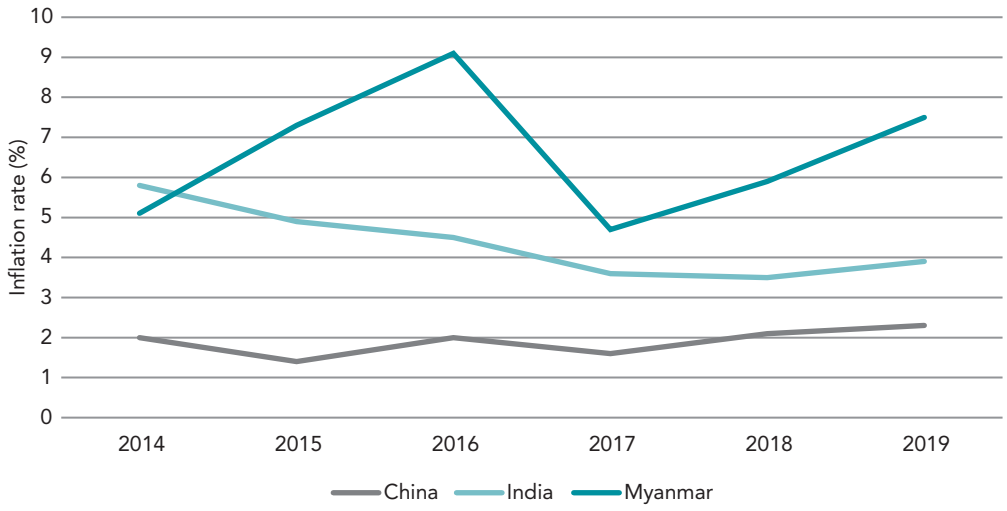
Learners' discussion might include:

- It is useful to consider how long it takes to earn the money to buy a product as it may give a clearer indication of changes in people's purchasing power than just price changes. For instance, the price of a box of six eggs may rise from 5 bolivars to 5000 bolivars, but if wages also rise by 1000%, the same quantity of eggs could be purchased.
- High price rises often result in long queues as people try to buy products before their prices rise even further. People will want to buy the products as quickly as possible.
- People may leave countries that are experiencing high inflation as they may not be able to enjoy a good quality of life. For instance, they may not be able to buy enough food.

Activities

Activity 20.1

1 Possible suggested chart showing inflation rates for China, India and Myanmar:



Selected countries' inflation rates, 2014–2019

2 Learners' own answers.

Activity 20.2

Learners' answers might include:

1 The price level rose by the same percentage.

2 Indonesia and Thailand.

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3 No. Prices, on average, have risen by more in the Philippines than in Japan. The prices, however, may have started significantly lower in the Philippines. As a result, it is possible that prices may have been lower in the Philippines than in Japan.

Activity 20.3

1

Year	Inflation rate %
2013	7.6
2014	7.1
2015	6.7
2016	5.5
2017	5.3
2018	5.6

2 2013

3 2018.

Activity 20.4

Possible suggested example:

Category	Weight	Price change	Weighted price change
Food	$\frac{3}{10}\left(\frac{60}{200}\right)$	10%	3%
Clothing	$\frac{1}{5}\left(\frac{40}{200}\right)$	20%	2%
Entertainment	$\frac{1}{10}\left(\frac{20}{200}\right)$	−5%	−0.5%
Miscellaneous	$\frac{2}{5}\left(\frac{80}{200}\right)$	2½	1%
All items	**100**	**5.5%**	

Activity 20.5

Learners' answers might include:

1 a Limitations: not applicable to all population groups and cannot measure changes in price from one area of the country compared to another area of the country.

b Ways: regularly updating the weights and training staff to compare changes in quality of items over time.

2 Learners' own answers.

Activity 20.6

Country	Change in real wages (%)
Belarus	8.6
Estonia	3.9
Russia	0.1
Serbia	7.0
Ukraine	7.5

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Activity 20.7

Learners' answers might include:

1. Probably cost-push inflation. This is because the rise in prices was accompanied by a fall in output. Such a decrease would be caused by lower aggregate supply. The exchange rate also fell which would have pushed up the cost of imported raw materials and capital goods.
2. Consumers may have spent more, in the expectation that prices may rise more in the future. However, consumers may have spent less. This is because output fell and so incomes are also likely to have fallen. The rise in the interest rate may have reduced spending by encouraging more saving.
3. Other information to help answer Q1: for example change in unemployment and change in tax rates.

   Other information: to help answer Q2: for example, what happened to the components of aggregate demand.

Activity 20.8

Learners' own answers.

Think like an economist

Learners' answers might include: loss of faith in the currency leading people to resort to barter, discouragement of investment, loss of value of savings, inflationary noise, long queues for, for example, food and petrol, empty supermarket shelves, higher costs for firms.

Activity 20.9

Learners' answers might include:

a. Reasons:

   Advances in technology: introduction of new, more efficient capital equipment and production processes → lower costs of production → increase aggregate supply → lower price level.

   Increased international competition → putting pressure on domestic firms to lower prices → encouraging domestic firms to become more efficient → cut their costs → lower price level.

   Fall in house prices → fall in wealth → fall in demand for curtains and furniture, for example → fall in aggregate demand → lower price level.

   Casual employment replacing permanent employment → reduction in job security → possibly also reduction in income → reduction in consumer expenditure → lower aggregate demand → lower price level.

b. Learners' own answers.

Activity 20.10

Learners' answers might include:

1. Food and energy have high weights in most countries' CPI. A slowdown in the rise in prices of food and energy is likely to have noticeable impact on the inflation rate.
2. If Mexico's exchange rate fell in value, the price of imported goods and services would have increased. It may also have reduced pressure on Mexican firms to keep their prices low.
3. Investment may have been higher in Chile between 2017 and 2019 than in Brazil and in Mexico as the price level was more stable. This would have made it easier for firms to plan. Its inflation rate was also lower which may have made it more price competitive. If the country's firms captured more market share at home and abroad, its firms are likely to have expanded their output.
4. None of the central banks was successful in meeting their inflation targets over the whole period shown. Over the whole period, Chile's central bank was the most successful. The inflation rate averaged 3.1%, very close to the target of 3%. Brazil's averaged 5.9% and Mexico's 4%. Brazil and Chile came closer to their targets from 2017 to 2019 than from 2013 to 2016. In contrast, Mexico was closer from 2013 to 2016 than from 2017 to 2019.
5. Learners' own answers.

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Exam-style questions: Multiple choice

1 D Deflation will mean that each unit of money will buy more goods and services. The price level will fall. The effect on the exchange rate and unemployment are uncertain.

2 B The group of workers will have less actual money but the amount they have will buy more goods and services as prices have fallen by a greater percentage.

3 C

Product	Weight	Price change (%)	Weighted price change (%)
Clothing	$\frac{1}{10}$	20	2
Entertainment	$\frac{1}{5}$	−5	−1
Food	$\frac{1}{2}$	10	5
Fuel	$\frac{1}{5}$	30	6
			12

4 A Weights are attached to different categories of products according to what proportion people spend on the products. For example, if people spend \$25 out of \$100 on housing, a weight of $\frac{1}{4}$ would be attached to it.

5 B A depreciation of the foreign exchange rate would increase the price of imported raw materials and imported capital goods. This would raise the costs of production. A and D might reduce cost-push inflation as both could reduce wage costs, or at least, any rise in wage costs. C could cause demand-pull inflation if aggregate supply does not rise in line with the higher aggregate demand.

6 A The diagram shows that inflation is falling over the period (disinflation) but the inflation rate is still positive. This means that prices rise throughout the period, although at a lower rate. The price level was lowest in 2020 and highest in 2023. Higher prices means the value of money continued to fall. Its value was highest at the start of the period shown, that is, 2020.

7 D An increase in a budget deficit would mean that the amount by which government spending exceeds tax revenue is getting greater. This injection of extra spending would increase aggregate demand. A could reduce demand-pull inflation by decreasing spending. B might reduce cost-push inflation as it could reduce the growth of wages. C would mean lower net exports which would reduce aggregate demand and so may decrease demand-pull inflation.

8 B Foreign firms becoming more price competitive would put pressure on domestic firms to keep their prices low. A high proportion of the rise in income being spent on imports would still mean that some more is being spent on domestically-produced products and so aggregate demand would rise. If income is redistributed from the rich to the poor, consumer expenditure is likely to rise as the poor spend a higher proportion of their income. The newly employed being paid the same as existing workers but being less productive would mean that costs of production would rise, causing cost-push inflation.

9 A If a country is experiencing inflation, it will be more expensive for its population to buy goods and services. Each unit of the currency will buy less and so purchasing power will fall. The real disposable income of exporters could fall if the country's inflation rate is higher than rival countries. Whether the standard of living rises or falls will depend on a number of factors including whether money wages rise by more than the price level.

10 D The government may benefit from inflation as fiscal drag may occur. The government may gain higher tax revenue if tax brackets are not adjusted in line with inflation. Exporters may lose revenue if their prices rise by more than their international competitors and demand for their products is price elastic. Lenders may be disadvantaged by inflation if the rate of interest does not rise in line with inflation. People on fixed incomes will be able to buy less with higher prices.

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Coursebook answers

Chapter 21

Economics in context

Learners' discussion might include:

- Economic growth increases tax revenue as incomes and spending will be higher.
- A country can increase its output even if unemployment rises, if productivity increases.
- More airports may improve the quality of people's lives as they can create employment and incomes. They may also reduce the cost of travelling abroad and may provide direct links to more countries. However, it may reduce the quality of some people's lives, particularly those living close to the airports, because of pollution. Those providing other forms of transport may experience a fall in demand and incomes.

Activities

Activity 21.1

Suggested possible answer for New Zealand and South Africa:

Year	New Zealand's inflation target range (%)	New Zealand's inflation rate (%)	South Africa's inflation target range (%)	South Africa's inflation rate (%)
2019	1–3	1.5	3–6	4.5
2018	1–3	1.6	3–6	4.6
2017	1–3	1.9	3–6	5.3
2016	1–3	−0.6	3–6	6.3
2015	1–3	−0.3	3–6	4.6

New Zealand's inflation rate was in the target range from 2017–2019. In the two years before that it was below the target rate. The deflation was the result of higher aggregate supply occurring because of lower oil prices and advances in technology.

South Africa came close to meeting its target range over the five years. It was just slightly above the target range in 2016. The higher inflation rate was due to higher food prices, caused by a drought, and a fall in the exchange rate which pushed up import prices.

Activity 21.2

Learners' answers might include:

1 It would appear that Peru had the best macroeconomic performance. The country had a reasonable economic growth rate, the lowest unemployment rate and a low, but not too low, inflation rate. On this information, Argentina had the worst macroeconomic performance. It had negative economic growth, hyperinflation and a high rate of unemployment.

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2 There is a range of other information that would be useful. This includes the countries' balance of payments position, trends in their economic growth rates, inflation rates and unemployment rates and if the countries have any targets for these. For instance, it is possible that Peru may have had an economic growth rate that was on a downward trend and an inflation rate that had fluctuated the most.

It would also be useful to know how long, on average, people have been unemployed in the four countries. In addition, it would be useful to know the causes of economic growth, inflation and unemployment in the different countries. For instance, Peru's performance would have been more impressive if the inflation was caused by demand-pull.

Think like an economist

Learners' reasons might include:

1 Unemployment may be at a low level.

2 It may be considered that the unemployment is temporary.

3 It may be thought that lowering unemployment will conflict with price stability.

Exam-style questions: Multiple choice

1 B An increase in aggregate demand will mean more spending. This could encourage firms to increase their output and take on more workers. The higher demand may result in demand-pull inflation. If it results in a shortage of resources, it may also push up costs of production.

2 A In the short run, if people save more, they will spend less. This would reduce demand-pull inflation. If people place their savings in financial institutions, there will be more funds available for firms to borrow to buy capital goods. The increase in demand for capital goods would first increase aggregate demand and then, when the capital goods are put to use, productive capacity will increase. An increase in saving may increase exports as firms seek to sell abroad products they can no longer sell on the home market. Higher exports and the resulting higher demand may, however, increase inflation. More saving may reduce imports of capital goods but a decrease in aggregate supply will increase inflation.

3 A Low unemployment should mean that workers can keep their skills up to date. Governments usually want output to increase. Price stability is another government macroeconomic policy objective but one that low unemployment does not ensure will occur. Indeed, there is a risk that low unemployment may put upward pressure on prices. It is also likely to increase wages as firms will find it more difficult to recruit additional workers.

4 D The economy is operating with considerable spare capacity. There is no upward pressure on prices. However, the lack of aggregate demand will mean there is cyclical unemployment and output will be below what the economy is capable of producing. Higher national income will mean the economy is growing.

5 B Price stability makes it easier for firms to estimate future costs, prices and profits. If this increases investment, aggregate demand and aggregate supply will rise, resulting in economic growth. A and D would cause aggregate demand to fall and would be likely to reduce the economic growth rate. Price stability would not mean deflation and deflation is more likely to discourage consumer expenditure.

6 C A more skilled labour force could raise productivity and lower costs of production. This could enable an economy to grow without creating inflationary pressure. A more productive labour force is likely to be in higher demand and a more skilful labour force will find it easier to move from declining to expanding industries.

7 D A and B are reasons why Country Y should have experienced a more rapid economic growth rate than Country Z. Fluctuations in the economic growth rate, C, are not desirable. D is a reason why Country Z would be expected to have a higher economic growth rate than Country Y even if Country Y is performing well.

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8 C In a recession, prices are likely to fall. If people get out of the habit of expecting prices to rise, they will stop acting in a way that will cause inflation. For instance, consumers will not increase their spending now to avoid paying higher prices in the future. A could lead to demand-pull inflation. B and D may also mean that aggregate supply does not keep pace with aggregate demand in the future. They might also result in cost-push inflation as the productivity of labour and capital may fall in the future.

9 D Whether Country Y has fewer unemployed and more employed people than Country Z will depend on the relative sizes of the two countries' labour forces. If Country Y has a larger labour force than Country Z, it may have more unemployed people. For instance, 3% of a labour force of 100 million is more than 10% of a labour force of 15 million. If Country Y has a smaller labour force than Country Z, it will have fewer people employed. For example, if 97% of a labour force of 10 million are employed, there will be fewer people in work than if 90% of a labour force of 20 million are employed. The unemployment rate does not indicate what proportion of a country's population are economically inactive. However, the unemployment rate is based on the proportion of the labour force who are unemployed.

10 D If an economy is operating at full capacity, it will not be possible to increase output and so achieve economic growth without increasing productive capacity. There is also a risk that at full capacity, inflationary pressure will be increasing. If aggregate demand is decreasing, greater productive capacity will not be used. Consumer expenditure is often the largest component of aggregate demand but this does not indicate how an increase in productive capacity will influence economic growth and price stability. If productivity is increasing, productive capacity will be rising and if productivity is increasing more rapidly than wages, inflation is less likely to be a problem.

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Coursebook answers

Chapter 22

Economics in context

Learners' discussion might include:

- A government would want to avoid a recession as a fall in the country's output would reduce incomes and may increase unemployment. It could also result in deflation.
- More spending on university education may enable more people to benefit from a university education. This may increase their earnings and so they may pay more income tax.
- Government spending and tax decisions can have a significant effect on the economy. They can influence, for example, aggregate demand, the pay of public sector workers and the products people buy.
- The answer will depend on the costs and benefits of not achieving the different aims and the current state of economic performance. For example, if a country is experiencing a high rate of unemployment and it is considered that the costs of unemployment can be very serious, low unemployment may be selected as the aim.

Activities

Activity 22.1

Learners' answers might include:

1. A large national debt will mean that the government will have to pay a considerable amount in interest on that debt. It may also encourage a government to cut its spending to ensure that it does not experience budget deficits which would add to the debt.
2. An increase in government spending, financed by higher tax revenue, will not cause a budget deficit and so will not increase the national debt. If the government spends more than it is raising in taxation, it will experience a budget deficit at least in the short run. Such a deficit will add to the national debt. However, in the long run increased government spending may generate more economic activity. This could cause tax revenue to rise by more than the spending and so may lead to a budget surplus. Some of the extra revenue could be spent to reduce the national debt.
3. The USA had a ratio much higher than most of the countries shown and significantly exceeded the IMF recommended limit. However, the USA is generally considered to be a strong economy and does not seem to have difficulty attracting willing lenders.
4. Russia's national debt may increase in the future if its government has a series of budget deficits. It may do this to stimulate economic activity and in the belief that there may be more willing lenders.

Activity 22.2

1. R243bn and – 4.5%.
2. R383.67bn (21% of R1,827bn).
3. Learners' own answers

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Activity 22.3

1 Capital spending.

2 Learners' discussion might include:

a The rich can afford to pay more tax. Their high income may also be partly the result of government spending on education and training. It is generally considered that it is fair they should pay more. It is more difficult to decide how much more. A very high tax rate may act as a disincentive and could even persuade some high earners to leave the country.

b The increased spending on infrastructure and reduced corporate tax might reduce cost-push inflation. Improved infrastructure would reduce transport costs. Low corporate tax may encourage firms to increase investment which, in the longer run, could cut costs of production. The higher tax on gold would raise the price of gold products, but the rise in the tax on petrol is more likely to have an effect on a wide range of products, through increasing transport costs, and so inflation.

The overall effect on inflation will depend on the relative size of the changes. An improvement in infrastructure is likely to have a longer-term effect on the price level.

To make a full judgement of the effect of the budget on inflation, further information on the spending and taxation changes would be needed.

Activity 22.4

Learners' answers might include:

1 Expansionary, as increasing government spending and lowering taxes and so seeking to increase aggregate demand.

2 Unemployment may not fall if the reduced taxes do not increase private sector spending. Higher government spending may be offset by a fall in private sector spending, so that AD does not increase. Even if AD rises and output increases, unemployment may not fall if firms employ more capital equipment rate than more labour.

Think like an economist

Learners' answers might include:

Arguments for include: encouraging more people to enter the labour force, workers to work more hours, more multinational companies to set up in the country and people to save more.

Arguments against include: sales taxes are regressive and place a greater burden on the poor. When someone buys a product with a tax on it, no consideration is taken of the ability of the poor person to bear the burden of the tax. A poor person will pay the same tax rate as a rich person.

Exam-style questions: Multiple choice

1 B A, C and D are all government macroeconomic aims. A government will aim for low unemployment. This is sometimes referred to as full employment. A government would not aim for the same level of employment if that level is low and is accompanied by a high unemployment rate.

2 C A budget surplus will increase if tax revenue rises and/or government spending falls. A rise in employment would be likely to increase income tax revenue as more people will be working and wage rates may increase. It is also likely to increase indirect tax revenue, as with higher incomes, spending will rise. If higher employment is accompanied by lower unemployment, government spending on unemployment benefits will fall.

A rise in the retirement age will mean that people work longer. This should raise their incomes and, so again, more tax revenue will be raised. A higher retirement age is also likely to reduce government spending on pensions.

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3 B Financial institutions and international organisations may be more willing to lend to a country which has experienced a fall in its national debt. This is because they may expect the country's government to be more able to pay interest on any amount they lend to it and to pay back the sum borrowed.

A reduction in the size of a country's national debt may reduce a budget deficit. This is because less interest will have to be paid by the government. As the government will have to borrow less, the rate of interest is likely to fall. A change in the size of the country's national debt does not have a direct effect on tax revenue.

4 C A progressive tax is one that takes a greater percentage of the income of the rich. High income earners pay not only more tax than low income earners but also a greater percentage. A describes a sin tax and is an indirect tax. B also describes an indirect tax. D could apply to a regressive, proportional or regressive tax.

5 D It is a regressive tax as the percentage paid in tax declines as income rises. The lowest income earner pays 33.33% of their income in income tax. The middle-income earner pays 25% of their income and the high earner pays 20%.

6 B Government capital spending is investment spending. It covers spending on capital goods used in the public sector. A and C are current spending and D is spending on a transfer payment.

7 B A high rate of economic growth is likely to raise incomes and expenditure and reduce unemployment. Higher incomes and expenditure will raise tax revenue. Lower unemployment will reduce government spending on unemployment benefits and other welfare payments.

8 A A contractionary fiscal policy measure is one which lowers aggregate demand either by cutting government spending or raising taxes. B and D are expansionary fiscal policy measures as they would increase aggregate demand. C is an expansionary monetary policy measure.

9 C An increase in hours worked would increase incomes and so, even if less tax is paid per $ earned, there may be more $s to tax. A wider tax base would mean more items are taxed and so could increase tax revenue.

10 D An expansionary fiscal policy will increase aggregate demand. If the economy is approaching full capacity, a higher AD will increase output and the price level. Higher output is likely to mean a reduction in unemployment.

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Coursebook answers

Chapter 23

Economics in context

Learners' discussion might include:

- May decide to keep some money in a bank for reasons of convenience and safety.
- Banks may take more risks and lend to some households and firms that default on their loans.

Activities

Activity 23.1

1 Learners' own answers.

2 Possible suggested answer for the US: The US central bank was following an expansionary monetary policy. It cut its base rate three times in 2019. This suggests the central bank tried to increase economic growth and reduce unemployment. A lower interest rate may increase consumer expenditure and investment as it will be cheaper to borrow and less rewarding to save. Higher consumer expenditure and investment will increase aggregate demand. Higher AD can encourage firms to produce more and to employ more workers.

3 Learners' own answers.

Activity 23.2

Learners' discussion might include:

1 With inflation rising at a faster rate than pay rises, there was a reduction in workers' purchasing power.

2 A central bank may think that there is a risk that the rising economic growth and falling unemployment may not last without the use of expansionary monetary policy.

Activity 23.3

Learners' answers might include:

1 Yes, they were both following expansionary policies, seeking to increase aggregate demand.

2 a The interest rate was already low and it might not have been sufficient to persuade households to spend more and firms to invest more. However, its chance of success might be strengthened by the fact that it was combined with an expansionary fiscal policy. For instance, firms may be more willing to borrow as they may expect higher demand for their products.

b This is debatable. If a country's inflation is above target, there may be a number of disadvantages including loss of international competitiveness and a random redistribution of income. If it is below target this may indicate a low level of economic activity and high unemployment. There is also the risk that the country could be moving towards deflation and a recession.

It would be useful to know what the target rate is to assess how significant it is for the inflation rate to be above or below it. For instance, being above an inflation rate target of 3–7% may be more serious than being above a 2–3% rate. It would also be useful to know how good the central bank is in assessing what is an appropriate target rate given the economic conditions of the country.

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Think like an economist

Learners' own answers.

Exam-style questions: Multiple choice

1 **B** Monetary policy is a demand-side policy. For instance, it aims to reduce aggregate demand when too much demand is causing inflation. It will try to increase aggregate demand when there is a low level of economic activity. A is an aim of fiscal policy and C is the aim of supply-side policy. D is incorrect as central banks aim to achieve price stability and not reduce it.

2 **D** Monetary policy is concerned with influencing the quantity and price of money. Restrictions on bank lending may reduce the money supply or, at least, the growth of the money supply. A and C are fiscal policy tools and B is a form of price control.

3 **C** An increase in the money supply would make more money available for spending. Higher spending may reduce unemployment but may also cause inflation. Increased government spending may cause a rise in the money supply, if the government borrows to finance some of its spending.

4 **A** Expansionary monetary policy seeks to increase aggregate demand. The main expansionary monetary policy measure is a reduction in the interest rate. Such a change will not generate more demand if it does not encourage firms to borrow to invest. B, C and D are likely to either leave aggregate demand unchanged or increase it.

5 **B** A central bank will increase the money supply when it wants to increase aggregate demand. Cyclical unemployment arises when there is a shortage of aggregate demand, so a government may try to reduce it by raising aggregate demand. C and D may benefit from lower aggregate demand. In the case of A, spending may be deceasing as the government will have raised more in taxation than it has spent.

6 **A** A higher interest rate is likely to reduce consumer expenditure and investment as it will be more expensive to borrow to finance consumer expenditure and investment and because saving will be more rewarding.

7 **D** An expansionary monetary policy will increase aggregate demand. If an economy is close to full employment, an increase in aggregate demand is likely to be inflationary. A, B and C would benefit from higher aggregate demand.

8 **A** A contractionary monetary policy will involve a higher interest rate or a reduction in the money, possibly the result of a reduction in bank lending. A higher interest rate will discourage borrowing as borrowing will become more expensive.

9 **A** To reduce unemployment, an expansionary fiscal policy tool and an expansionary monetary tool are likely to be used. A decrease in income tax and a decrease in the interest rate will tend to increase consumer expenditure and investment.

10 **D** A contractionary monetary policy tool is one which reduces aggregate demand. Restricting bank lending is likely to reduce consumer expenditure and investment. A, B and C are all expansionary monetary policy tools.

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Coursebook answers

Chapter 24

Economics in context

Learners' discussion might include:

1. Governments want to improve infrastructure to increase people's living standards and raise macroeconomic performance. For instance, a new sewage system may improve people's health. A better rail system will reduce firms' costs of production. This can encourage firms to produce more and so result in higher economic growth, an improvement in the current account balance, reduce inflation and increase employment.
2. A reduction in congestion is likely to raise production and productivity. It will enable firms to use fewer delivery vehicles and less fuel as the vehicles will spend less time on their journeys. Lower costs of production are likely to encourage firms to increase their output.

   If people travelling to work experience less congestion, they are likely to arrive at work less stressed. This may result in them being more productive.
3. The form of infrastructure will vary from country to country. For instance, people in the Maldives may think that priority should be given to the building of coastal flood defences as the islands which make up the nation are very low-lying.

Activities

Activity 24.1

Fiscal policy tools: a, b.

Monetary policy tools: c. d, f

Supply-side policy tools: e

Activity 24.2

Learners' answers might include:

1. An increase in government spending on education is considered to be a supply-side policy as it will improve the quality of the labour force in the long run. It could raise labour productivity by increasing literacy, numeracy and ICT skills. However, there is also an implication for fiscal policy as it involves an increase in government spending.
2. If teachers' retirement age is extended, it will mean that they are in the labour force for a longer period of time than would otherwise have been the case. This will shift the long-run aggregate supply curve to the right, leading to lower inflation and higher output. However, this does depend on the number of teachers who do continue working and by how many years the retirement age is raised.

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Think like an economist

1 Learners' answers might include: Benefits: reduction in accidents, reduced transport time, reduced need for car parking spaces, less need for fuel, reduced transport congestion, accessibility for those who cannot drive. Costs: initial high cost, unemployment of taxi drivers and delivery drivers, may be accidents during transition phase when a mixture of driverless cars and driven cars.

2 Learners' own answers.

Exam-style questions: Multiple choice

1 **A** Supply-side policy seeks to increase the maximum output an economy can produce. Such a policy may reduce upward pressure on the price level. It does not try to reduce aggregate demand. If it does succeed in increasing aggregate supply, it may enable higher aggregate demand to be matched by higher aggregate supply. Supply-side policy does not seek to reduce unemployment.

2 **C** If some workers gain jobs abroad, the size of the labour force will fall and aggregate supply will be reduced. A, B and D would cause aggregate supply to increase.

3 **B** If there is considerable spare capacity, an increase in aggregate supply may raise potential output but not actual output. A budget surplus would give a government more opportunity to spend money and cut taxes in support of trying to increase aggregate supply. Flexibility of resources would increase the speed of response to supply-side policy. In a mixed economy, there is an opportunity for a range of supply-side policy measures including privatisation, deregulation and government spending on education.

4 **D** A government may spend on investment to increase aggregate demand (fiscal policy) and/or to increase aggregate supply (supply-side policy). A cut in bank lending and the interest rate are monetary policy tools. A cut in the rate of interest may also be considered a supply-side policy measure as it is likely to encourage an increase in investment which would result in an increase in aggregate supply. C is a fiscal policy tool that is likely to reduce aggregate supply.

5 **B** Infrastructure development improves the quality of capital resources whereas training increases the quality of labour. Both tools seek to increase aggregate supply. They both involve government spending, and both will increase tax revenue if successful. Neither infrastructure development nor training have an increase in competition as their main focus.

6 **C** A successful supply-side policy tool should reduce cost-push pressures. For instance, a successful training scheme would reduce labour costs by raising productivity. It may also reduce structural unemployment by increasing occupational labour mobility.

7 **B** Firms are more likely to run their own training schemes if the workers they train stay with them for longer. A, C and D are all likely to increase the need for training and all are likely to result in more pressure being put on the government to subsidise training schemes.

8 **D** Increased competition may put pressure on firms to raise productivity so as to keep their costs lower and the quality of their products higher than their competitors. A may reduce productivity as it is likely to reduce the motivation of workers. B may also reduce productivity as workers may get tired. C may mean that firms do not undertake much investment which, again, may reduce productivity.

9 **A** Supply-side policy has the potential to reduce unemployment, reduce inflation and promote economic growth. It is not, however, designed to reduce a budget surplus.

10 **C** Contractionary fiscal policy is designed to reduce aggregate demand. If aggregate demand decreases, the increase in productive capacity, resulting from supply-side policy, may not be used. A would increase the chance of factors of production responding efficiently to the changes caused by supply-side policy tools. C would make it more likely that an increase in potential output would turn into an increase in actual output. D could reduce costs of production and increase competition.

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Coursebook answers

Chapter 25

Economics in context

Learners' discussion might include:

- Zambia may not always be good at mining copper as it may run out of copper. There is a risk that the country will deplete its resources relatively quickly to gain high export revenue now.
- A country's main trading partners are often geographically close because transport costs between them are likely to be relatively low and communications should be relatively easy. Note, transport costs are less significant in the case of services, such as financial services.

Activities

Activity 25.1

Learners' answers might include:

1 a Not only does Peru have an abundance of fish, which are used in producing fishmeal, but the labour force has developed their skills in the industry over time.

b Comparative advantage occurs where one country can produce a good with a lower opportunity cost ratio than another country, whereas a competitive advantage means that a country can sell a product more cheaply than another country. A country might not have a comparative advantage in producing the good but it can gain a competitive advantage by, for example, lowering its country's exchange rate through devaluation or depreciation or through government subsidies directed at the industry.

Activity 25.2

Learners' own answers.

Activity 25.3

Possible suggested answers for various countries:

Botswana: diamonds, Iceland: fish and fish products, Japan: cars; Madagascar: coffee and vanilla; New Zealand: dairy products; Pakistan: textiles; Saudi Arabia: petroleum and petroleum products.

Think like an economist

Learners' own answers.

Activity 25.4

1 Australia experienced an improvement in its terms of trade over this period. Its terms of trade rose from 100 to 172.

2 Pakistan's terms of trade were more stable in the period 2008–2017.

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3 It is possible to determine that the price of Australia's imports relative to the price of exports fell over the period as there was a favourable movement in the terms of trade. However, it is not possible to determine what happened to the absolute price of Australia's imports. The price may have fallen or it may have risen, but by less than the rise in the price of Australia's exports.

Activity 25.5

Learners' answers might include:

1 One advantage that may be gained from specialising in tourism is that there is the potential to gain relatively high income. This is because global demand for tourism is increasing. As incomes rise, people spend more on foreign holidays. Other advantages include greater output, exploiting external economies of scale, building up expertise and building up a global reputation. A possible disadvantage is that some jobs in tourism are relatively low-skilled, seasonal and low-paid. Other disadvantages include being dependent on other countries, possibility of supply problems, sudden changes in demand, external diseconomies of scale, structural unemployment and depletion of natural resources.

2 There are a number of possible reasons including beaches becoming polluted, transport costs rising, hotels needing to be updated in the future and experienced workers leaving the industry.

Exam-style questions: Multiple choice

1 D If all the factors of production were perfectly mobile between countries, then there would be a movement of factors of production rather than products to the countries where demand is high. In practice, some factors of production are immobile. For instance, South African gold mines cannot be moved and so countries have to import the gold from South Africa.

Lower transport costs and lower taxes on imports would be likely to increase international trade but their existence does not stop international trade. If opportunity cost ratios were the same, there would be no basis for international trade.

2 B If Country Y's ability to produce smartphones falls to 30, it would be able to produce fewer smartphones than Country Z. As a result, it would lose its absolute advantage in producing smartphones. A decrease in Country Z's ability to produce shoes to 30 pairs would mean its absolute advantage in producing shoes would be lost. As a result of the changes in B, the absolute advantage in producing smartphones would switch from Country Y to Country Z. The absolute advantage in producing shoes moves from Country Z to Country Y. The changes mentioned in A, C and D leave Country Y being able to produce more smartphones than Country Z and Country Z being able to produce more shoes than Country Y.

3 C Country Y has the comparative advantage in producing refrigerators as its opportunity cost of producing one fridge is 1/3 car whereas it is ½ car in the case of Country X. It can also produce 2.4 times as many fridges but only 1 3/5 times more cars than Country X.

Country X has the absolute advantage in producing both products. It has the comparative advantage in producing electric cars so it will export rather than import them. Trade will benefit both countries as there is a difference in their opportunity cost ratios.

4 C To benefit both countries, the exchange rate has to lie between the two countries' opportunity cost ratios. In this case, this is 1 tractor for more than 12 clothes and less than 19.2 clothes.

5 A A country may be very good at producing a product, but it still may be the case that its domestic demand for the product may exceed what it is capable of producing. Other countries imposing a tax on imports of rice from Country X would tend to increase the amount of rice Country X sells at home and so reduce the need for imports. C would tend to encourage exports from Country X rather than imports. D would tend to encourage Country X to rely on its own production of rice.

6 A An unfavourable movement in the terms of trade occurs when the number gets smaller. This will be the case if export prices fall relative to import prices. The terms of trade are concerned with the price rather than the volume of exports relative to imports. An increase in a surplus on the current account of the balance of payments is likely to raise the exchange rate, which will cause an increase in the price of exports and a fall in the price of imports. The effect of a budget surplus on

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the terms of trade is uncertain. It is possible that if it results in downward pressure on spending that it will cause a fall in demand for imports and so possibly a reduction in the price of imports.

7 A A favourable movement occurs when the terms of trade gets larger. B, C and D are all periods when there is an unfavourable movement in the terms of trade.

Year	Index of export prices	Index of import prices	Terms of trade
2019	95	104	91.3
2020	98	106	92.5
2021	102	112	91.1
2022	105	120	87.5
2023	100	110	90.9

8 B A favourable movement in the terms of trade will mean that import prices fall relative to export prices. If demand for imports is price inelastic, a fall in the price of imports will result in a smaller percentage rise in quantity demanded and so a fall in import expenditure. This could improve the country's current account position. A favourable movement means export prices rise relative to import prices. If demand for exports is price elastic, export revenue will fall. To take advantage of lower export prices, it is advantageous if supply is elastic. As the price of imports falls and demand for imports is likely to rise, an economy may benefit from foreign firms experiencing difficulty meeting the higher demand.

9 C If a country specialises to a greater extent, it is important that resources can move from the production of products the country is not specialising in to the product or products in which it is specialising. B is not required and A and D would tend to discourage international trade.

10 B As an unfavourable movement means export prices fall relative to import prices. Fewer imports will be able to be purchased with a given number of exports. Exports will become more price competitive. As the price of imports and net exports may increase, it is more likely that the general price will rise. If demand for the country's products increases, a government may receive more tax revenue and may need to spend less on welfare payments. This may cause the budget balance to move into surplus rather than deficit.

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Coursebook answers

Chapter 26

Economics in context

Learners' discussion might include:

- Firms may be trying to capture the market by driving out domestic firms. If successful, they are likely to raise price. It is also possible that they may want to get rid of some of their products on a foreign market to keep the price on the domestic market high.
- The foreign firms may be receiving government subsidies or may be using profits they have earned in the past or profits being earned on another product.
- There are a range of disadvantages that consumers may experience as a result of a price war. These include higher prices, less choice and lower quality.

Activities

Activity 26.1

Learners' answers might include:

1. The higher price may encourage Nigerian farmers to switch from producing other crops to producing rice. The higher price may also enable them to buy more capital equipment and employ more farm workers.
2. The quality of foreign rice may be higher.

Activity 26.2

Learners' answers might include:

1. A favourable or 'soft' loan occurs where the rate of interest applied to a loan is below the commercial rate. This might give an exporter an unfair advantage if its competitors do not have access to the same favourable rate. As it lowers investment costs and is backed by government it could be considered as a subsidy.
2. Dumping means selling a product on foreign markets below its average costs of production, giving producers a competitive advantage. This can undercut domestic producers and lead to consumers replacing domestically produced goods with imported ones. It is viewed as unfair as it distorts comparative advantage, masks relative inefficiency and can lead to more efficient firms exiting the market. It does not seem likely that Norway experiences dumping in its agricultural market. It is a high cost producer, so other countries' agricultural products are likely to be price competitive without having to charge less than cost price.
3. Agriculture may be regarded to be a strategic industry. A government may be worried about relying on other countries for its supplies of food.

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4 Although a subsidy can reduce costs of production enabling a firm to lower its selling price, it may not increase exports if:

- the good is poor quality
- the lower costs of production are offset by rising exchange rates, making exported goods relatively more expensive
- the firm decides to keep prices the same but use the additional subsidy to boost profits
- there is a downturn in export markets.

Think like an economist

Learners' answers might include:

1 to improve the balance of payments

2 to protect an infant industry

3 to prevent dumping

4 to protect a declining industry.

Activity 26.3

Learners' answers might include:

1 Japan also produces semi-conductors and smartphones screens. By restricting South Korea's access to the materials used to produce these products, the Japanese government may be giving its producers an unfair advantage.

2 Retaliation against trade restrictions imposed by South Korea.

3 To ensure the supply of onions on the home market and keep prices low.

4 Whether South Korea was more price competitive in producing semi-conductors and smartphone screens and whether South Korea had imposed trade restrictions on Japan's products.

5 Learners' own answers.

Activity 26.4

Learners' own answers.

Exam-style questions: Multiple choice

1 D There is a risk that imposing an import tariff will increase inflation. It is likely to increase the price of imports and reduce pressure on domestic firms to restrict rises in their costs and prices. A, B and C are all possible reasons why a government may impose an import tariff.

2 C Initially 84 000 units were consumed. 35 000 units were supplied by domestic producers. So 49 000 units were imported. When the tariff is imposed, domestic consumption falls to 70 000 units. Now 46 000 units are supplied by domestic producers. So, imports fall to 24 000, So the reduction in imports is 49 000 – 24 000 = 25 000.

A is the reduction in consumption, B is the new quantity imported and D is the increase in domestic supply.

3 A The removal of tariffs on imported food will be likely to reduce the price of imported food. This will enable domestic consumers to enjoy a greater gap between what they actually pay and what they are willing to pay.

With increased competition from imports, the output of domestic food producers is likely to fall. Foreign producers may divert some food from their home markets to the country's market.

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4 D Setting up a new car manufacturing factory in Argentina would get round the quota as the cars would now be produced in the country and would not be imports. A, B and C would all be likely to increase demand for the Japanese cars in Argentina but the quota would limit the quantity that can be sold.

5 B The imposition of import tariffs will tend to raise the price of imports. Foreign firms may lower the price they charge so that with the tariff, the price will still be competitive. If they do this, the terms of trade will improve and the country will get imports more cheaply.

Import tariffs are likely to reduce the variety of products available to domestic consumers. Import tariffs may help to protect the market power of domestic firms as they reduce competition. A government may want to slowdown the reduction in output of sunset (declining) industries but it would not be seeking to increase it.

6 D If demand is price inelastic, the domestic demand for imports may not fall significantly when the imposition of the tariff raises their price. A, B and C would all tend to reduce the quantity that can be imported regardless of price.

7 B An export tariff will keep more food in the country. The higher supply on the domestic market is likely to lower price. A tariff on imports will be likely to raise the price of imported cars in the country. Domestic car producers may also increase their prices as they are now competing with higher-priced imports.

8 A If the other country has lower health and safety standards, it may be selling a product that poses a risk to consumers. B, C and D should make it easier for the country's producers to compete and so a quota should not be needed.

9 C Domestic firms that use imported raw materials and imported capital goods are likely to resist the imposition of tariffs on these as it would increase their costs of production. Initially the imposition of import tariffs may increase demand for domestically produced products. Import tariffs are likely to improve the terms of trade as they may encourage foreign firms to reduce the price of their exports to remain competitive. The imposition of import tariffs is likely to increase government tax revenue but this is not a reason for domestic firms to oppose them.

10 C Reducing competitive pressure on domestic firms may reduce their efficiency, increase price and reduce quality. A, B and D are all possible advantages of trade protection.

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Coursebook answers

Chapter 27

Economics in context

Learners' discussion might include:

- A country can borrow but there is a risk that it will run out of willing lenders. It could also use past savings in the form of past surpluses of export revenue over import expenditure.
- No, there are usually very many transactions, some of which may be missed and some recorded inaccurately.
- An export surplus may be a sign of a strong economy as it could indicate that the country's producers are internationally competitive. However, in practice, a number of what are considered to be strong economies, such as the USA, earn less from the sale of exports than they spend on imports.

Activities

Activity 27.1

1. Balance of trade in goods: -$950bn.
2. Balance of trade in services: $270bn.
3. Balance of trade in goods and services: - $680bn,
4. Current account balance: - $554bn.

Activity 27.2

Learners' answers might include:

1. An increase in interest, profits and/or dividends received by domestic economic agents.
2. An improvement in the balance of trade can occur for two reasons: a country can either export more or import less in value terms. Output and productivity had improved in the US leading to lower average costs enabling US firms to become more price competitive, thus increasing exports. Secondly, the ageing demographic of the US population means that the nation's propensity to import falls as older people tend to spend more on services that are domestically produced and relatively less on goods that are imported.

Activity 27.3

1. Credits: $2062m + $442m + $85m + $2215m = $4804m
   Debits: $4741m + $733m + $594m + $14m = $6082m
   Current balance = $4804m − $6082m = $1278 deficit
2. Net of workers' remittances: $2060m + $1278m = $3338m deficit

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Activity 27.4

Learners' answers might include:

1 a The countries with the three highest inflation rates – Argentina, Turkey and the UK – have current account deficits and the countries with the lowest inflation rates, Australia, Germany and Singapore, have current account surpluses. A higher inflation rate may reduce demand for the country's exports and increase demand for its imports as the country's products are likely to lose international price competitiveness. However, the UK's inflation rate was only slightly higher than those of Australia and Germany but its current account balance differs to a greater extent.

b Countries with a current account deficit might be expected to have a low or negative economic growth rate. This is because a current account deficit will reduce aggregate demand. The information supports this to a certain extent. Argentina and Turkey, which both had deficits, had negative economic growth rates. However, the UK had a relatively high deficit but the second highest economic growth rate.

A current account surplus will add to aggregate demand and might be expected to add to economic growth. However, Singapore had a large current account surplus but only a low economic growth rate. Of course, net exports is only one component of aggregate demand and economic growth is also influenced by changes in aggregate supply.

Think like an economist

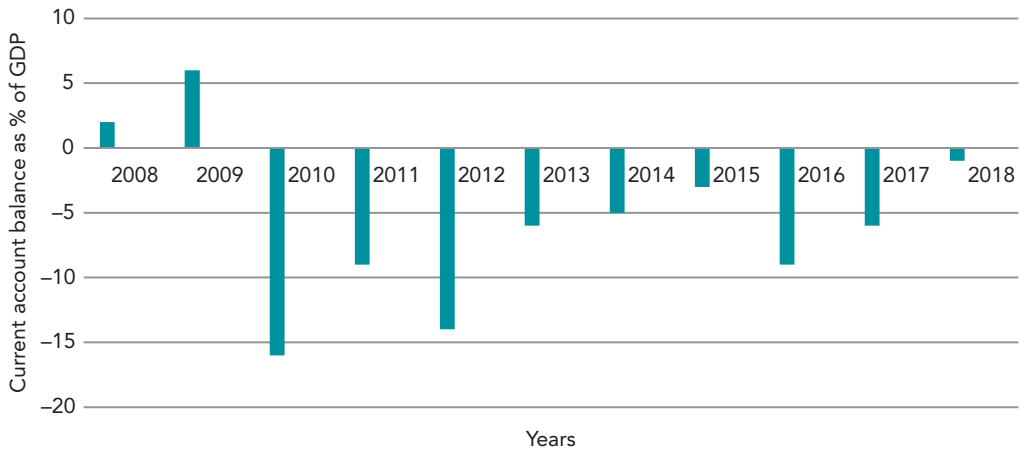
1 a Exports (net exports) are a component of aggregate demand.

b The opportunity cost of exporting products is domestic consumption.

c Exports are an injection into the circular flow of income.

d Exports of goods and services minus imports of goods and services gives the trade in goods and services balance.

2 A possible suggested answer for Lesotho 2008–2018:



Lesotho's current account balance as a % of GDP, 2008–2018

Lesotho had a deficit on its trade in goods and services balance over the period. What caused the changes were fluctuations in the primary and secondary balances. The amount paid on interest varies with changes in the interest rate. There were considerable variations in the workers' remittances the country received from its people working in South African mines. The remittances changed with the numbers employed and with the wages they received.

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Exam-style questions: Multiple choice

1 A A credit item brings money into the country. A describes employees' compensation and this appears in the primary income. B would also appear in primary income but as a debit item as it involves money flowing out of the country. C is a debit item appearing in trade in goods. D is a credit item but one which would appear in trade in services.

2 C The trade in goods section of the current account balance shows the value of exports and imports of goods. That is the price multiplied by the quantity of exports of goods and the price multiplied by the quantity of imports of goods. A surplus means that more money is flowing into the country than leaving it, so the value of exports of goods exceeds the value of imports of goods.

3 A Spending by French people on holiday in Mauritius would appear as a credit item in trade in services. B appears in the budget balance rather than the current account balance. C appears in another part of the balance of payments – the financial sector. D is internal trade. It is any profit that may be made by the Chinese firm and that is sent to China which would appear in the current account.

4 D Profits sent out of the country would appear as a debit item in primary income of Botswana's current account. If these increase, Botswana's current account surplus would get smaller. A, B and C would all increase a current account deficit. A and B would reduce Botswana's imports while C would increase its exports.

5 D The credit items total to \$117m while the debit items shown come to \$107m. These would give a balance of \$10m. To give a current account balance of − \$30m, imports of services must be \$30m, so that − \$30m + \$10m = − \$20m. A is the difference between the credit and debit items excluding imports of services. B is the trade in goods balance and C is the trade in goods and services balance.

6 D A debit item is money leaving the country. Money transferred back to the US by US citizens working in Mauritius is workers' remittances and will appear as a debit item in secondary income. A and B will be in primary income, a credit item and a debit item. C would not appear in the current account as it involves a flow of money within a country and not between countries.

7 C The payment of interest on foreign loans appears in primary income. It is a debit item and, on its own, an increase in the payment would worsen the current account position. Workers' remittances appear in secondary income and a higher value will mean more money coming into the country.

8 B Country X has a surplus on the current account of the balance of payments as its GDP exceeds its domestic expenditure (C + I + G) by \$380m. Country W and Country Y have current account deficits − \$1,352m and \$1,460m. Country Z's current account is in balance.

9 B A larger current account deficit will reduce aggregate demand in an economy. With low demand, output is likely to fall or grow more slowly. As a result, unemployment is likely to rise.

10 A An expanding aircraft industry may also result in more exports being sold. B would suggest that the country's products are becoming less internationally competitive, either because of a rise in relative prices or a decline in relative quality. C would be making the country's products less price competitive and D would be likely to make the country's products less quality competitive.

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Coursebook answers

Chapter 28

Economics in context

Learners' discussion might include:

- When going on holiday to Morocco.
- It changes export prices and demand for exports and so export revenue. It also affects the current account of the balance of payments by changing import prices and the demand for imports and so import expenditure.
- It would be expected that the exchange rate would rise as an increase in demand causes a rise in price.

Activities

Activity 28.1

1 Imports are likely to have risen in price as the Australian dollar depreciated against the US dollar over this time period.

2 $\$2.\frac{1}{0.50}$.

3 It rose in value, that is the yen appreciated. Fewer Japanese Yen would have been needed to purchase a given value of Australian dollars.

4 It was not very stable. The value against the Japanese Yen varied by approximately 20%, against the UK£ by 30% and against the US$ by 46%.

5 2015.

6 If a currency depreciates against another currency, that other currency has appreciated.

7 The US$ was worth A$1.43 in 2019.

8 In answering Q4, it would be useful to have information about changes in the value of the A$ against other currencies, particularly the currencies of the main countries it trades with, for instance, New Zealand and China.

Activity 28.2

Learners' answers might include:

1 A fall in a country's current account surplus suggests that the demand for its imports (in value terms) has increased or that demand for its exports (also in value terms) has fallen, therefore more of the domestic currency is being supplied, shifting the supply curve to the right (and/or less being demanded, thereby shifting the demand curve to the left), which will push down the exchange rate.

2 A rise in the exchange value of krona means that the currency is appreciating. Swedish tourists planning to holiday abroad will get more foreign currency for each unit of currency exchanged whereas foreign citizens will get less krona for each unit of their currency exchanged. Exporters may suffer as exports become relatively more expensive and so if demand falls by a greater percentage, export revenue will decline.

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3 Following on from the above, an appreciation of a currency could lead to current account deficits and higher unemployment, as demand for the country's goods and services falls in overseas markets, and domestic products potentially being replaced by imported ones. However, it could lead to lower import costs, for example, fuel and raw materials, and thus reduce firms' costs of production, leading to lower inflation. The answer depends on how reliant the country is on exports, the change in the value of the currency and the price elasticity of demand for imports and exports.

Activity 28.3

Learners' own answers.

Think like an economist

Learners' own answers.

Exam-style questions: Multiple choice

1 C The Chinese firm will sell renminbi to purchase Chilean peso. As a result, there will be an increase in the supply of renminbi on the foreign exchange market and an increase in demand for the Chilean peso.

2 A The product would have originally sold in the domestic economy for 400 rupees (20 x 10). After the depreciation the product would sell in the USA for \$16 ($\frac{400}{15}$).

3 A A depreciation in the Norwegian krona will mean that fewer US dollars will have to be given to buy a given quantity of krona. For example, before the depreciation 150 krona would have cost \$15. After the depreciation, 150 krona could be purchased for \$10.

A fall in the exchange rate will increase import prices which may increase raw material costs and lead to cost-push inflation.

The fall in export prices may also increase demand for exports and increase export revenue. The higher aggregate demand may cause demand-pull inflation if the economy is close to full capacity.

It is not possible to conclude, without more information, whether the US dollar is undervalued. US imports from Norway (and so Norwegian exports to the US) will fall rather than rise in price.

4 D If Egypt experiences a higher inflation rate than the USA, Egyptians are likely to buy more US goods and services. They will sell Egyptian £s to get US\$s to spend on US products. The higher inflation is also likely to reduce US demand for Egyptian products. As a result, demand for Egyptian products will fall. The increase in Egyptians visiting the USA is also likely to increase demand for US\$s and so the supply of Egyptian £s on the foreign exchange market.

5 B A decrease in US interest rates may encourage more US citizens to place more money in foreign financial institutions including possibly Japanese financial institutions. They will sell US dollars to buy foreign currency, increasing the supply of the \$. With lower domestic interest rates, some Japanese may place less money in US financial institutions and so will buy fewer \$s. B and C would be likely to increase Japanese demand for US products and so demand for \$s would increase. D would probably increase Japanese demand for US products (increasing demand for the \$) and reduce US demand for Chinese products (decreasing the supply of the \$).

6 A The changes in the trade in goods and the trade in services combined with less money flowing out in terms of primary income would increase demand for and reduce supply of the currency, leading to an appreciation.

7 C If demand for imports is price inelastic, a fall in price would result in a fall in import expenditure. This would decrease the trade in goods and services deficit. A would increase the deficit and C and D would reduce a current account deficit but not the trade in goods and services section.

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8 D Country X would have to pay more for Country's Y currency if demand for Country Y's currency rises and/or supply of the currency falls. D would result in the workers selling Country X's currency to buy Y's currency. A and B would reduce demand for Country Y's currency and C would increase the supply of Country Y's currency.

9 B An appreciation in the country's currency will raise export prices in terms of foreign currency and lower import prices in terms of the home currency. Lower import prices may reduce costs of production and put pressure on domestic firms to restrict price rises. The change in export and import prices is likely to increase a current account deficit. The lower aggregate demand resulting from a reduction in net exports is likely to increase unemployment and worsen a recession.

10 B A fall in the value of the Canadian dollar will increase the price of its imports in terms of Canadian dollars and reduce the price of its exports in terms of foreign currency. Canada's price level is likely to rise as imports will become more expensive and there is likely to be an increase in aggregate demand. The higher AD may reduce cyclical unemployment. A reduction in the value of the Canadian dollar is likely to reduce a deficit on the current account of the balance of payments as export revenue would be expected to increase and import expenditure would be expected to fall.

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Coursebook answers

Chapter 29

Economics in context

Learners' discussion might include:

- demand for the currency would exceed the supply of the currency.
- higher productivity due to, for example, more investment and improvements in education.
- less reliance on the performance of other economies and enabling households to enjoy more goods and services.

Activities

Activity 29.1

Learners' answers might include:

1. Rising inflation in Zimbabwe would make its exports relatively more expensive and imports relatively cheaper leading to a rise in demand for imports, a fall in demand for exports and a deterioration in the country's current account.
2. A decrease in the money supply would be likely to reduce spending. This may reduce a current account deficit as demand for imports may fall and more effort may be put into exporting.
3. Spending more on education may make Zimbabwean workers more skilful and more productive, improving the country's international competitiveness and reducing imports. However, there is no guarantee that increased spending on education will raise the quality of education. Privatisation may increase competition and put more pressure on domestic firms to become more efficient and so may increase the country's international price competitiveness. However, there is a risk that a state-owned firm may be replaced by just one private-sector firm which may lack domestic competitive pressure to be efficient.

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Think like an economist

Learners' answers might include:

Policy tool	Objective	Policy tool	Objective
Cut in corporate tax	Increase economic growth	Imposition of import tariffs	Reduce current account deficit
Cut in general sales tax	Reduce unemployment	Increase in the money supply	Reduce unemployment
Cut in government spending on public sector pay	Reduce current account deficit	Limit on bank lending	Reduce inflation
Cut in income tax	Reduce current account deficit	Privatisation	Increase economic growth
Deregulation	Reduce inflation	Rise in government spending on education	Increase economic growth
Fall in the exchange rate	Reduce unemployment	Rise in government spending on infrastructure	Reduce current account deficit
Government subsidies to declining industries	Reduce unemployment	Rise in the interest rate	Reduce inflation
Imposition of export tariffs	Reduce inflation	Rise in the school leaving age	Increase economic growth

Activity 29.2

Learners' own answers.

Activity 29.3

Learners' own answers.

Exam-style questions: Multiple choice

1 B If productivity rises, the price and quality competitiveness of domestic products could increase. This will increase export revenue and reduce import expenditure. A could result in a rise in spending on imports and could reduce export revenue as more products could be diverted to the export market. C would be expected to make domestic products less price competitive and so decrease exports and increase imports. D would be likely to increase imports, at least in the short run.

2 C An increase in income tax will reduce disposable income. This is likely to reduce consumer expenditure. This lower spending is likely to reduce both imports and demand-pull inflation. B and D would be likely to reduce a current account deficit but would likely to increase inflation. A depreciation would make domestic products more price competitive which should help reduce a current account deficit. However, as it would make imports more expensive and would raise aggregate demand, it is likely to result in inflation. Tariffs on imports may increase costs of production and reduce pressure on domestic firms to keep prices low. A would be likely to increase a current account deficit as exports are likely to fall.

3 B Exchange control could limit spending on imports which would increase a current account surplus. A, C and D would all tend to reduce a current account surplus. A would be likely to reduce spending in importing countries which could reduce the value of imports they buy. C would permit more imports to come into the country and D would reduce the price of imports.

4 C Increasing a budget surplus would involve reducing government spending and raising tax revenue. These changes would reduce aggregate demand. This would lower demand-pull inflation. Lower spending is also likely to reduce imports and may cause some firms to switch their focus from the home to the export market. A would be likely to reduce a current account deficit but increase demand-pull inflation. B may reduce demand-pull inflation in the short run but increase it in the long run as well as increasing a current account deficit as lower investment may reduce innovation

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and the quality of domestic products. In the case of D, an increase in the money supply is likely to increase both demand-pull inflation and a current account deficit.

5 D If the economy has spare capacity, higher aggregate demand is likely to have more of an impact on real GDP and employment than on the price level. As a result, the risk of inflation would be low. Whichever part of the current account balance has caused the surplus, AD would increase, and more money would flow into the economy. A growing budget deficit would tend to be inflationary.

6 D Supply-side policy may increase the international price and quality competitiveness of the country's firms in the long run. A and B are more likely to have more of a short-term impact on the current balance. Whether protectionist policy will lead to a long-term improvement will depend on which industries are protected, how they respond and whether other countries retaliate.

7 C An increase in government spending on training could raise labour skills and productivity. This could reduce unemployment as the returns from employing workers would increase. More spending on training could also reduce a current account deficit as the costs of production could fall and the quality of output could rise, increasing international competitiveness.

8 B An increase in investment may have involved spending on imported capital goods. It will also increase aggregate demand and more workers may be employed to work with the capital goods. A would reduce AD which would be expected to increase the number of workers unemployed. C is likely to result in a rise in frictional and structural unemployment. D would probably increase both the number of workers employed and the number of workers unemployed.

9 C An increase in the money supply is likely to increase a current account deficit as it will raise consumer expenditure and may cause inflation. A and D may reduce a current account deficit by reducing spending on imports. B may reduce a current account deficit by increasing exports.

10 C Supply-side policy seeks to raise aggregate supply by raising the quantity and quality of resources. Higher aggregate supply can reduce costs of production, raising price competitiveness, and can improve the products produced, raising quality competitiveness. Supply-side policy does not seek to reduce domestic demand.

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Coursebook answers

Chapter 30

Economics in context

Learners' discussion might include:

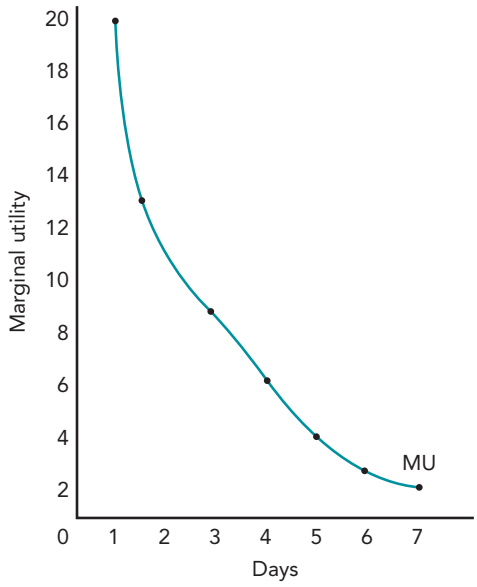
- Publicity from the US appears to have led to an increasing number of retailers joining in the event.
- Consumers: money-saving offers are an opportunity to buy things that they have been saving for; they could be tempted into buying things they do not need or cannot afford. Retailers; can get rid of unsold stock, especially seasonal stock; clears space in stores for Christmas items; opportunity to generate a cash flow. Manufacturers: sell off old stock of last year's models, especially electronic goods; promote products which might be bought later by consumers.
- In France, the prospects of civil disturbance would seem to be important. Consumers may feel that they are losing out on the chance of a bargain. Longer term the ban may lead to a more even sale of goods – this is likely to be beneficial for manufacturers and retailers.

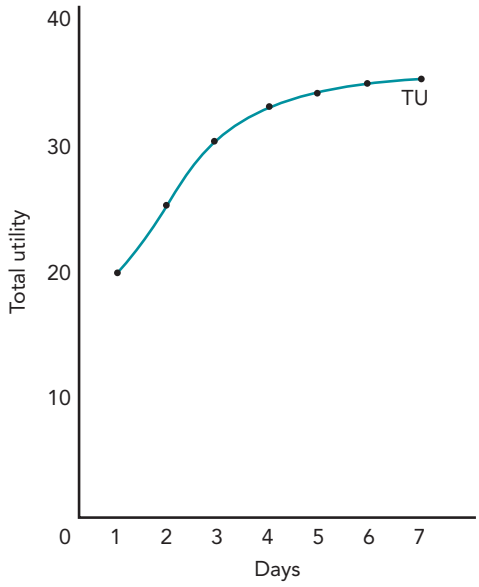
Activities

Activity 30.1

1 Marginal utility 7, 4, 3, 2, 1, 1

2





3 Possible suggested answer: Revision that takes place closest to the examination is likely to be most productive.

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Activity 30.2

Learners' answers might include:

1 New electronic device $300 MU = 150
Printer cartridge $50 MU = 100
Take-away pizza $10 MU = 25
$\frac{MU}{P}$: 0.5, 2, 2,5

2 The result in this case is the opposite to that if the three items were put in rank order of their marginal utility.

3 Preferences seem to be rational in terms of when the products are needed.

Activity 30.3

1 When the price of y decreases to $1, $\frac{MU}{P}$ becomes 42, 32, 24, 18, 14, ***12***. This confirms that the new equilibrium is 4x and 6y.

2 44.

3 Learners' answers might include: Additional data would be required especially for the quantity demanded when the price is above $2.

Think like an economist

Learners' discussion might include:

1 An increase in the sales of tinned food will increase employment in this branch of the food processing industry, both in the UK and elsewhere. Going back down the supply chain, employment should increase among certain types of food producer and manufacturers of tin containers. There could be a negative impact on other food producers, both in the UK and elsewhere in countries that supply the UK with fresh food. The net effect is difficult to determine. Much will depend on whether the increase in sales of tinned food is sustained.

Exam-style questions: Multiple choice

1 **D** Marginal utility falls as the consumption of a good increases. When marginal utility becomes zero, the consumer will not derive any more satisfaction by increasing consumption of that good. Total utility is therefore maximised at this point.

2 **B** A rational consumer will consume to the point where $\frac{MU}{P}$ is the same for all goods purchased. For clothing, $\frac{MU}{P} = 2$. So, for food, $\frac{2}{P} = 2$, meaning that P = $1.

3 **D** The question refers to the equimarginal principle. D is the correct definition.

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Coursebook answers

Unit 2

Exam-style questions: Data response

1 a Learners' answers might include:

- price is determined where the supply and demand in the world market are equal.

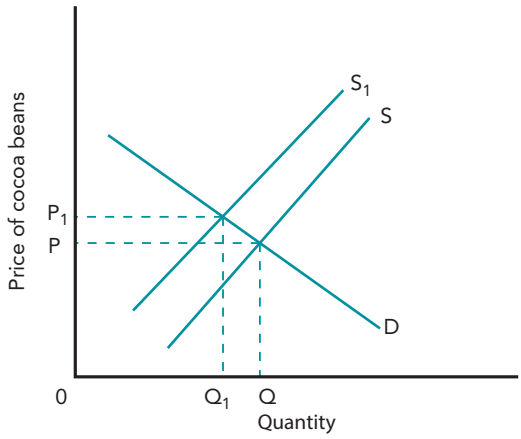
b Learners' answers might include (any three):

- over the whole period January 2016 – July 2019, the world price of cocoa beans has fallen.
- prices peaked at just over $3000 per ton in early 2016 to a low of below $2000 in early 2018.
- there was a shorter spike in mid-2018.
- price of cocoa beans is volatile.

c Learners' answers might include:

- price inelastic
- either Harmattan winds and/or disease can mean that supply is uncertain and not able to respond to a price change.

d Learners answers' might include:



Knowledge and understanding

- supply and demand diagram with correctly labelled axes
- inelastic supply curve.

Analysis points

- shift to left of inelastic supply curve
- leads to increase in price of cocoa and less quantity traded.

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e Learners' answers might include:

Knowledge and understanding

- fall in demand could be due to a fall in incomes
- there could be new concerns about the link between chocolate consumption and obesity
- a good harvest in the main producing countries will increase supply of cocoa
- a release of stocks can also increase supply.

f Learners' answers might include:

Analysis points

- the fall in demand will lead to a fall in the price of cocoa beans
- the increase in supply will also lead to a fall in the price of cocoa beans.

Evaluation points

- the fall in price will depend on the relative strength of the fall in demand and the increase in supply
- in the short run, supplies of cocoa beans could be restored
- the change in demand for chocolate is a more long-term justification for choice.

Exam-style questions: Essay

2 a Learners' answers might include:

Knowledge and understanding

- definition of consumer surplus – difference between the price a consumer is willing to pay for a good and its market price
- diagram showing consumer surplus as area under the demand curve above the market price.

Analysis points

- the increase in price leads to a fall in the quantity demanded
- the change will depend on the slope of the demand curve
- consumer surplus is reduced.

Evaluation points

- whether this occurs will depend on how flexible prices are in the market
- it also depends on the time gap between purchasing the good and when it is consumed.

b Learners' answers might include:

Knowledge and understanding:

- change in consumer surplus depends on whether price has decreased or increased
- change in consumer surplus depends on the extent of the price change in relation to the original price
- change in consumer surplus depends on the price elasticity of demand for the good or service.

Analysis points

- how consumer surplus changes where there is a large or small proportionate change in price
- change in consumer surplus differs depending on whether the good or service is price elastic or price inelastic
- application to different types of goods and services
- why there may be no change in consumer surplus for certain types of goods or services.

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Evaluation points

- assessment of the relative importance of the extent of the price change and the price elasticity of demand
- relevance of time in the purchasing decision.

3 a Learners' answers might include

Knowledge and understanding

- understanding of income elasticity of demand
- definition of an inferior good – the quantity demanded increases as income decreases
- definition of a necessity – a type of normal good with an income elasticity of demand close to zero
- examples of inferior and necessity goods.

Analysis points

- how the consumption of an inferior good changes with a change in income
- how consumption of a necessity good changes with a change in income
- difference between the two types of good in terns of YED – negative and positive.

Evaluation points

- an inferior good for one person could be a necessity for someone else
- much will depend on the level of income and the proportion of income that is spent on a good.

b Learners' answers might include:

Knowledge and understanding

- YED is of value in forecasting future demand
- PED is of value when a business is considering a price change.

Analysis points

- change in demand for normal goods, superior goods and inferior goods due to a change in income
- application to garment industry, depending on the types of garment being manufactured
- change in revenue due to a price change for price elastic and price inelastic goods
- application to garment manufacturing.

Evaluation points

- depends on what type of garments are being produced in terms of YED and PED
- data are estimates
- decisions should be made using a range of data, not just elasticity data
- timescale is important.

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Coursebook answers

Unit 3

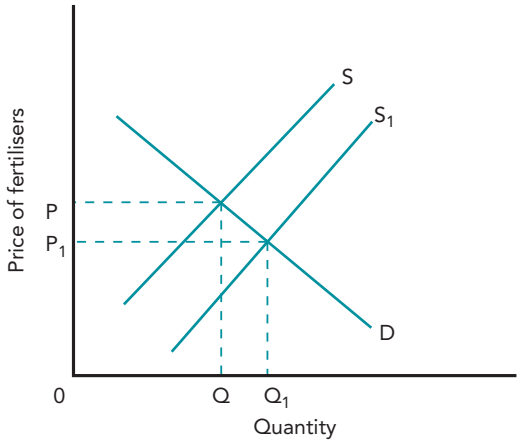
Exam-style questions: Data response

1 a Ethiopia. This country has the smallest ratio of % employment in agriculture to % GDP.

b Learners' answers might include:

Knowledge and understanding

- diagram showing market for fertilisers, correctly labelled
- increased subsidies shift the supply curve to the right.



Analysis points

- reduction in price of fertilisers to farmers
- increase in quantity of fertilisers traded.

c Learners' answers might include (any two):

Knowledge and understanding

- opportunity cost is the cost in terms of the next best alternative that is foregone when a choice is being made
- the increased subsidy on fertilisers for small farm holders will reduce the subsidies available to other farmers if there is no increase in the total funds available
- less government spending is available for other parts of the economy.

d Learners' answers might include:

Analysis points

- increased subsidies for fertilisers should increase crop yields
- the increased yield should increase farm incomes and so reduce poverty.

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e Learners' answers might include (any two):

Knowledge and understanding

- a minimum price for a staple crop, such as maize
- cheap finance to purchase better quality seeds and farm machinery
- improvement to water supplies and irrigation
- better advice on how to improve crop yields
- increased transfer payments.

Analysis points

- minimum price will increase supply
- quality seeds and use of machinery should increase productivity
- crop yields will increase with better water supplies
- crop yields should increase as farmers get more advice
- government handouts will increase income of small farm holders.

f Learners' own answers might include:

Knowledge and understanding

- benefits of reduced costs to farmers and reduced prices to consumers
- improves distribution of income
- reduces dependence on imports
- safeguards food supplies.

Analysis points

- reduction of poverty among poor farmers in middle-income countries
- cheaper food for consumers in middle-income countries
- benefits of guaranteed income to farmers in other countries
- cheaper food and guaranteed supplies for consumers in other countries.

Evaluation points

- comparison of relative benefits to farmers
- comparison of relative benefits to consumers
- assessment of which is likely to be greatest
- assessment as to which groups in which countries have biggest benefit.

Exam-style questions: Essay

2 a Learners' answers might include:

Knowledge and understanding

- definition of a merit good – one that is desirable but underprovided in the market due to information failure
- understanding of information failure
- examples of merit goods such as healthcare and certain types of education.

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Analysis points

- information failure can lead to under-consumption
- this is a form of market failure as it does not represent the best allocation of resources
- governments provide merit goods because of information failure
- merit goods are often provided free of charge or heavily subsidised.

Evaluation points

- individuals may reject the merit goods that are offered
- some individuals believe that they and not the government know what is best for them
- a lack of funds may still lead to under-consumption.

b Learners answers' might include:

Knowledge and understanding

- reasons for providing merit goods – information failure, under consumption, community benefits, equity
- reasons for providing public goods – essential services, free market would not provide, problems of collecting payment, free riders.

Analysis points

- wider community and economic benefits of governments providing merit goods and public goods
- government funds both from its revenue budget
- opportunity cost considerations
- decisions to provide are taken by government subject to certain criteria
- private sector can provide merit goods but not public goods.

Evaluation points

- some common reasons but other reasons are more specific
- public goods are essential, merit goods less so
- difficult to forecast demand, especially for public goods as no prices are available
- need to have some method for evaluating priorities.

3 a Learners' answers might include:

Knowledge and understanding

- definition of a direct tax; definition of an indirect tax
- meaning of progressive and meaning of regressive taxes
- example of a progressive direct tax and an example of a regressive indirect tax

Analysis points

- explanation of how a progressive income tax works
- explanation of how an indirect tax is regressive

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b Learners' answers might include:

Knowledge and understanding

- meaning of income inequality
- description of a range of fiscal and other policies available to redistribute income.

Analysis points

- effects of a progressive income tax on redistribution of income
- minimum wage – impact on wage rates, employment and the distribution of income
- use of transfer payments and direct state provision to reduce income inequality.

Evaluation points

- limited scope for using progressive income tax in middle-income countries
- need for state to provide some essential services to protect low-income earners
- policies to reduce income inequality take time and tend to have had only a modest impact
- judgment on which policy might be most effective in a middle-income country.

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Coursebook answers

Unit 4

Exam-style questions: Data response

1 a Learners' answers might include:
- GNI includes net property income from abroad whereas GDP does not.
- both measures include total investment/both measures include both net investment and depreciation.

b i Learners' answers might include:
- generally a direct relationship – more years of schooling associated with higher GNI per head.
- five out of six countries support this relationship (Ukraine is an exception).

ii Learners' answers might include:
- more spending on education would be expected to lead to be more skilled workers.
- skilled workers tend to be relatively highly paid.
- higher income will increase the ability of a country to spend on education.
- more education may increase tax revenue to spend on education.
- more education may increase the ability of households to spend on education.

c Learners' answers might include:
- a decrease in exports may reduce a country's price level.
- a diagram showing how a decrease in AD could lower a country's price level.

d Learners' answers might include:

Knowledge and understanding
- skilled workers are usually highly educated.
- skilled workers are usually highly trained.
- skilled workers may have considerable experience.

Analysis points
- how skilled workers may spend less time in between jobs, .e.g. they may be better informed about job vacancies.
- why the introduction of new technology may be more likely to reduce unskilled jobs than skilled jobs.
- why industries that employ skilled workers are less likely to be driven out of business.
- why skilled workers are likely to be more occupationally and geographically mobile.

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Evaluation points

- skilled workers are more likely than unskilled workers to experience shorter periods of frictional and structural unemployment.
- unskilled workers are particularly likely to experience structural unemployment.
- the extent of the difference in the duration of the unemployment will depend on the relative demand for and supply of skilled and unskilled labour.

e Learners' answers might include:

Knowledge and understanding

- a definition of inflation.
- a low rate of inflation suggests some stability.

Analysis points

- Japan may experience a rise in inflation. The Japanese have a high income and a low unemployment rate. If this continues, Japanese confidence may be high and consumer expenditure may rise.
- any falls in AD caused by the typhoon will not last. Consumers are also likely to adjust to the higher sales tax.

But

- inflation may stay low. The country's population is falling which may put downward pressure on consumer expenditure.
- the increased competition from firms creates a risk of a decline in the growth of exports in the future or may even cause a further decrease in exports. To avoid such a decline, Japanese firms are likely to try to keep down price rises.
- high investment could avoid the risk of cost-push inflation.

Evaluation points

- whether Japan will continue to experience low inflation will be influenced by the relative changes in aggregate demand and aggregate supply.
- possibly the main reason why Japanese inflation may stay low is because households' and firms' experience over a period of years of low inflation will cause them to expect inflation to stay low and so act in ways which keep price rises low.

Exam-style questions: Essay

2 a Learners' answers might include:

Knowledge and understanding

- definition of aggregate demand.
- components of aggregate demand.

Analysis points

- how changes in disposable income can influence the components of aggregate demand (AD).
- how changes in the interest rate can affect the components of aggregate demand.
- how expectations about future economic prospects can influence AD.
- how AD can be affected by other influences including changes in population size and structure, wealth and advances in technology.

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Evaluation points

- there can be unusual events occurring in a particular year. For example, the approach of a general election could result in a rise in government spending.
- reasons why the component that tends to change the most from year to year is investment.

b Learners' answers might include:

Knowledge and understanding

- definition of consumer expenditure.
- a country's output consists of the goods and services it produces.
- an increase in consumer expenditure will increase AD, if the other components of AD do not fall to offset it.
- a higher AD will encourage firms to produce more output.

Analysis points

- how if there is considerable spare capacity in the economy, higher AD, resulting from an increase in consumer expenditure, could cause a rise in output without any rise in the price level.
- a diagram showing how an increase in AD could affect real GDP and the price level.
- how higher consumer expenditure will cause a rise in output and the price level if the economy is approaching full employment.
- how a higher AD will have more impact on the price level than on output when the economy is closer to full capacity.
- why, when the economy is operating at full capacity, higher consumer expenditure will have no effect on output and will just increase the price level.
- how, in the longer term, higher consumer expenditure may encourage more investment from the country's firms and foreign multinational companies and so increase both AD and AS.
- a diagram showing how an increase in both AD and AS could increase real GDP without changing the price level.

Evaluation points

- whether consumer expenditure will cause an increase in output will depend on the economy's level of capacity.
- some consumer expenditure may go on imports. This will increase other countries' output.
- in practice, economies often operate with some spare capacity.
- economies' ability to produce goods and services tends to increase each year because of rises in productivity and advances in technology. This means that, over time, higher consumer expenditure tends to be matched by higher output.

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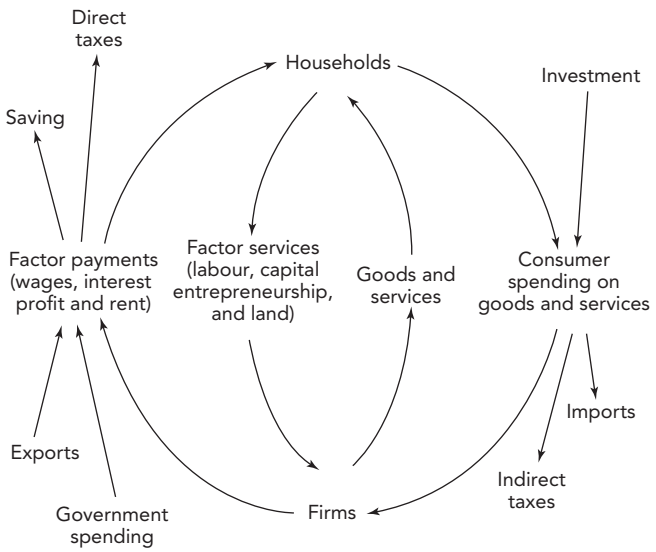
3 a Learners' answers might include:

Knowledge and understanding

- definition of the circular flow of income.
- definition of injections and leakages.

Analysis points

- all countries have a similar circular flow of income in terms of the economic agents involved, the flows within the economy and the injections and leakages. The circular flow diagram will contain the same features for each country as shown in the diagram.



- countries that have a large GDP, for example China, have more output, income and expenditure flowing round the economy.

Evaluation points

- injections and leakages will differ between countries in terms of both their absolute values and their percentages of GDP.
- the government sector plays a greater role in some countries than in others.
- the international economy plays a greater role in more open economies.
- saving and investment can fluctuate more in some countries than others.
- while countries have the same components in their circular flow, the values of those components differ and their injections and leakages differ.

b Learners' answers might include:

Knowledge and understanding

- definition of unemployment.
- what a 3% unemployment rate would mean.
- how macroeconomic performance is assessed.

Analysis points

- the closeness to full employment.
- the extent to which an efficient allocation of resources is being achieved.
- the impact of low unemployment on output and living standards.
- the effect of low unemployment on tax revenue and government expenditure.
- why a low unemployment rate may be associated with a high inflation rate.

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Evaluation points

- to conclude that a country with a 3% unemployment rate has a better economic performance than one with an 8% rate is based on the assumption that the two rates have been measured by the same method.
- the first country could have a much larger labour force. While its unemployment rate may be lower, the number of people unemployed may be higher.
- the duration of the unemployment may differ in the two countries.
- the figures do not provide information about the quality of jobs in the country or the extent of underemployment.
- a country may have a low unemployment rate but also a low employment rate. Its labour force participation may be low which will restrict its actual and potential output.
- there can be disadvantages of low unemployment including a lack of flexibility, inflationary pressure and high spending on imports.

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Coursebook answers

Unit 5

Exam-style questions: Data response

1 a Learners' answers may include (any two):
- improved living standards.
- lower unemployment.
- improved healthcare.

b i Learners' answers might include:
- the inflation rate was higher than the interest rate over the period.
- the interest rate rose in 2018 while the inflation rose over most of the period (exception 2016).
- the interest rate would have been raised to reduce inflation.

ii Learners' answers might include:
- the Ethiopian government was largely unsuccessful in achieving its macroeconomic aims.
- the country's economic growth was below the aim of 11% throughout the period.
- the inflation rate was above the aim of 8% in four of the six years.

c Learners' answers might include:
- a rising labour force increases a country's productive capacity. If the rise in the labour force results in an increase in employment, more goods and services will be produced.
- improved healthcare will increase the fitness of workers. This will raise labour productivity which will enable more goods and services to be produced.
- improved infrastructure is also likely to raise productivity and lower costs of production, making the countries' products more internationally competitive and so in higher demand.

d Learners' answers might include:

Knowledge and understanding
- what a government's budget position shows.
- definition of a budget deficit.
- what a country's unemployment rate measures.

Analysis points
- Ethiopia had a growing budget deficit. This may have been caused by a rise in government spending and/or a fall in tax revenue.
- the effect of higher government spending on AD and cyclical unemployment.
- if the government has spent more on providing information on job vacancies, frictional unemployment could have fallen.
- the effect of higher government spending on education, training and infrastructure on workers' skills and mobility, and so on structural unemployment.

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Evaluation points

- a budget deficit may occur because the government adopted expansionary fiscal policy which could reduce cyclical unemployment. It could also be because it spent more to increase aggregate supply. Supply-side policy could reduce frictional and structural unemployment.
- a budget deficit might be the result of an increase in unemployment rather than the result of a government seeking to reduce unemployment.

e Learners' answers might include:

Knowledge and understanding

- definition of infrastructure.
- examples of infrastructure.

Analysis points

- why in the short run, an increase in Ethiopian government spending on infrastructure may cause demand-pull inflation.
- why in the long run, the increase in infrastructure may reduce cost-push inflation.
- a diagram showing the effects of an increase in AD and AS on real GDP and the price level.

Evaluation points

- the effect of an increase in government spending on infrastructure on the economy's price level will be influenced by the level of economic activity. If the economy is operating with a high level of unemployment, an increase in AD will be unlikely to cause inflation.
- in the long run, if the quality of the infrastructure is good, the extra spending could reduce rather than increase inflationary pressure.

Exam-style questions: Essay

2 a Learners' answers might include:

Knowledge and understanding

- definition of a budget surplus.
- tax revenue comes from both direct taxes and indirect taxes.

Analysis points

- reasons why a government may experience a budget surplus during a high level of economic activity.
- reasons why the government may decide to spend less and increase taxation.

Evaluation points

- a government may aim for a structural budget surplus but in practice, a budget surplus is most likely to be a cyclical surplus.
- a budget surplus will reduce aggregate demand. This can be useful when the economy is working at full capacity as it can prevent demand-pull inflation.
- a budget surplus can be harmful when there is a low level of economic activity. This is because the resulting lower AD may increase cyclical unemployment and slow down economic growth.

b Learners' answers might include:

Knowledge and understanding

- definition of demand-pull inflation.
- what fiscal policy designed to reduce demand-pull inflation would involve.

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Analysis points

- a cut in government spending may directly reduce the growth of aggregate demand, offsetting in part the growth of private sector demand.
- higher income tax rates may also reduce the growth of aggregate demand.
- a diagram showing how a smaller increase in AD, resulting from a contractionary fiscal policy, may result in a smaller rise in the price level.
- why a government is less likely to raise corporate tax.

Evaluation points

- reasons why it is not always easy or beneficial to cut government spending.
- time lags involved in fiscal policy and their effects.
- effect of economic agents not reacting to changes in fiscal policy in the way the government expects.
- in theory, contractionary fiscal policy should reduce demand-pull inflation. In practice, however, there can be difficulties reducing government spending and adverse side effects of both cutting government spending and raising taxes. In addition, there may be time delays in fiscal policy measures taking effect and, during this period, economic circumstances may have changed. It is also difficult to predict how households and foreigners will react to changes in fiscal policy.

3 a Learners' answers might include:

Knowledge and understanding points

- definition of an economy's productive capacity.
- what an increase in real GDP means.

Analysis points

- an increase in productive capacity means that the economy's long-run aggregate supply (LRAS) curve has shifted to the right.
- a diagram showing how an increase in LRAS causes an increase in productive capacity.
- an increase in productive capacity is the result of a rise in the quantity or quality of resources.
- what can cause an increase in the quantity and quality of resources.

Evaluation points

- an increase in productive capacity often results in a rise in a country's real GDP but it is possible that a rise in productive capacity may not result in an increase in a country's real GDP if initially there is spare capacity and no increase in AD.
- a diagram showing how an increase in LRAS may result in no change in real GDP.
- in practice, AD tends to increase over time and this usually ensures that at least some of the increase in productive capacity is used and real GDP increases.
- a diagram showing how an increase in both AD and AS will increase real GDP.
- if firms are experiencing increases in demand for their products, they are likely to employ more workers and make use of workers' improved skills and extra capital equipment.
- both AD and LRAS may increase because some of the causes of higher productive capacity can also contribute to higher AD.

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3 b Knowledge and understanding points

- aims of government spending on training schemes.
- how a country's economic performance can be assessed.
- indicators of an improvement in a country's economic performance.

Analysis points

- more government spending on training schemes may increase workers' skills and their productivity.
- the effects of a more productive labour force may increase the country's output of goods and services, inflation, structural unemployment and the balance of payments.
- the effects of an increase in government spending on AD and cyclical unemployment.

Evaluation points

- increased government spending on training may result in a fall in government spending on other areas such as healthcare which may reduce macroeconomic performance.
- increased government spending on training may just replace private sector spending on training resulting in no overall improvement in productivity.
- more workers may emigrate if they become better trained. This could reduce AD, LRAS and real GDP.
- increased government spending on training may not be effective if it is poorly delivered or it is in skills which are no longer in demand.
- if increased government spending on training raises AD by more than LRAS, it could result in demand-pull inflation.

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Coursebook answers

Unit 6

Exam-style questions: Data response

1 a i Learners' answers might include:

- over most of the period, both the inflation rate and the current account deficit were relatively stable.
- the inflation rate was relatively low while the current account deficit was relatively high.
- at the end of the period, a fall in the inflation rate was accompanied by an increase in the current account deficit.

ii Learners' answers might include:

- it is not the expected relationship.
- a low and stable inflation rate would be expected to lead to the value of exports exceeding the value of imports and so to a current account surplus.

b Learners' answers might include:

- an increase in the economic growth rate of the USA is likely to reduce the deficit on the current account of the balance of payments.
- US firms and households are likely to buy more goods and services from Cambodia.

c Learners' answers might include:

- if people expected the value of the Khmer riel to fall, they would have demanded less of the currency. They would also have supplied more of the currency. They would have sold Khmer riel to purchase other currencies.
- a diagram showing how a decrease in demand and an increase in the supply of the Khmer riel would have caused a fall in its price.

d Learners' answers could include:

Knowledge and understanding

- definitions of import tariffs.
- benefits to consumers of the removal of import tariffs.

Analysis points

- Cambodia's consumers may have a greater range of products to choose from as more imports may come into the country.
- removing the tariffs would reduce the price of imports and may reduce the price of domestically produced goods. Lower prices increase consumer surplus.
- the higher competition may increase the quality of the products produced.

Evaluation points

- it is possible that firms may not pass on the lower price of imports to consumers.
- if foreign firms were competitive with the tariffs, they may raise their prices.

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e Learners, answers might include:

Knowledge and understanding

- fiscal policy is designed to influence aggregate demand.
- definition of a current account deficit.
- fiscal policy can influence the demand for imports and the supply of exports.

Analysis points

- Cambodia used an expansionary fiscal policy in 2018 as the government increased its spending and its spending was greater than its tax revenue.
- an expansionary fiscal policy may increase a deficit on the current account of the balance of payments.
- the expanding domestic market may also mean that some products are switched from export to the domestic market.

Evaluation points

- how the current account balance will be affected is influenced by what the government spends the extra money on. In the case of Cambodia, the government spent more money on roads, electricity power stations, education and healthcare. Such spending is likely to have increased productivity and the international price and quality competitiveness of the country's products.
- any beneficial effects on the current account balance are likely to have taken some time. They will also have been influenced by whether the country had spare resources which could have increased domestic output and if domestic firms lowered their prices when their costs fell.

Exam-style questions: Essay

2 a Learners' answers may include:

Knowledge and understanding

- an import tariff will impose an extra cost on firms purchasing products from other countries.
- an import quota directly seeks to reduce the number or value of imports. It puts a limit on what can be imported.
- both an import tariff and an import quota are forms of trade protection.

Analysis points

- firms buying the imports are likely to raise the price they charge on the domestic market to cover at least some of the import tariff. This is likely to reduce demand for imports.
- an import tariff has the advantage that it can raise tax revenue. It can also be used to offset the price advantage foreign firms may be seeking to gain by dumping products on the domestic market.
- using a quota means that a government can, in theory, restrict imports to the specific amount it wants. Import quotas do not raise revenue unless they are enforced by licences that are sold.

Evaluation points

- both an import tariff and an import quota can lead to smuggling of goods to avoid paying the tariffs and to get round the limitation on imports. They can also both provoke retaliation.
- if demand for imports is price inelastic, demand for imports may not fall significantly.
- if a quota on the quantity of imports is imposed, any reduction in supply may drive up price and the country may end up spending more on imports.

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b Learners' answers might include:

Knowledge and understanding

- definition of protectionism.
- tools of protectionism.
- one of the aims of protectionism can be to reduce unemployment.

Analysis points

- how protection of an infant industry could create jobs.
- how a government may be able to stop unemployment increasing by protecting a declining industry.
- how protecting a domestic industry against dumping could prevent structural unemployment.

Evaluation points

- if protectionism does improve the balance of trade position, aggregate demand will increase. This would reduce cyclical unemployment. However, it may only be a short-term reduction if the country's industries do not respond to the opportunity given to them to improve their performance.
- protectionism may increase unemployment if there is retaliation.
- by preventing full advantage being taken of comparative advantage, world output and employment may be below the potential levels.
- in practice, it is difficult to identify which industries have the potential to grow and become efficient, how long an inefficient industry should be given to wind up and whether foreign industries are engaged in dumping.
- protectionism can reduce the competitive pressure on domestic firms to keep their costs low and to innovate. If relative prices do rise and relative quality falls, demand for the country's products is likely to fall, causing cyclical unemployment.

3 a Learners' answers might include:

Knowledge and understanding

- definition of international trade.
- what the theory of comparative advantage suggests.

Analysis points

- how international trade enables firms to specialise, buy and sell in larger markets and take advantage of economies of scale. There are a number of advantages a country may gain from engaging in international trade. Selling to a global market can allow the country's producers to specialise in those products in which the country has a comparative advantage. The products it no longer produces can be imported from countries that also specialise.
- how international trade can give consumers more choice, lower prices and better quality.
- comparative advantage explains a greater proportion of international trade than absolute advantage.

Evaluation points

- comparative advantage does not explain all of international trade. There are a number of reasons for this. One is that it can be difficult to determine comparative advantage. In the real world, there are many countries and a vast number of products.
- the relative quantity and quality of countries' resources are constantly changing.
- there is not always constant returns to scale.

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- greater mobility of factors of production, reductions in transport costs and the removal of trade restrictions would result in a higher proportion of international trade being based on comparative advantage.

b Learners' answers might include:

Knowledge and understanding

- definition of the current account of the balance of payments.
- a surplus may be the result of a surplus on one or a combination of the four balances.
- a surplus can affect a country's output, employment and inflation.

Analysis points

- a current account surplus contributes to aggregate demand.
- a diagram showing how an increase in AD can cause an increase in real GDP.
- an excess of exports over imports makes more use of economies' resources and can keep down cyclical unemployment and result in economic growth.
- if the economy is operating close to full capacity, a current account surplus could add to inflationary pressure.
- a diagram showing an increase in AD could cause a rise in the price level.
- if the surplus arises largely from an inflow of workers' remittances, this might indicate a weakness in the economy.
- a surplus may also arise from an economic recession at home.

Evaluation points

- how beneficial a current account surplus is will depend on its cause and the level of economic activity.
- a current account surplus involves an opportunity cost of more imports or more products sold on the home market.
- in the long run, governments tend to aim for a current account balance with the total value of credit items equalling the total value of debit.

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Coursebook answers

Chapter 31

Economics in context

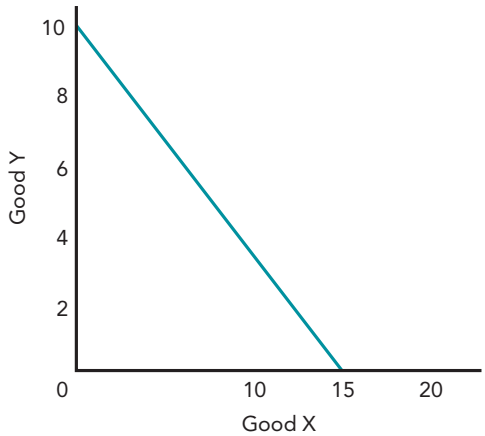
Learners' own discussion might include:

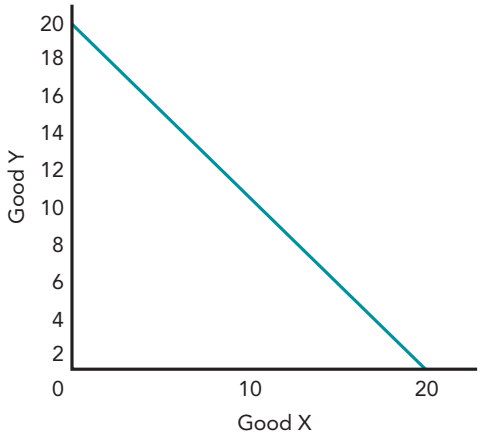
- Answers will depend on the choice of product. The appeal of a product from a multinational company will depend on the individual's taste and preferences. It may also depend on the availability of the product, its price and how long it has been available in the local market. Some products will have no appeal for certain groups for a wide range of reasons.
- Learners might try to establish if the product from the multinational company has been adapted for the local market. This product can then be compared with a similar product from a domestic supplier. The link with economics is in terms of modelling consumer behaviour. This draws upon individual preferences in relation to the price of a product and the income of consumers. This is the focus of this chapter.

Activities

Activity 31.1

1





a Price of X has increased by 25%

b Price of Y has decreased by 100%

2 a An increase in the price of normal goods, such as restaurant meals, reduces the real income of consumers. Fewer meals will be purchased (income effect). A consumer will now purchase cheaper meals instead of the more expensive ones from a restaurant (substitution effect).

b A decrease in price of an inferior good such as a meal from a street vendor will increase the real income of a consumer (income effect). The increase in real income allows the consumer to buy more normal goods such as restaurant meals (substitution effect).

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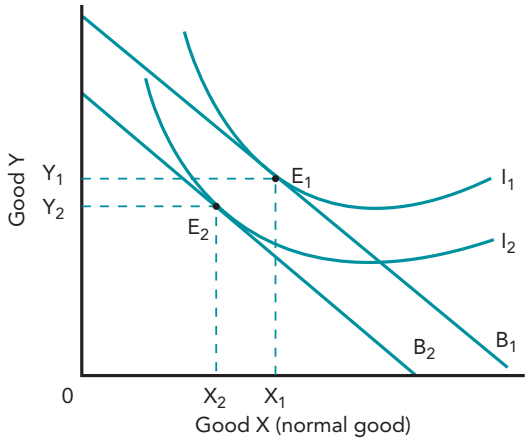
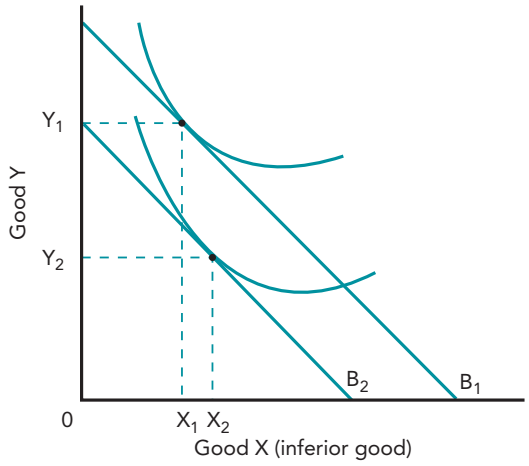
Activity 31.2

1 Less of both goods will be consumed.

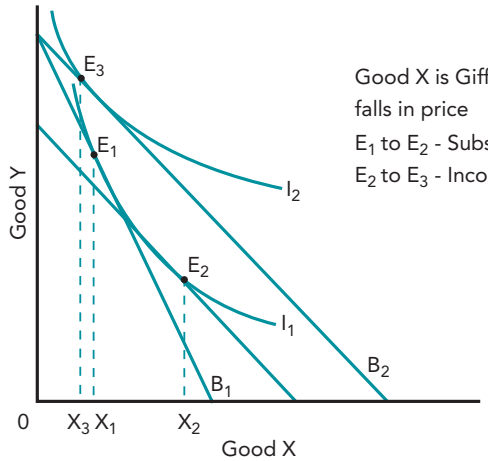


2 More of the inferior good X will be consumed but less of good Y.



Activity 31.3

1 The negative income effect is greater than the substitution effect.



Good X is Giffen good which falls in price

E_1 to E_2 - Subsititution effect

E_2 to E_3 - Income effect

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Think like an economist

Learners' discussion might include:

1 The likely economic effects are a reduction in the demand for meat and an increase in demand for plant-based food. Not all farmers will be able to adapt to these changes due to climate and other limitations.

   Food retailers are likely to find it easier to adapt to changing consumer needs and tastes. As stated in the information, this is happening and will continue as the number of vegetarians and vegans increases.

2 A positive global outcome is a reduction in greenhouse gas emissions from rearing livestock. It is also more efficient in resource terms to raise crops rather than livestock. With less meat consumed, there will be fewer animals and meat products to be transported. Increased plant production could have a negative effect on water supply in some countries.

Exam-style questions: Multiple choice

1 **C** The new budget line shows that more of good X and less of good Y can be bought with the same level of income. This means that the price of good Y has increased. Money income has increased since more of good X can be purchased.

2 **B** The substitution effect is always positive since following a price change; a consumer will always substitute the cheaper good for one that is relatively more expensive.

3 **B** Consumer equilibrium is where the budget line touches, or is at a tangent to, the highest indifference curve.

4 **C** A Giffen good is a type of inferior good where the quantity demanded falls when the price falls; the quantity demanded increases as price increases. This means that the income effect is negative but is greater than the substitution effect.

5 **B** The negative income effect and a positive substitution effect lead to a fall in consumption of good X. Normal and superior goods have a positive income effect; with Giffen goods the income effect is negative and greater than the substitution effect so C is not correct.

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Coursebook answers

Chapter 32

Economics in context

Learners' discussion might include:

- The obvious implication is for airlines to use the most fuel-efficient aircraft. Those closest to the dotted line are also the lightest, which enhances their efficiency. Aircraft below the line are less fuel efficient and should be replaced in the fleet. Replacement is likely to be accelerated following the disruption to air travel due to the COVID-19 pandemic.
- Other possibilities would be to use pricing and other digital means to maximise load factors, the term used to calculate the percentage of seats sold in relation to the total available. Reducing aircraft turnaround time at airports, seamless check-in and loading procedures could also improve efficiency.

Activities

Activity 32.1

Learners' answers might include:

1 a Productive efficiency: average cost will fall.
   b Allocative efficiency: the company is responding to what consumers want and will therefore be increasing customer satisfaction.
   c Productive efficiency: average costs will fall.
   d Allocative efficiency: firms are altering output to increase sales and earn more profits.

2 Competition from online shopping puts pressure on firms to reduce costs to become more productively efficient. Firms also need to be more responsive to consumer demand. This increases allocative efficiency. Online shopping widens consumer choice as firms that are inefficient will lose customers.

Activity 32.2

Learners' answers might include:

Pareto efficiency can be represented by points that are on a PPC. It is not possible to increase the output of one good without reducing the output of the other good. In many low-income countries, for example, the choice is between consumer goods and capital goods.

Another example is where a property developer buys a plot of land that contains low cost housing with the purpose of building luxury apartments on the site. The apartment owners will be better off but former residents will be worse off as they may not be able to find accommodation of the same quality at the same rent.

Activity 32.3

Learners' answers might include:

a Food processing firms need to invest heavily in new product development, processing plant, handling and storage equipment and up to date IT and tracking systems. For all of these reasons they aim to remain dynamically efficient over time.

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b Livestock farming requires extensive investment for producers to stay competitive and remain in business. Feeding management systems, animal welfare monitoring and controlled environments have increased productivity and should keep the sector up to date with the new technologies.

c Courier services have invested heavily in IT which is designed to continuously improve the tracking systems that are in place for collections and deliveries. Customers can be advised by e-mail or electronic device of the time slot for collection or delivery.

Think like an economist

Learners' discussion might include:

1 The economic and social impact is likely to be felt most in regions or countries that have a high dependence on receipts from international tourists who would normally travel by air. There is likely to be a fall in employment in tourism and a knock-on effect throughout the economy. Investment from elsewhere for new hotels and for upgrading other tourist facilities will fall. There will be an indirect effect of more general unemployment. A form of social impact could be where displaced locals and college students migrate to cities in search of a better life. Holiday destinations are likely to be less crowded – the local population will be able to live a more normal lifestyle.

A similar impact could be for business travel. This impact would be felt most in capital cities and in cities that are centres of banking, finance and manufacturing.

2 Fewer aircraft could counter globalisation. Aircraft carry freight as well as passengers. This function is important for lower middle-income and middle-income countries that supply perishable food products and high-value parts and components to high-income countries. The overall effect could be negative and felt most strongly in exporting lower middle-income and middle-income countries in Africa and SE Asia.

Exam-style questions: Multiple choice

1 B The definition of productive efficiency is where goods and services are made using least resources and at lowest possible cost. B is the only response to refer to minimising average costs.

2 C Y and X are both on the PPC and are therefore productively efficient points of production. This therefore excludes A and B. Allocative efficiency has increased since firms producing at X are now making more of the goods that consumers want.

3 D A, B and C are examples of government intervention where an individual has no choice but to accept what is offered. A merit good, D, is different since consumption is left to the individual.

4 C This is a statement of Pareto inefficiency and is an inefficient state of affairs. B and D refer only to sectors and not to the whole economy. A is about inequality and not inefficiency.

5 A B, C and D are situations where there has been a change in supply or demand in a market. A is the only example of market failure due to costs being imposed on third parties not involved in generating the traffic noise.

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Coursebook answers

Chapter 33

Economics in context

Learners' discussion might include:

- The following groups have been affected by the illegal burning of rainforest in Indonesia: Malaysian children not attending schools; individuals experiencing the ill-effects of air pollution; others in Singapore and Thailand as well as in Malaysia suffering from unhealthy pollution levels; tourists in Phuket; residents advised to stay indoors in Singapore; wider impact on climate change.
- There is a negative impact on the third parties identified above. It could be because burning is the cheapest way to clear the rainforest before preparing the land for the cultivation of crops.

Activities

Activity 33.1

a Negative externality. People living along the flight path are the third party and are subject to noise disturbance that can affect the quality of life. The scale of the negative externality will increase if the number of flights increases or an additional runway is opened.

b Negative externality. The third party are the local people who make a living from selling fish and who will not be able to do so as the fish stocks have been destroyed.

c Positive externality. The third parties are other pharmaceutical companies and the wider community. They will benefit from the development of the new vaccine even though neither has been involved or funded its development.

d Positive externality. The third party are the employers of people who will benefit from the output of workers who might have not been able to get to work because of flooding. (Note: people living on the former flooded area are not the third party as they obtain private benefits).

Activity 33.2

1 Possible suggested externalities:

   a Negative production externalities: traffic congestion in a city – longer journey times and additional costs for car users, buses and taxis; passive smoking – discomfort for non-smokers and maybe health problems where someone has been exposed to fumes for a long time; discarding used batteries in the road – acid could leak out and contaminate water supplies or be handled by children.

   b Positive production externalities: new mass transit station – increases price of development land in the vicinity of the station; vaccine for COVID-19 – reduces impact of pandemic in the community; new mass transit line – widens labour market opportunities.

   c Negative consumption externalities: noise from crowd at sport's stadium affects people who live close by; discarded litter from fast food outlet – spoils amenity and the cost of removal will have to be paid someone else; eating too many foods that are heavy on sugar – costs of care will fall on health service.

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d Positive consumption externalities: public libraries – resources to help students improve their job prospects; pest control – benefit to people in the wider community through being reduced chance of infection; local fire and rescue service – benefit to neighbouring properties in the event of a fire.

2 Learners' own answers.

Activity 33.3

Learners' own answers. Purchasing a second-hand car or scooter invariably means that the seller has more information about the car or scooter than the buyer. Evidence for an investigation could include a survey of consumers who have recently purchased such a vehicle. The survey could find out whether the car or scooter matched the buyer's expectation in terms of condition, performance and value for money.

Activity 33.4

Learners' answers might include:

1 Depending on the example, it is likely that most cost-benefit cases will include private costs and benefits and some external costs. Identifying and putting monetary values on the other costs and benefits is difficult and may not always be required for smaller projects.

2 This information can be obtained from internet sources. It will be interesting to see which projects have been implemented. Where a project has not gone ahead, the likely reason should be identified.

Think like an economist

Learners' discussion might include:

Pakistan: wider economic benefits would seem to be positive relative to the cost to the government. Longer-term benefits will be to create further types of jobs and other activities alongside the new road but particularly at interchanges. The nature of the jobs created could be an issue as Chinese workers at present appear to be more skilled than those from Pakistan. The CPEC seems to tie Pakistan down to a longer-term economic relationship with China. There could be opportunities for increasing exports to China.

China: immediate jobs for skilled workers and suppliers. The numbers employed will be likely to reduce as Chinese companies become established and train more local people. There are ongoing opportunities for Chinese firms to boost their exports to Pakistan. The relationship between the two countries is crucial for realisation of China's Belt and Road initiative.

Exam-style questions: Multiple choice

1 B See the definition in the text.

2 D A, B and C are all private benefits. A is positive externality since workers will no longer be away from work and therefore still able to produce goods for their employer.

3 A Marginal social cost is greater than marginal private cost. C and D would occur if there was a divergence between MPB and MSB.

4 B The socially efficient output is where MSC = MSB. Any other level of output is socially inefficient.

5 D This is the project with the biggest net benefits calculated as total benefits – total costs.

6 A The deadweight loss occurs when there is a welfare loss due to an inefficient allocation of resources. B can be rejected. D is incorrect as it makes reference to benefits as well as costs. C is wrong as it implies no external costs.

7 C Asymmetric information applies in a situation where in a transaction one side has more or better information than the other side. A and B are therefore not correct. D is of no relevance.

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Coursebook answers

Chapter 34

Economics in context

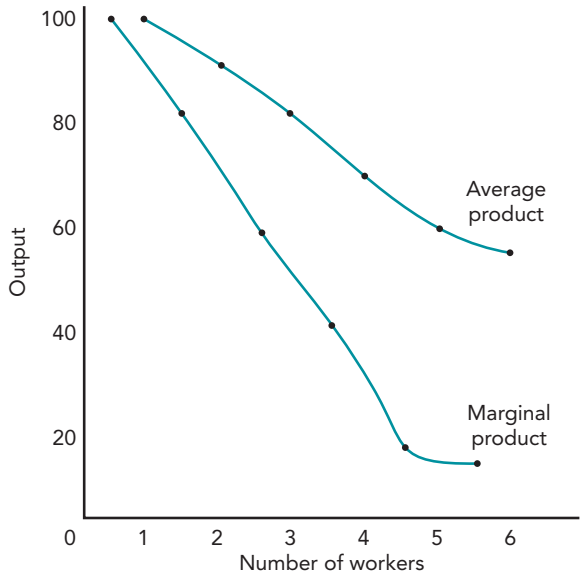
Learners' discussion might include:

- Economists could evaluate the costs and benefits of bigger container vessels. This research may then feed in to plans and policies of businesses and governments.
- Benefits and costs may include: cheap transport in the global supply chain; consumers gain through cheap clothing, food and other consumer goods, especially those made in Asia; creates employment in low- and lower middle-income countries; widens consumer choice; powerful force to promote globalisation. Costs may include: pollution of the air and sea, especially due to oil spillage; use of scarce resources when some products traded could be produced locally; possible exploitation of workers to keep costs down; over-consumption of cheap food and clothing.
- Information on the environmental costs of bigger container vessels is available on the internet. There have also been features in the media about worker exploitation in clothing factories in Bangladesh. Some information on employment is also available. Other information would need to be collected through a specific investigation.

Activities

Activity 34.1

1



2 Both curves slope downwards. MP is below AP and decreases at a greater rate than AP.

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3 A clothing firm will be aware that total product should increase as more workers are employed. The fall in MP is important since it measures the additional output produced with one more worker. This worker will be retained if the value of output produced is at least equal to the wage of that worker.

Activity 34.2

Learners' answers might include:

1 Wages and materials will be variable in the short run since they are dependent on the level of output that is produced. All other costs will be fixed in the short run.

2 Variable costs are 60% of total costs. Fixed costs are 40% of total costs. This cost structure indicates a firm or industry with high variable costs. An example could be a road freight trucking company (high percentage wages and fuel costs) or a manufacturer of a low value processed food product.

Activity 34.3

1 There are infinite possible numerical answers to these questions. The numbers inserted in the output columns must be indicative of each of the factors of production. A typical set of answers is:

   a 100, 80, 65, 55, 48, 43

   b 30, 40, 55, 75, 100, 130

   c 130, 100, 75, 55, 40, 30

Activity 34.4

Learners' answers might include:

1 Marketing economies: IT systems can handle online booking of flights at lower average cost for a large aircraft.

   Managerial economies: fewer managerial staff at airports as less aircraft will be needed.

   Technological economies: fewer aircraft to maintain should reduce average costs.

   Purchasing economies: airline could negotiate a lower handling charge per passenger.

2 Customers may benefit from lower fares and a more pleasant flying experience on a larger aircraft. Airlines benefit through having an innovative product which could give them a competitive edge in the market.

3 The rising cost of fuel is a particular problem for airlines flying large aircraft like the A380. External factors, though, have caused their demise. These factors are the change in customer preference away from hub airports and the impact of recession in 2012. As a result of the COVID-19 pandemic of 2020, the demand for international air transport collapsed which might result in airlines ceasing to use large aircraft.

Think like an economist

Learners' answers might include:

A useful starting point is to analyse the cost structure in terms of fixed and variable costs. The fixed costs are primarily overheads at around 36% of total costs net of sales tax. Costs that depend directly on units of coffee sold are about 18%. The remaining costs are not easy to classify as they will depend on how many cups of coffee are sold.

The biggest problem for the owner will be to make sure that sales cover all costs except for fixed costs in the short run. Any contribution to fixed costs would be good. If it is not possible to cover these costs, then the owner would be advised to shut down the coffee shop.

In the long run, the owners are looking to be the main beneficiaries. This is the point about entrepreneurship. It is unlikely that the coffee grower will get much benefit unless growers have a deal to supply the coffee shop owners directly.

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Exam-style questions: Multiple choice

1 **A** Returns to scale is a long run concept so C is not correct. D is concerned with consumption and not with production. B is wrong because there is greater output so the scale of production increases not reduces.

2 **B** Let Q be the quantity produced. Total costs = total fixed costs + total variable costs.

Therefore, 120 000 = 50Q + 10Q. So Q is equal to $2000.

Total variable costs are 10 × $2000 = $20 000.

3 **A** The average costs as output increases are: 100, 67.5, 53.3, 45, 40. So average cost falls by $5 as output increases from 4 to 5 units.

4 **D** This is correct for a firm in a perfectly competitive market. This is the only market structure where a firm is a price taker.

5 **C** A is an example of an internal economy of scale. B is where a firm receives a subsidy. D is a cost saving paid by a firm directly to a supplier.

6 **B** A firm in a perfectly competitive market requires normal profit to stay in the market. This is therefore the opportunity cost if a firm takes up the best alternative.

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Coursebook answers

Chapter 35

Economics in context

Learners' discussion might include:

- Market share = $\frac{\text{sales from firm X}}{\text{total sales}}$
- Obtaining comparable data could be difficult. Statistics will need to be on a 'like for like' basis for meaningful comparisons. For example, not all supermarkets will sell fuel.
- Although there is no data, Tesco could be just a small player in SE Asia. It may not have the same opportunity as its rivals to benefit from economies of scale in purchasing and distribution. Also, Tesco is not a well-established brand in these markets and may have limited knowledge of the needs of consumers. These needs will differ from consumers in Europe.

Activities

Activity 35.1

Learners' answers might include:

1 Monopoly: Star Ferry is the only operator of cross-harbour ferry services in central Hong Kong; Hong Kong Tramways has a monopoly of providing tram services on Hong Kong Island.

Natural monopoly: MTR Corporation for surface rail transport and for rapid transit.

Oligopoly: franchised bus services operated by five companies.

Monopolistic competition: public light bus services and taxis.

2 and 3 Learners' own answers.

Activity 35.2

1 Firm 1 – a loss; Firm 2 – normal profit; Firm 3 – supernormal profit.

2 Firm 1 – normal profit; Firm 2 – supernormal profit; Firm 3 – larger supernormal profit.

3 new firms will enter the industry.

4 the output where MC = MR.

5 by increasing productivity and lowering average total cost.

Activity 35.3

Learners' answers might include:

1 There are many firms offering differentiated products ranging from fine dining restaurants, regional speciality restaurants to neighbourhood cafés and take-away outlets. Most are family-owned. Some product differentiation as they have their own variation on otherwise standard dishes. Limited advertising and promotion.

2 Additional evidence might include: level of profits (normal or abnormal?); barriers to entry and exit (regulations, sunk costs?); price competition?

3 The market is not perfectly competitive as there is product differentiation and some evidence of brand loyalty.

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Activity 35.4

1 June 2009 80% May 2019 100%

2 Learners' answers might include: The market has been controlled by four firms since June 2017. It is a typical oligopoly and is likely to be competitive. The data makes clear that there have been mergers, takeovers and changes of ownership. PMCL has emerged as a new company with the largest market share followed by Telenor, which has increased its market share since 2009.

Activity 35.5

a Learners' own answers.

b Learners' own answers. This task requires learners to consider a sample of routes and to calculate a typical average fare or a range of fares for a given day, preferably a weekday.

c Learners' answers might include: Various ways include the timing of flights, use of small airports, frequent flyer benefits and free drinks and food.

d Learners' own answers.

The conclusion about whether the market is contestable will depend on the answers to a to d above. Research for the last task is likely to be the most important determinant.

Think like an economist

Possible suggested examples:

a Microsoft Windows operating system and Office software: these are widely used by billions of students and people in workplaces. There is little or no competition. Microsoft has contributed to widening knowledge and to increasing the efficiency of the economy.

b The national rail system is a monopoly that transports students to get to college every day and for family members to get to work. It is a vital resource as few families own cars. It has a wider economic effect.

c This is another example of where the economist's role is to identify the benefits (and likely costs). It is typical of tasks undertaken by regulatory bodies such as the Competition and Markets Authority in the UK. Putting monetary values on all the advantages is difficult since many have no market price attached to them.

Exam-style questions: Multiple choice

1 D This is because there are very many firms in a perfectly competitive industry. In other market structures, firms are price makers and have their own individual supply curves.

2 A B, C and D apply to both perfect competition and to monopolistic competition. In perfect competition, marginal revenue is equal to price; in monopolistic competition price is greater than marginal revenue.

3 C Abnormal profits are being earned as AR>AC. This rules out A and D. The firm has excess capacity since it is operating above the minimum point on the AC curve.

4 A B, C and D apply to both market structures. Abnormal profits are only earned in the short run in monopolistic competition.

5 C The four-firm concentration ratio has increased, indicating that the market power of the top four firms has strengthened. This excludes A, B and D.

6 C This is the natural response in the market due to non-price competition. A and B apply to markets where there is price competition. If D is applied, the firm will lose market share.

7 B This is the rationale that underpins why a cartel is formed. A, C and D may affect a cartel's operations but they are not a requirement for successful operation.

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Coursebook answers

Chapter 36

Economics in context

Learners' answers might include:

- Monopolistic competition because there are many firms and differentiated products from thousands of producers. The large number of suppliers indicates low barriers to entry.
- Small firms can be involved in the research and development of products manufactured by large firms. Small firms are capable of producing specialist drugs. Large firms are able to benefit from economies of scale to reduce the average costs of production. This is important when firms are selling in bulk to customers in the rest of the world.

Activities

Activity 36.1

Learners' answers might include:

1 Economies of scale include cost savings from the joint marketing of vehicles, bulk buying of standardised components, joint distribution and retailing of vehicles, reduced number of specialist managerial staff and directors.

2 Learners' own answers. The following benefits have been identified: merger will create the fifth largest global car maker; US and European markets and expertise; cost savings through greater standardisation of products; reduction in production facilities will lead to job losses as some plants are working below full capacity; possible withdrawal of manufacturing from some countries and new production in emerging markets such as Turkey; development of new models, including electric vehicles.

3 Learners' own answers.

Activity 36.2

1 and 2 Possible suggested examples:

a Costa Coffee:

Vertical integration: ownership of coffee plantation, ownership of coffee processing, set up own bakeries, manufacture supplies of cups.

Horizontal integration: automatic coffee dispensers in filling stations and rail stations, take over other similar suppliers, manufacture other drinks.

b Apple Inc.:

Vertical integration: manufacture of electronic goods, retail own products.

Horizontal integration: product design, software development.

3 Learners' own answers.

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Activity 36.3

Learners' answers might include:

1 In 2008, OPEC members had about 80% of the world's known reserves of crude oil. Two-thirds of the reserves were with Middle Eastern members, notably Saudi Arabia. Venezuela, though, had the largest reserves with about one-quarter of the world's reserves.

2 a Some lower middle-income countries have oil reserves although these reserves are very small. It is important for them that the revenue from oil reserves is used to generate sustainable growth. Countries that rely on oil imports will remain heavily dependent on OPEC for supplies.

b Most high-income countries will still be heavily dependent on OPEC for supplies. Some high-income countries, such as the US, have invested heavily in shale oil production.

Think like an economist

1 Learners' answers might include:

Studying economics opens up a wide range of employment opportunities. Examples include banking and finance, insurance, government, supply chain management and logistics, retail management, business journalism, IT systems and data management.

2 Learners' own answers.

3 Learners' answers might include: Developing any business opportunity involves risks. Only a small percentage of new ventures succeed. It is really up to individuals to decide if they want to take risks. Being an economist is not a 'soft touch' as most economists have responsible roles.

Exam-style questions: Multiple choice

1 B A and C may be true but they are not why small firms are able to compete with larger firms. D is not true as all firms have to be prepared to take risks.

2 D It is implied that the small firm is the typical business unit in a low-income country. Option C would mean that small firms would find it even more difficult to survive. A and B are true but not why small firms can survive.

3 D An increase in net capital employed results in growth in the size or scale of operation of a firm. A, B and C refer to a firm which is operating within its existing size limit.

4 B A, C and D are examples of horizontal integration. B is an example of vertical integration since the car manufacturer is moving forward in its supply chain.

5 D The principal–agent problem is where one person is making decisions on behalf of another person. B and C have no relevance. A is not correct since the principal–agent problem only occurs when managers in small firms make decisions.

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Coursebook answers

Chapter 37

Economics in context

Learners' answers might include:

- The bar chart could show the automotive manufacturers ranked in terms of the number of vehicles produced or in terms of total profits.
- The biggest estimated profits are earned by the two largest manufacturers, VW and Toyota. It is useful to consider the ratio of profits to sales revenue. This varies from 2.0 (BMW) to 6.4 (Toyota Motor). The relationship between high sales and high profits is not fully reflected in the data.

Activities

Activity 37.1

Learners' own answers.

Activity 37.2

Possible suggested examples:

1. First-degree price discrimination: a builder selling a new house to a buyer; a hairdresser restyling a customer's hair.

   Second-degree price discrimination: buy one, get one half price offers; a discount when a large number of the same good is purchased.

   Third-degree price discrimination: rail travel, concert tickets.
2. Learners' discussion might include: In many cases, it seems that the producer or retailer benefits more than the consumer, particularly with second- and third-degree price discrimination. Consumers may benefit if they are clever about what they buy and when they buy things. For first-degree price discrimination, a price would normally be agreed between the consumer and the producer before any transaction takes place.

Think like an economist

Learners' answers might include:

1. It does not matter that there are no real-world examples because the model of perfect competition acts as a benchmark for comparing the efficiency of any other market structure. This comparison is made using characteristics that are applied to all market structures.
2. The Forex market has some characteristics that make it a near perfect market. These include no barriers to entry, many buyers and sellers, prices determined by supply and demand. The individual currencies are identical although some, like the US dollar and the Chinese RMB, have more influence than others in the market. It is highly unlikely that all buyers and all sellers have access to the same information.

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Exam-style questions: Multiple choice

1 **D** This is correct since salaried managers are in a better position to determine a firm's objectives. A and B are not correct since decisions in a firm with a large number of shareholders would not be taken solely by an entrepreneur or owner. For C, external consultants will advise on decisions and not actually make decisions.

2 **D** A is not correct as the profit maximisation output is 20 units. B is not correct as the sales maximisation output is 50 units. Minimising average cost, C, is at 20 units of output.

3 **C** A, B and D make no reference to stopping new firms from entering a market. This is the whole point about limit pricing.

4 **B** A, C and D can be applied to an entire market. The point about third-degree price discrimination is that it is only effective when the market can be segmented, each segment having a different price elasticity of demand.

5 **B** A is not correct since if MR is positive, the firm should increase its output to increase revenue. D is not correct since the firm should reduce its output to increase revenue. C is wrong because if PED is zero, the quantity demanded is not responsive at all to a price change.

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Coursebook answers

Unit 7

Exam-style questions: Data response

1 a Learners' answers might include (any four):

- external costs are those that fall on third-parties not involved in the illegal disposal of plastic waste
- reduced quality of amenity for tourists using beaches in Bali
- additional beach cleaning costs for authorities in Bali
- less fish stocks for local fishermen
- less trade for beachside bars and restaurants
- increased incidence of respiratory problems for citizens in Delhi
- increased costs of disposal of plastic waste for authorities in Chinese cities.

b Learners' answers might include:

Knowledge and understanding

- definition of deadweight loss such as loss in welfare due to inefficient allocation of resources
- explanation of marginal social cost and explanation of marginal external cost.

Analysis points

- explanation of deadweight loss in terms of over-production
- explanation in terms of triangular area between MPC, MSC and MPB.

c Learners' answers might include (any two):

Knowledge and understanding

- indirect tax on disposable plastic products
- subsidies for more environmentally acceptable packaging
- information provision on the damage caused by disposable plastics
- regulations to make plastics biodegradable
- a 'nudge' initiative.

Analysis points

- explanation of any two of the above methods.

d Learners' answers might include:

Knowledge and understanding

- need to look at the costs and benefits
- scope for using cost-benefit analysis.

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Analysis points

- benefit in terms of job creation
- benefit in terms of export revenue for recycling country
- benefit to local firms using recycled plastic
- benefit to current account of balance of payments
- pollution costs of recycling plastic waste
- health costs to workers who recycle the plastic waste.

Evaluation points

- conclusion as to whether likely benefits exceed costs
- how to proceed depending on the outcome of the cost-benefit analysis.

Exam-style questions: Essay

2 Learners' answers might include:

Knowledge and understanding

- definition of oligopoly
- characteristics of an oligopolistic market: barriers to entry, nature of product
- explanation of interdependence
- use of concentration ratio
- oligopoly as a price maker
- examples of oligopoly.

Analysis points

- clearly labelled diagram of a kinked demand curve (see, for example, Figure 35.12 in the Coursebook), explained
- explanation of how diagram indicates interdependence
- explanation of price rigidity as costs change
- scope for non-price competition
- co-operation and collusion between oligopolists
- scope for price leadership.

Evaluation points

- criticism of model in terms of position of kink
- recognition that price competition is a feature of many oligopolistic markets
- other ways in which oligopolies compete.

3 Learners' answers might include:

Knowledge and understanding

- definition of profit maximisation
- explanation of conditions why this occurs when MC = MR
- statement of other aims of firms with brief description.

Analysis points

- use of diagram to show profit maximisation level of output (see, for example, Figure 37.3 in the Coursebook)
- analysis of, say, two aims of firms such as survival and satisficing
- application of ethical and environmental aims.

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Evaluation points

- identification of issues why firms do not operate at profit maximisation level of output
- principal–agent problem-management may have other aims
- behavioural aims and their relevance
- use of profit maximisation output in models of market structure.

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Coursebook answers

Chapter 38

Economics in context

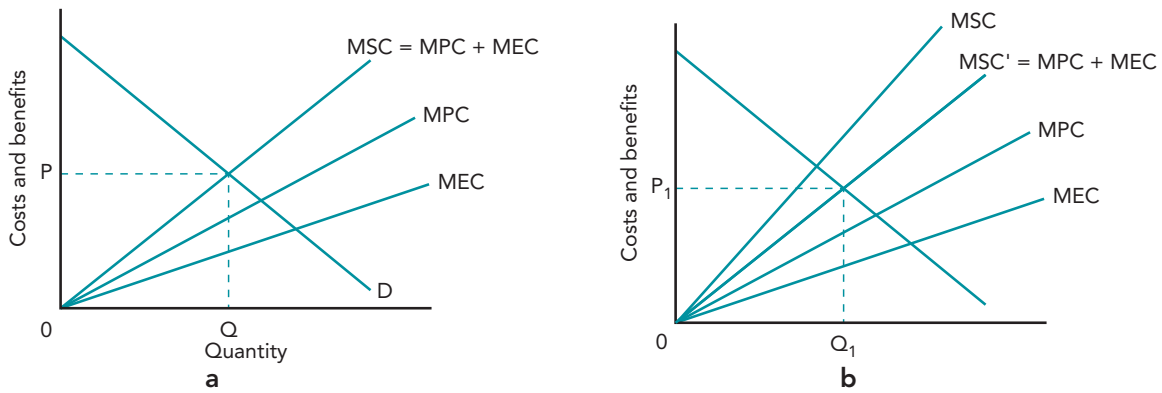
Learners' discussion might include:

- The appraisal should recognise that each of the policies has merits, but that implementation will vary depending on costs and the timescale. Providing free masks can be done cheaply and quickly. Planting more trees will enhance the areas close to roads and traffic, but the effects are uncertain and are likely to take a long time to have an impact. Rationing road space to odd- and even-plated vehicles will bring immediate relief although it could be difficult to enforce and may be subject to malpractices. Banning vehicles over 15 years old appears attractive, but the effects could be unfairly felt by low-income groups. Improving public transport, especially the Metro, is a good long-term policy though likely to be disruptive and costly.
- In principle, charging for the use of roads in central Delhi is possible; the practical problems will be huge and the charge will be regressive. Another policy would be to introduce regulations for the maximum emissions allowed from vehicles.
- The plan should consist of which policy or combination of policies the group believe to be the most realistic. A timeline is essential with a broad estimate of costs and benefits.

Activities

Activity 38.1

1



1 a Diagram a shows where the full MEC is included in the ERP charge of P.

b Diagram b shows where only part of the MEC is included in the ERP charge of P_1.

2 a In 1 a, MPC + MEC = MSC. The charge is being paid in full. Where MEC = 0, MPC = MSC.

b In 1 b, The charge paid will be less than MEC. It does not produce the most efficient use of resources.

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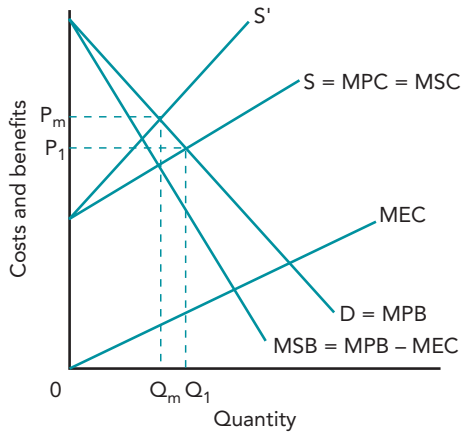
Learners' answers might include: The ERP system in Singapore has been successful for various reasons. Singapore is a small city state. Geographically, it is easy to put a cordon around the city centre. The ERP is complemented by an effective public transport system that has heavily subsidised fares. There are also measures in place that make it expensive to own a private car.

Activity 38.2

1



2 The minimum price is now P_m and the quantity consumed is Q_m. The new price is higher and the quantity consumed is lower than for the previous equilibrium position.

Activity 38.3

Undertaking this activity has various stages. These are:

a agree an example of market failure

b obtain information on how the government has tried to correct this market failure

c consider whether there is potential for a 'nudge' approach to complement current interventions – if so, then draft out what form this intervention could take. If not, then say why not.

Activity 38.4

Learners' own answers.

Activity 38.5

Learners' answers might include:

1 Imperfect information. If the benefits were correctly estimated then an increased subsidy would be paid out for public transport and there would be a net gain in economic welfare due to lower fares.

2 Policy conflict. Scarce resources have been allocated for a new road that has unclear benefits for the community. The funds that have been committed could have been put to better use through the provision of services that will produce greater benefits.

3 Unintended consequences. The high tax on healthcare is likely to deter low-income people from using healthcare services. This can lead to an unhealthy population, which may restrict productivity and the rate of economic growth.

4 Unintended consequences. From the government's point of view, it is best to have people working rather than being unemployed. The high level of income support gives unemployed people little incentive to seek work.

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Think like an economist

Learners' own discussion might include:

The diverse ownership creates a competitive market. The government is keen for companies to inject investment and innovation into the rail system. The bidding process is open to all, including UK companies. Franchises are awarded on the basis of providing the best value for money for the taxpayer. It is important for there to be a regulatory framework in place to prevent unfair competition and business practices. It is difficult to know whether Brexit (the UK's departure from membership of the European Union) will deter EU companies from future participation in the provision of rail services.

Exam-style questions: Multiple choice

1 **A** The profit maximising output is 5 and is where MC = MR. The social optimum output is 4 and determined where MSC = MSB. The difference is 1.

2 **B** A green tax is based on the 'polluter pays' principle. C and D are part of a green tax but are not reasons why such a tax is levied. A is of no relevance.

3 **D** The point is that it is not possible to get any information since you have no experience of either job. The satisfaction gained is a behavioural matter that rests with the individual.

4 **B** The government will subsidise goods that produce positive externalities which rules out C. D is a consequence of subsidising merit goods but not the reason for the subsidy. A is a general reason why a government may have more money to spend in all sorts of ways, not just on subsidies.

5 **C** This is the welfare gain triangle. All other options are wrong.

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Coursebook answers

Chapter 39

Economics in context

Learners' discussion might include:

- More tax revenue could be raised from GST. There could be higher rates for goods and services that are most likely to be purchased by higher income earners. More resources should be provided to cutting down on tax evasion. The penalties for non-completion or fraudulent tax returns could be increased. An annual tax on assets such as property and financial holdings might be applied to obtain revenue from those who have assets but claim to have little income.
- Income inequality can be reduced if the additional tax revenue is used to fund more merit goods. Services such as education to secondary level and improved healthcare could be provided free of charge. Both are likely to benefit low-income families. The provision of benefits could be evaluated to ensure that those in most need receive what is required to meet their basic needs.

Activities

Activity 39.1

Learners' answers might include:

1. The main purpose of 'helicopter money' is to get consumers to spend what they are given and to perhaps also spend from their savings. This will increase aggregate demand and help to get the economy out of recession. If this payment is saved, then it defeats the objective of such payments.
2. Payments are only likely to be made to those residents known to the government. Anyone not meeting this requirement will not receive a payment. Temporary residents and people below a certain age will be excluded.

Think like an economist

Learners' discussion might include:

1. More funding is essential. This could be used to use supply more efficiently by improving the means of storage and water accumulation. Local network services could be improved by replacing leaks and unsafe water pipes. Resources should also be used to monitor the purity of supplies.
2. Nationalisation is something to be considered. If water is recognised as a social good, then there is an argument that it should not be provided by profit-driven private sector companies. There is also a case for water to be provided free of charge to those who cannot afford to pay for it.

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Exam-style questions: Multiple choice

1 **D** Fairness and equity are essentially the same. There can be an equal distribution of income if the underlying system is fair for all. This rules out A. For B, it is difficult and subjective to decide what a worker is worth and therefore unlikely to be fair. C is not relevant.

2 **C** A rise in income tax will be felt most by those on high incomes. This rules out A and B. A fall in GST is most likely to benefit low-income earners who will spend a high proportion of their income on goods and services, many of which will be subject to GST. D is therefore not correct.

3 **B** Initially, a negative income tax provides all families with the same benefit. This rules out C and D. As there is no empirical evidence to go on, the effect on the incentive to work is uncertain.

4 **A** Decreasing means tested benefits affects those on low incomes. Income is therefore redistributed to higher-income families to the exclusion of C and D. A decline in the other two types of benefit affects all groups in the population. So, B is not correct.

5 **A** This is the correct answer because it is the only answer where there is an unintended outcome. B, C and D can all be expected after it has been decided to increase means-tested benefits.

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Coursebook answers

Chapter 40

Economics in context

Learners' discussion might include:

- Migrants increase the working population and mainly undertake work not wanted by the local population. The benefit to Oman's economy is that new infrastructure projects can go ahead, increasing aggregate demand and economic potential. Employing migrant labour is cost effective. The wider economic benefits are that Oman is likely to become more attractive to foreign investors and can begin to develop its tourist trade. A high rate of economic growth is expected.
- The benefit to migrant workers is their earnings, which will be above what they could expect to earn in their home country. A large proportion of these earnings is likely to be remitted back home to support their wider family. The cost is that the employment of migrant labour is unstable and dependent on the state of the Omani economy. There is also a personal cost in terms of being separated from families for long periods.

Activities

Activity 40.1

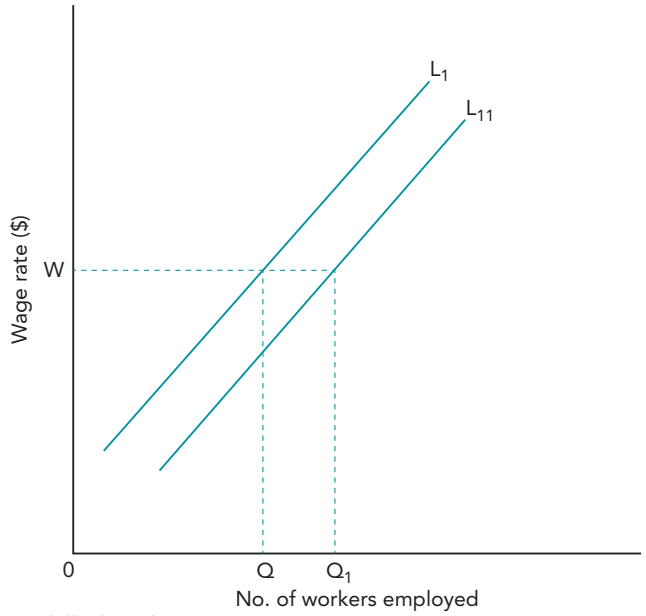
1 Marginal product: 8, 12, 20, 15, 10, 7.
Marginal revenue product: 120, 180, 300, 225, 150, 105.

2 3 workers

3 1 more worker

Activity 40.2

1



a: Skilled workers

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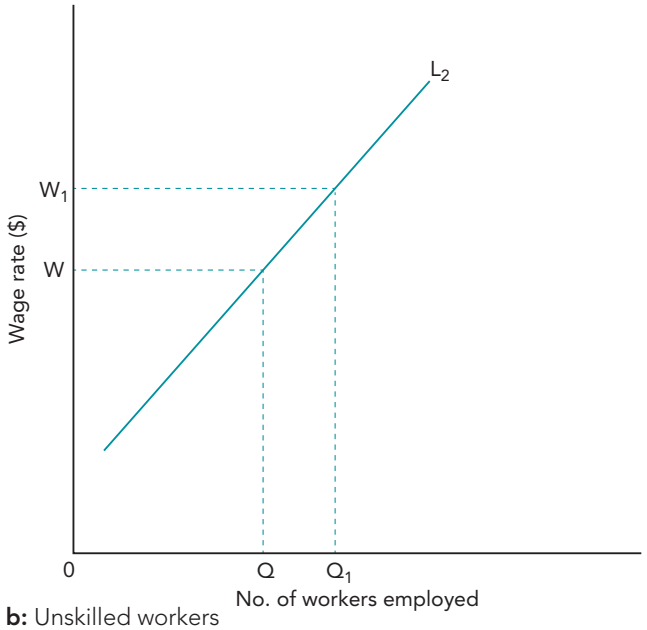
Retraining unemployed workers will lead to a shift in the supply curve for this type of labour from L1 to L11. After retraining, the quantity of workers employed will increase from Q to Q1 but with no change in the wage rate. (See diagram a) The influx of migrant workers will shift the labour supply curve to the right. In a competitive market the wage rate will fall from W to W_1.



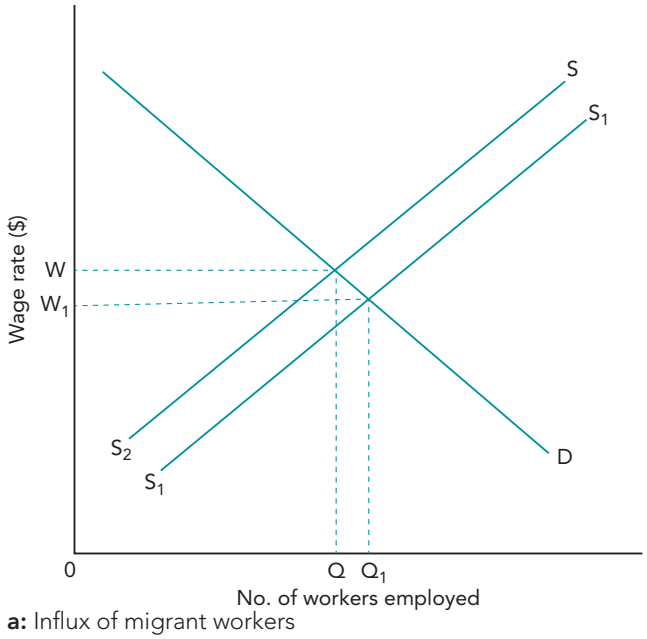
b: Unskilled workers

Increasing the wage rate for unemployed unskilled workers is represented by a movement up the supply curve L2. The wage increases to W1 and the number of workers employed increases from Q to Q1. (See diagram b)

2 Learners' answers might include: The firm's strategy should be successful. It is more likely to be successful in the case of increasing the wage rate of unemployed workers since there will be a large supply of workers willing to work at a higher wage rate. The success of training unemployed skilled workers is likely to be less certain; much will depend on whether these workers can adapt and respond positively to the new training programme. There will be no change in the wage rate.

Activity 40.3

1



a: Influx of migrant workers

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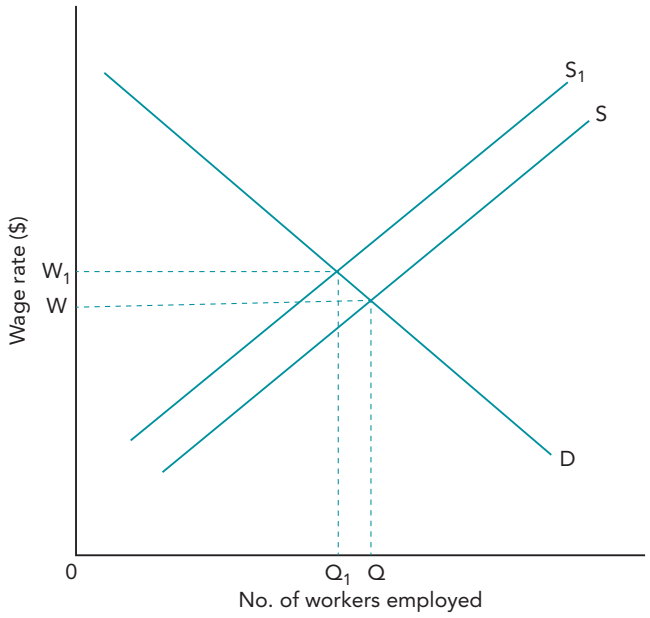

b: Migrant workers return home

Migrant workers returning home are represented by a shift in the supply curve to the left. In a competitive market the wage rate will increase from W to W_1.

2 Learner's discussion might include:

In theory, an influx of Polish migrant workers will take up existing job vacancies or jobs previously taken by low-paid UK workers; wage levels could fall. Some of these UK workers could become unemployed if they are not prepared to work for lower wages. Remittances sent home by Polish workers will benefit Poland's economy. A cost to Poland's economy is the loss of skilled workers and other professionals and their contribution to Poland's growth prospects.

The return of migrant workers, especially skilled workers, will increase the productive capacity of Poland's economy. Firms may be more inclined to invest in Poland if they see an increase in the quality and quantity of human capital. could attract more FDI.

Activity 40.4

Learners' answers might include:

The supply of Premier League footballers is relatively more inelastic than the supply of female footballers. The earnings of Premier League players consist largely of economic rent. Where a player has exceptional talent then earnings will consist entirely of economic rent. This can apply to female as well as male footballers. The earnings of most female players will consist mainly of transfer earnings.

Think like an economist

1 Learners' discussion might include: Employers should be concerned about skill shortages since this could affect their productivity and business competitiveness. It is also likely to affect their ability to recruit appropriately qualified staff, meaning they may have to pay higher wages to do so.

Governments should also be concerned about competitiveness relative to trading rivals. Exports may decline while imports increase as they are more competitive in price. A lack of skilled labour could hold back the benefits of technological change and result in a lower standard of living and reduced rate of economic growth.

2 Learners' own answers.

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Exam-style questions: Multiple choice

1 **D** This is correct. It is the addition to total revenue of employing one more unit of labour.

2 **C** No worker will be paid less than W_1 so the new supply curve is horizontal until it meets the former labour supply curve.

3 **B** A and C are not correct as the minimum wage is above the equilibrium wage rate, reducing the number of workers employed. D cannot be proven.

4 **D** The power of a single buyer in the labour market is that, compared to a competitive market, fewer people will be employed and the wage rate will be lower.

5 **A** D is not correct since it is the definition of economic rent. B and C are of no relevance.

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Coursebook answers

Unit 8

Exam-style questions: Data response

1 a Learners' answers might include (any 4):

- economies of scale have not been fully exploited
- long run average total cost curves continue to fall
- minimum efficient scale is at a higher level of output
- duplication makes no sense due to high fixed costs
- cost structure acts as a barrier to entry
- subsidies will be required for optimal output.

b Learners' answers might include (any two):

- private sector can bring much-needed investment
- private sector can bring in new ideas and commercial expertise
- IR still retains overall control.

Analysis points

- a more modern railway enhances the standing of this emerging economy
- could reduce subsidy paid annually to IR by the government
- government could always renationalise IR.

c Learners' answers might include:

- increased competition can lead to greater efficiency
- IR is likely to be more cost aware
- competition is likely to prompt more innovation from IR
- freight prices could fall due to threat of competition
- overall consideration of whether competition is good for IR.

d Learners' answers might include:

Knowledge and understanding

- subsidised fares increase the real income of low paid workers
- subsidised fares widen labour market mobility
- subsidised fares reduce road traffic congestion
- rail travel is more environmentally acceptable than bus or motorcycle transport.

Analysis points

- subsidy could lead to inefficiency
- subsidy could foster complacency among managers
- government could use money saved from subsidy for other purposes.

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Evaluation points

- overall conclusion as to whether subsidy should be reduced.

Exam-style questions: Essay

2 Learners' answers might include:

Knowledge and understanding

- definition of income and wealth
- difference between income and wealth
- broad description of the inequality of income and wealth in high-income countries
- comparison with other countries
- description of policies to reduce income and wealth inequality.

Analysis points

- use of progressive income tax; include an example known to you
- use of state benefits; include an example known to you
- means tested benefits, universal benefits (for example, helicopter money)
- scope for universal basic income and negative income tax
- inheritance tax and property/asset taxes to reduce wealth inequality.

Evaluation points

- critique of progressive tax system
- critique of state benefits; poverty trap
- issues of tax avoidance and evasion
- limited relevance of some policies in low- and middle-income countries
- time problem of reducing income and wealth inequality

3 Learners' answers might include:

Knowledge and understanding

- determination of wages in a perfect labour market
- why a labour market can be imperfect
- meaning of a minimum wage rate in principle and possibly in practice
- aim of a minimum wage rate.

Analysis points

- diagram to show effects of introducing a minimum wage rate (see, for example, Figure 40.13 in the Coursebook)
- analysis of effects depending on elasticities of demand and supply of labour
- recognition of excess supply of labour at minimum wage rate.

Evaluation points

- how to determine the right minimum wage rate
- variations in cost of living when dealing with a national minimum wage rate
- advantages to an employer
- benefits to government of reduced welfare payments.

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Coursebook answers

Chapter 41

Economics in context

Learners' discussion might include:

- Government spending and exports.
- Improvements in infrastructure might encourage firms to invest more as their costs may decline and their profits may rise. For example, more reliable sources of electricity will prevent production being disrupted and workers and capital equipment lying idle. Improvements in transport can directly reduce the cost of getting products to market and may increase sales as products may arrive in a better condition.
- A rise in spending will come to an end when leakages rise to match the initial injection.

Activities

Activity 41.1

a The multiplier is 2 ($\frac{1}{0.5}$).

b The increase in GDP would be \$132bn (2 × \$66bn).

c The injection of extra government spending is insufficient. There would still be a deflationary gap of \$68bn.

Activity 41.2

Learners' own answers.

Activity 41.3

1 Learners' possible suggested reasons might include: government expected to cut income tax, rise in employment increasing income, more even distribution of income, population growth, price of housing expected to rise and so households will have more wealth, the central bank is expected to cut the rate of interest and a greater willingness of banks to lend.

2 Learners' own answers.

Activity 41.4

Learners' own answers.

Activity 41.5

Learners' answers might include estimates of:

- private sector expenditure
- the full employment level of GDP
- tax revenue
- size of the multiplier
- number of state school pupils
- life expectancy.

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Activity 41.6

Learners' possible suggested reasons for why mps, mrt and mpm may vary between countries may include e.g.:

- people may save more or may have extra income in some countries because they are worried about the future
- the tax systems in some countries may be more progressive than in other countries
- people may spend more of extra income on imports if the price of domestically produced products is higher.

Learners should recognise that the higher the size of the multiplier, the more effective fiscal policy will be.

Think like an economist

Learners' answers might include: An inflationary gap has the disadvantages that can arise from inflation including a random redistribution of income and menu costs. It can also increase a deficit or reduce a surplus on the current account of the balance of payments due to rising prices. However, an inflationary gap is associated with high output and low unemployment. In contrast, a deflationary gap means that output is lower than possible and unemployment will occur. There is also a risk that a downward deflationary spiral may occur.

Exam-style questions: Multiple choice

1 C The multiplier is $\frac{1}{\text{mrt} + \text{mps}}$. In this case, disposable income is 0.8, mpc is 0.6, so mps is 0.2. So the multiplier is $\frac{1}{0.2 + 0.2} = \frac{1}{0.4} = 2.5$.

2 C The gap in national income is \$75bn. The multiplier is $\frac{1}{0.4} = 2.5$. So $\frac{\$75\text{ bn}}{2.5} = \$30\text{bn}$ would have to be injected. A is the amount which would have to be injected if the only leakage with mps (giving a multiplier of 10). B would be the amount if the multiplier was 5 and D is the initial gap.

3 D GDP will rise by the size of the injection multiplied by the multiplier i.e. \$45bn × 1.8. A is the figure given by the injection divided by the multiplier (\$25bn) added to the original GDP. B is the injection added to the original GDP. C is $\frac{1}{1.8} \times 100 = 55$ with \$55bn added to the original GDP.

4 C

Income ($)	Consumption	APC	MPC
100	115	1.15	
200	206	1.03	0.91
300	290	0.97	0.84
400	340	0.85	0.5
500	360	0.72	0.2

5 D The mpc is the proportion of extra income which is spent. In this case, as a result of GDP rising by XY (which is equivalent to VW) consumption rises by ZY amount.

6 B The equilibrium level of national income will be where total expenditure equals income. In this case, C = \$640bn (\$100bn + 0.6 x \$900bn) + \$160bn (I) + \$120bn (G) - \$20bn (\$100bn - \$120bn) (X – M) = \$900bn.

7 D If the mpc of taxpayers is less than the mpc of recipients of government spending, consumption will rise. If the economy is operating with spare capacity, this will cause GDP to increase. This is also the case if the mpc of taxpayers and recipients of government spending are equal. This is the balanced budget multiplier theory. For instance, if mpc is 0.8, mps would be 0.2 and the multiplier would be 5. If the government increased its spending by \$10bn, government spending obviously

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rises by \$10bn. If taxation is increased by \$10bn, private sector spending would fall by \$8bn. The net injection of extra spending would be \$2bn which would cause real GDP to rise by \$2bn × 5 = \$10bn.

8 B The accelerator theory suggests that a change in the growth of income (and so demand) will cause a greater percentage change in demand. The accelerator theory is concerned with induced investment. It assumes technology is unchanged and is not based on the return from investment declining as the capital stock increases.

9 C An inflationary gap occurs when total spending in the economy is greater than the maximum output that can be produced with resources fully employed. Such a gap will put upward pressure on the price level. It is not certain that when there is an inflationary gap, it means that the country's inflation rate would be higher than its main competitors. B would mean there is a budget surplus which would tend to reduce total expenditure but it is only one component of total expenditure. D would mean there is a current account deficit which would also reduce total expenditure.

10 D At the full employment level of GDP, there is a shortfall of spending of UV amount.

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Coursebook answers

Chapter 42

Economics in context

Learners' discussion might include:

- In the short run, the use of child labour could reduce costs of production. This could lower prices and lead to higher demand. Guatemala could sell more coffee beans. However, in the long run, labour productivity is likely to fall as when the children grow they were less healthy and less skilled than if they had been spending their time in school.
- In the short run, the children and their families benefit from them earning a wage, even though it is a low wage. In the long run, the children will lose out as the income they can earn as adults is likely to be low and their health may be adversely affected.

Activities

Activity 42.1

Learners' own answers.

Activity 42.2

Learners' answers might include:

L is the most harmful as it is turning into a depression with no sign that the recession is coming to an end. W is the second most harmful as experiencing two recessions close together is likely to create uncertainty. It is then debatable whether V or U is the least harmful. V has the benefit that it is over quickly. U lasts longer so that it may give economic agents longer to adapt to the change in economic activity.

Activity 42.3

Learners' own answers.

Activity 42.4

Learners' own answers.

Think like an economist

Learners' discussion might include: whether the capital is on higher land than other parts of the country; how quickly sea levels are rising since may be planning to work for only a short time in the country; whether willing to accept that accommodation may be flooded; whether the pay offered would compensate for the risk of being flooded; whether currently live in an area at a greater risk from flooding.

Activity 42.5

Learners' own answers.

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Exam-style questions: Multiple choice

1 A During a depression, a country's output (real GDP) will decrease. Its potential output is also likely to decrease as some worn out capital equipment will not be replaced and some of the unemployed may decide to leave the labour force.

2 D If workers reduce the number of hours of overtime they work, short-run aggregate supply will contract. The economy will move back to the long-run maximum potential output. A, B and C could all increase a positive output gap. A and B would increase aggregate demand and C could cause short-run aggregate supply to extend beyond the maximum potential output.

3 B The peak is the top of the business cycle. It is also the turning point where confidence switches from optimism to pessimism. During the downturn, pessimism increases. It reaches its lowest point during the trough. It then switches to optimism which continues to rise during the upturn.

4 C Automatic stabilisers smooth out economic fluctuations. They reduce the scale of economic booms and the depth of any recession. They reduce tax revenue during a recession. They can create cyclical deficits during a downturn and cyclical surpluses during an economic boom. Automatic stabilisers do not directly affect the international competitiveness of the country's exports.

5 A If firms expect aggregate demand will rise, they may hold on to workers during a recession. This is because it can be difficult and expensive to recruit during an upturn when competition for workers will increase. If governments cut back on subsidies to firms to train their workers, the unemployment rate is more likely to rise. If, for example, the size of the labour force falls from 100m to 90m and the number unemployed falls from 90m to 70m, the unemployment rate would rise from 10% (10m/100m × 100) to 22% (20m/90m × 100). If the labour force falls by 10% to 45m and the number unemployed falls by 4% to 4.8m, the unemployment rate would rise to 10.67%. If workers' pay falls by less than productivity, labour costs will rise. This would be likely to increase the unemployment rate.

6 D A cut in the rate of interest is likely to encourage a rise in consumption. This is because both the cost of borrowing and the reward from saving will fall. The resulting rise in aggregate demand will increase national output if there is initially spare capacity in the economy. A lower interest rate may also increase potential economic growth as firms will be encouraged to buy more capital equipment. This will be because the cost of borrowing to buy it will fall and the higher aggregate demand will lead firms to expect higher profits. More capital equipment will increase the economy's ability to produce goods and services.

7 C A reduction in the male/female pay gap would mean that women would be likely to gain from economic growth. A would be likely to result in unskilled workers experiencing a decrease in wages and so they may not gain from an increase in national output. B would mean that people in some areas of the country would be affected differently by economic growth. Some could lose out by experiencing higher unemployment. D would result in some young people not receiving any benefit from economic growth.

8 A Cutting down trees in rainforests will increase economic growth in the short run. In the long run, however, it will reduce the earth's ability to absorb carbon dioxide. This can increase global warming which, in turn, can cause flooding and reduce agricultural output. An increase in vegetarianism would reduce the consumption of clean water which is in short supply and would reduce the release of methane gas. A switch from car travel to travel by public transport would reduce traffic congestion and the use of petrol. These effects would reduce pollution and the depletion of a non-renewable resource. The replacement of coal by wind power would also reduce pollution.

9 D The polluter pays principle aims to make those who cause pollution to pay for it. If it is successful, external cost would be turned into private cost and the social cost would be made up of just private cost.

10 D Solar panels will generate electricity in a way that does not harm the environment and threaten future economic growth. A, B and C could all result in a rise in greenhouse gases.

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Coursebook answers

Chapter 43

Economics in context

Learners' discussion might include:

- The former taxi drivers may not have the skills or the qualifications to do the job. There may not be job vacancies or the vacancies may be in other parts of the country where housing costs are high or where they cannot keep up with their extended family and friends.
- Car workers in Spain may not be willing and able to get a job in the USA. They may not be able to get permission to live and work there as there are immigration controls. Even if they were likely to be accepted, they may not want to move away from family and friends. They may also be worried about having to learn English and living in a different culture.
- Learners' own answers.

Activities

Activity 43.1

1. Labour force survey or claimant count.
2. Qatar hotels can attract more workers from countries that pay lower wages. This means they do not have to raise wages.
3. It is likely to cause the budget balance to move into a surplus. There will be high tax revenue and less need to spend on unemployment and other welfare benefits.

Activity 43.2

Learners' answers might include:

Disequilibrium unemployment will be likely to decrease during an upturn. This is because output will be growing at a faster rate. Firms will expand their production and are likely to take on more workers. In contrast, disequilibrium unemployment may rise during a downturn. A fall in the rate of economic growth may make firms reluctant to take on new workers and a recession is likely to result in firms making some of their workers redundant.

The effects on equilibrium unemployment are more uncertain. During an upturn, there will be more tax revenue. Some of this might be spent on education. If spending remains high for some time, the quality of the future labour force could rise. This may reduce the structural unemployment element of equilibrium unemployment. During shortages of labour, firms may make working hours and location more flexible for workers. The increased flexibility may last in the long run and may reduce voluntary unemployment. A recession may result in a long-run increase in voluntary unemployment.

Activity 43.3

Learners' own answers.

Activity 43.4

Learners' own answers.

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Activity 43.5

Learners' answers might include:

Family ties, higher cost of living in South Africa, qualifications gained in Ghana may not be recognised in South Africa, lack of job vacancies in South Africa, shortage of housing in South Africa, longer working hours for lawyers in South Africa, less chance of promotion in South Africa.

Activity 43.6

Learners' own answers.

Think like an economist

Learners' own answers.

Exam-style questions: Multiple choice

1 D If unemployment is below the full employment rate it means the economy is operating beyond its long-run maximum capacity. This means there will be a positive output gap. The high level of economic activity is likely to result in a government budget surplus as tax revenue will be high while spending on unemployment and welfare benefits will be low. The 1.5% who are unemployed are likely to be frictionally unemployed. Aggregate demand will be higher than long-run aggregate supply which will result in inflation rather than deflation.

2 C The economy can move away from the equilibrium level of unemployment and so is not necessarily stable. The equilibrium level of unemployment occurs when ADL equals ASL rather than ALF. At this point there will be no pressure on the real wage rate to change. Some unemployment (voluntary, frictional and structural) will exist at the equilibrium level.

3 A If the real wage rate in the economy is above the equilibrium level, the aggregate supply of labour will exceed the aggregate demand for labour. The shortage of aggregate demand will cause cyclical unemployment. Equilibrium, frictional and structural unemployment will occur when the labour market is in equilibrium.

4 B Disequilibrium unemployment is shown by the gap between the aggregate supply of labour and the aggregate demand for labour. In this case, RT represents disequilibrium unemployment.

5 D Hysteresis describes a situation where workers remain unemployed even when, for example, aggregate demand picks up. This happens because some workers lose their skills and motivation, and become less attractive to firms. Structural unemployment is likely to be more of a problem than frictional unemployment but this is because it lasts longer. Cyclical unemployment arises because of a shortage of aggregate demand rather than aggregate supply. New classical economists do think that economies will move towards full employment in the long run but this tendency is not called hysteresis.

6 D Low qualifications are likely to reduce the range of jobs a worker can do. Most firms want to employ workers who can get on well with fellow workers and the firm's customers. As a result, low social skills are likely to reduce a worker's job opportunities. If a worker is reluctant to move to another part of the country, it will restrict the job opportunities available.

7 B An increase in labour mobility will enable workers to move more smoothly and more quickly between jobs. This will reduce the voluntary, frictional and structural unemployment which will occur in equilibrium unemployment. It will not help disequilibrium unemployment as in this case the problem is a shortage of jobs due to a lack of aggregate demand.

8 B A decrease in the school leaving age is likely to reduce the skills of the labour force. If this is the result, this will probably make it more difficult for workers to change jobs. A would increase the geographical mobility of labour. C would raise the quantity of information available and D would enable more people to access information on job vacancies. C and D could increase the occupational mobility of labour.

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9 D If there is a lack of business and consumer confidence, a cut in the rate of interest or an increase in the money supply may not encourage households to spend more and firms to increase their investment. This means that aggregate demand may not increase, A would help to implement monetary policy. B would mean there is unemployment to be reduced. C would increase the scope for cutting the rate of interest.

10 B To reduce disequilibrium unemployment, a government will try to increase aggregate demand. An increase in unemployment benefit will raise consumer expenditure, The unemployed are likely to have a high marginal propensity to consume and so will probably spend most of any rise in benefit. A would reduce aggregate demand. C and D are supply-side policy tools which may be used to reduce equilibrium unemployment.

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Coursebook answers

Chapter 44

Economics in context

Learners' discussion might include:

- Commercial banks may be concerned that they would not be repaid or the interest they would gain would be too low. They may be concerned that borrowers are taking too much of a risk or that the economy will experience a downturn which could both make it difficult to repay loans. If the interest rate is low, it may not cover the cost of arranging the loan.
- The arguments for supporting commercial banks which get into difficulties relate to the harmful effects their collapse could have on the economy – lower output and higher unemployment. The main argument against relates to moral hazard. Banks may take greater risks if they know they will be bailed out.

Activities

Activity 44.1

Learners' own answers. A wide variety of items have been used including gold, jade, playing cards, salt, sea shells and silver.

Think like an economist

1 Reasons might include: students may stay as customers over a long period of time; students may be high earners and so may keep large amounts in their deposit accounts; students may be well informed and so may make use of a wide range of banking services.

2 Learners' research might include: how financially sound the bank is; what interest rate the bank charges on loans and overdrafts and pays on loans; whether it imposes bank charges on deposit accounts; the range and quality of services; the location of its branches (less significant now with online banking).

3 Learners' own answers.

Activity 44.2

1 Learners' own answers. See Figure 44.4 in the Coursebook for an example of a scatter diagram showing the relationship between changes in the money supply and inflation rate (%) for five selected countries (Angola, Central African Republic, Egypt, Ghana, Namibia).

2 Possible suggested answer relating to Figure 44.4. No, economists would use the information for the starting point of their analysis. If they found a positive relationship, they would then have to look at other evidence to assess causation. Just finding a positive relationship is not enough to conclude that increases in the money supply cause inflation. It could be the other way round. It is also possible that some other factors could have influenced the two variables.

Activity 44.3

1 and 2 Learners' own answers.

3 Possible key influences may include opening times, location, range of services, rate of interest, where relatives bank and the reputation of the bank.

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Activity 44.4

1 $\frac{100}{4} = 25.$

2 $50 000 × 25 = $1 250 000.

3 $1 250,000 - $50 000 = $1 200 000.

Activity 44.5

1 Yes. Spending on schools and hospitals is likely to increase labour productivity. This could raise incomes, increase tax revenue and reduce government spending on benefits. If the budget moves into surplus, fewer government securities are likely to be issued in the future. This could raise their price.

2 Probably no. The higher pay may raise the performance of top government officials, but if not it could lead to a growing budget deficit. This could lower the price of government securities as more will have to be issued.

3 No. If the government does default, you would lose your money.

4 Yes. There would be more competition for the securities which would raise their price.

5 No. You are likely to gain a better return from buying the shares now.

6 Yes. See the last two sentences in the answer to Q1.

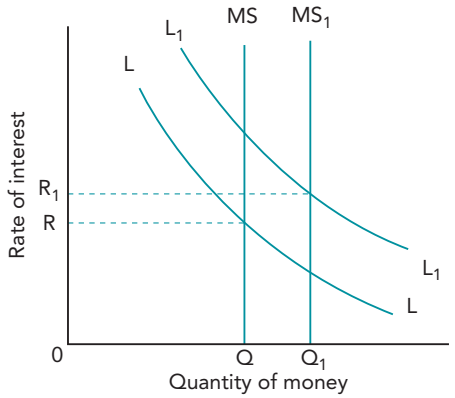
Activity 44.6

Learners' own answers.

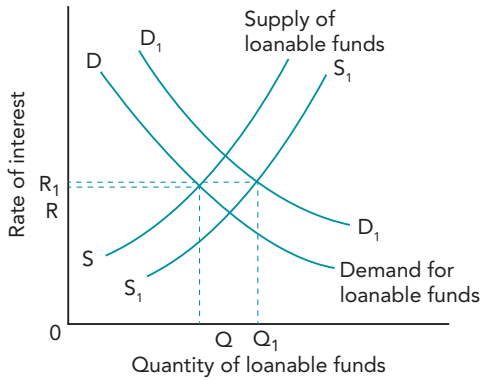
Activity 44.7

Learners' answers might include:

Liquidity preference theory: a rise in real GDP per head would increase the transactions motive. It may also increase the money supply if the central bank raises it to match the rise in output.



In terms of the loanable funds theory, it will increase both the demand for and supply of loanable funds. The effect on the rate of interest will depend on the relative size of the shifts.



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Exam-style questions: Multiple choice

1 B Money has to be generally acceptable to act as money. If it is not, people would, for example, not accept it as payment for a good or service. The vast majority of money is not backed by gold. Money has to divisible so that different values of payment can be made and change can be given. It also has to be limited in supply since if not people would refuse to accept it.

2 C The quantity theory suggests that, as the real GDP and velocity of circulation are constant (in the short run), a rise in the money supply will increase the price level by the same percentage. The level of employment does not appear in the quantity theory.

3 C The velocity of circulation is the number of times money changes hands. If national income is \$40bn and there is a money supply of 10bn, on average each dollar would be spent 4 times ($\frac{\$40bn}{\$10bn}$). The velocity of circulation then rises to $\frac{\$60bn}{\$12bn} = 5$.

4 C The quantity theory of money is MV = PT or $P = \frac{MV}{T}$. In this case, $P = 150 \times \frac{120}{125}$ which is 144. So the price level has increased from 120 to 144, that is by 24. A is the new money supply minus the velocity of circulation. B is based on a confused arrangement of MP = VT. D is also based on a confused arrangement, this time MT = VP.

5 C The bank credit multiplier is $\frac{100}{5} = 20$. So total deposits will be able to rise by 20 × \$10 000 = \$200 000. Bank lending will be able to increase by \$200 000 − \$10 000 = \$190 000.

6 D If households and firms use less cash, more money is likely to be kept at commercial banks. This will increase their ability to lend. It may also reduce the reserve ratio commercial banks need to keep. B, in contrast, would be likely to increase the reserve ratio they keep. A larger reserve ratio will reduce the bank credit multiplier. C would not directly affect the bank credit multiplier but it would reduce bank lending.

7 D The central bank will give money in exchange for the securities. The increase in the money supply is likely to reduce the rate of interest.

8 B Liquidity preference is the desire to hold wealth in a money form. Those dealing in financial markets will hold more money if they expect the prices of bonds to fall (the rate of interest to rise) in the future. Expectation that the price level will not change will have no effect. If people are paid more frequently, they would not need to hold so much money for transaction purposes. If people take out more insurance, they are likely to hold less money for transaction purposes.

9 B If demand for money is perfectly interest elastic, any extra money will be held. This will occur when the rate of interest is low and expected to rise. People dealing in financial markets will not want to purchase more government bonds as they will expect their price to fall. This is the liquidity trap.

10 D The loanable funds theory suggests that the rate of interest is determined by demand for loans and the supply of loans. The supply of loans is based on the savings of households, firms and the government. If firms and households save more in commercial banks, they will have more funds available to lend. A would cause a fall in the rate of interest according to the liquidity preference theory. B would reduce the amount banks can lend. C would be likely to increase the desire for loanable funds which would increase the rate of interest.

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Coursebook answers

Unit 9

Exam-style questions: Data response

1 a Learners' answers might include:

- GDP increased.
- consumption increased.
- investment increased.
- net exports increased.

b Learners' answers might include:

- fall in global demand; reduced demand for exports; lower aggregate demand.
- problems with banks – reduced lending and reduced investment.
- reduced consumer confidence – lower consumption which encouraged firms to reduce output.
- reduced business confidence – lower investment – worn out machines not replaced – lower output.

c Learners' answers might include:

Knowledge and understanding

- inclusive growth is increases in real GDP/GNI that benefit everyone in the country.
- inclusive growth can be judged by, for example, whether everyone experiences a growth in income, improvement in education and improvement in healthcare.

Analysis points

- GDP per head increased, enabling people to enjoy more goods and services.
- life expectancy rose – suggesting better healthcare.
- higher proportion of students went on to tertiary education and gained more qualifications – should later benefit from higher income, better healthcare, better housing and more choices.
- unemployment declined – more of the population able to earn an income.

But

- wage inequality increased – some workers would have benefited more than others.
- migrant workers were more likely to be unemployed.
- fewer workers on permanent contracts – may find it difficult to buy a house and plan ahead.
- more people in part-time work – may not be from choice – likely to lower incomes for some.

Evaluation points

- mixed evidence – on three key indicators of key indicators of living standards (income per head, life expectancy and education) the material would suggest people are better off but there is also evidence that not all benefited.

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- some of the information is only an average – for example, GDP per head increased but some people will have experienced a fall in income, life expectancy rose but some people may have had a shorter life expectancy.

d Learners' answers might include:

Knowledge and understanding

- definition of an indirect tax.
- identification of who is responsible for paying an indirect tax and how some may be passed on to the consumer.
- definition of inflation.
- identification of the key causes of inflation.

Analysis points

- how an increase in indirect tax can influence prices, consumption and aggregate demand.
- inclusion of a diagram showing how a decrease in aggregate demand could affect the price level.
- how an increase in indirect taxes can affect costs of production and wage claims, and so short-run aggregate supply.
- a diagram to show how a decrease in SRAS could affect the price level.

Evaluation points

- whether the effect on AD is likely to be greater or less than on AD.
- the difference between the effects on SRAS and LRAS.
- the outcome will be influenced by which products the indirect tax is imposed on.
- there are other influences on consumption and costs.

Exam-style questions: Essay

2 Learners' answers might include:

Knowledge and understanding

- definition of the multiplier.
- how the multiplier can be calculated.
- significance of the size of the marginal propensity to withdraw.

Analysis points

- similarity in ways of calculating the multiplier.
- influences on mps in different countries.
- influences on mrt in different countries.
- influences on mpm in different countries.

Evaluation points

- all countries have the same formula for the multiplier but the size of the withdrawals vary, and so the size of the multiplier varies.
- why mps is likely to be different in high-income and low-income countries.
- why mpm is likely to be different the more open countries' economies are.
- why mrt can vary between countries.

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3 Learners' answers might include:

Knowledge and understanding

- definition of the business cycle.
- phases of the business cycle.
- definition of investment.
- link between investment and AD and AS.

Analysis points

- investment causes national income to change by a multiple amount.
- changes in national income can cause greater percentage change in demand for capital goods. This is explained by the accelerator theory.
- influences on investment.
- how investment is likely to change over the phases of the business cycle.
- advances in technology can result in bursts of investment.

Evaluation points

- investment is the most volatile component of aggregate demand.
- through the interaction of the multiplier and accelerator effects, changes in investment can have a significant impact on economic activity.
- investment is strongly linked to business confidence and so can reinforce upturns and downturns.
- other possible causes of business cycles.

4 Learners' answers might include:

Knowledge and understanding

- function of commercial banks.
- banks have three main objectives: profitability, liquidity and security.
- key indicators of macroeconomic performance.

Analysis points

- how commercial banks can encourage saving and the effects of saving on the macroeconomy.
- the effects of bank lending on economic growth, unemployment and inflation.
- how commercial banks can influence the balance of payments.
- the ethical policies commercial banks can follow.

Evaluation points

- key role of commercial banks in implementing monetary policy.
- how the size and sophistication of the commercial banking sector varies between high-income and low-income countries.
- influence of commercial banks' aims on how they can impact macroeconomic performance.

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Coursebook answers

Chapter 45

Economics in context

Learners' discussion might include:

- The question is debatable. An increase in copper mining would probably create more jobs and may raise the wages of miners, and through the multiplier process, other workers. However, it would also probably create more pollution, and mining jobs are risky and dirty.
- Mongolia had more doctors per head of the population than the average for countries with high development which might indicate a higher quality of life. On the other three indicators show that Mongolia was not doing as well. It had a lower average years of schooling and a lower life expectancy. What is particularly noticeable is that it had a significantly lower level of income.

Activities

Activity 45.1

Learners' answers might include:

1. An increase in the inflation rate would be expected to move the current account balance from a surplus to a deficit. This is because it would make the country's products less internationally competitive.
2. Probably not. The improved infrastructure could increase the country's economic growth rate. This would raise tax revenue. Some of this could be used to pay off the loans. However, there is a risk that the rate of interest could rise which would increase the cost of servicing the debt. There is also no guarantee that improved infrastructure will increase economic growth. For example, a fall in aggregate demand may mean not all of it is used.

Activity 45.2

Learners' answers might include:

1. Reasons include a rise in the pay of women, less discrimination, increase in the qualifications of women and greater provision of childcare.
2. The gap between male and female wages is likely to decrease. A higher proportion of graduates will be women and discrimination is likely to fall.
3. Learners' own answers.

Activity 45.3

Learners' own answers.

Think like an economist

Learners' own answers.

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Exam-style questions: Multiple choice

1 A An increase in aggregate demand is likely to result in a rise in GDP and an increase in employment. There is a risk that it might increase demand-pull inflation and reduce price stability. It is unlikely to reduce cost-push inflation and no government will seek to increase frictional unemployment.

2 A People with low income are likely to spend a higher proportion of their income than those with high income. This means that transferring money from those with low income would raise consumption and aggregate demand. The redistribution of income may reduce the incentive to be an entrepreneur as the top rates of income tax may be high. Redistribution of income is more likely to reduce the value of leakages from the circular flow as it is likely to reduce savings. It will not affect the rate of automatic stabilisers.

3 A A decrease in any limits on bank lending is likely to increase borrowing by both households and firms. Higher consumer expenditure and investment may increase employment. A lower school leaving age may raise unemployment as fewer teachers would be employed and workers will have lower skills and mobility. An increase in income tax will reduce disposable income which is likely to lower consumer expenditure and increase unemployment. An increase in the exchange rate will raise export prices and lower import prices. This is likely to reduce spending on the country's output and so cause more unemployment.

4 D An increase in productivity may mean that more can be produced with fewer resources. A and C would be likely to increase aggregate demand which could reduce unemployment. A decrease in the size of the labour force during a period of economic growth is more likely to reduce the unemployment rate. This is because if more is being done with a smaller labour force, it probably means that a greater number of workers are employed.

5 D Reducing the value of the currency would be likely to increase net exports and so increase aggregate demand. Higher aggregate demand will increase demand-pull inflation. A, B and C are all likely to reduce aggregate demand, or at least reduce the growth in aggregate demand.

6 C $NY = C + I + G + (X – M)$. In this case, C would be \$100bn + 0.6 × \$800bn = \$580bn. Net exports are \$90bn – \$150bn = – \$60bn. So \$800bn = \$580bn + \$120bn + G + – \$60bn. So \$800bn – \$640bn = \$160bn.

7 B Deforestation will provide trees for production in the short run and may enable crops to be grown on the cleared land. However, in the long run it will contribute to global warming. This would be likely to result in more flooding and hurricanes which would reduce output. Cleaning up polluted rivers, education and recycling will generate economic activity and income and will be sustainable.

8 C Inheritance tax is a tax on money left on the death of a person to their family and friends. High income people can leave considerable sums to their family and friends. Increasing inheritance tax will even out incomes. Transfer payments include unemployment benefits and child benefit. These are more likely to be given to those on low income and will form a larger percentage of their income.

9 C Borrowing from private individuals will be making use of existing money and will not increase the money supply. Borrowing from foreign commercial banks will bring more money into the country. Borrowing from its central bank, effectively, involves printing money.

10 B A decrease in the unemployment rate is likely to raise the income of the previously unemployed. Paid employment normally provides higher income than unemployment benefits. A would mean that the children of those with low incomes will receive less education and so would be less likely to gain a significantly higher income as a result of economic growth. C would mean some people would be worse off. D would take a greater percentage of the income of the poor.

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Coursebook answers

Chapter 46

Economics in context

Learners' discussion might include:

- Not necessarily, as the size of the labour force may have changed. For example, some of the unemployed may have entered higher education and some may have emigrated.
- There is not a clear relationship shown. For three of the years, the two move in the same direction. In 2018, the unemployment rate stayed the same while the inflation rate fell. For five years, the two move in opposite directions.
- A decrease in the unemployment rate may increase the inflation rate. This is because it would be expected to increase aggregate demand and may increase the wage rate. An increase in the inflation rate may increase the unemployment rate as it may reduce the international price competitiveness of the country's products.

Activities

Activity 46.1

Learners' answers might include:

1. An economist might show the relationship on a scatter diagram or bar chart.
2. Yes, in part. Table 46.1 shows an inverse relationship. The higher the inflation rate, the lower the economic growth rate. Countries with high inflation rates may experience difficulty selling its exports and may buy more imports. A deficit on the current account of the balance of payments can put downward pressure on economic growth by lowering aggregate demand. Of course, it is possible that a higher economic growth rate may be accompanied by a higher inflation rate. Higher output can increase costs of production as resources become scarcer and can increase incomes and aggregate demand.
3. There may be a range of influences such as the balance of payments, productivity growth and investment.

Think like an economist

Learners' answers may include:

A high inflation rate may have a number of disadvantages including greater difficulty in planning, confusion over what is happening to relative prices, the possibility of not being able to buy so many goods and services if income rises by less than prices, and a fall in the value of savings if the inflation rate rises more than the rate of interest. However, there is the possibility that income may rise more than prices. If interest rates rise in line with inflation, the real value of savings can be protected.

High unemployment will lower tax revenue and some government spending may go on supporting the unemployed. As a result, spending on, for example, healthcare may be reduced, which can lower living standards. High unemployment means significantly fewer goods and services are produced than the country is capable of making. It will reduce the chance of people gaining a job and earning an income. It is also possible that high unemployment may result in an increase in the crime rate.

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Activity 46.2

Learners' answers might include:

1 A rise in unemployment may reduce wage demands as workers may become afraid of losing their jobs. They may think that they could be replaced by the unemployed. They may also think that their employers will be less able to pay higher wages. A rise in unemployment is likely to reduce aggregate demand and may lower firms' profits.

2

3 A reduction in the link between unemployment and inflation may benefit an economy. It could mean that the economy can grow and employ more workers without raising the price level. Inflation can cause a number of disadvantages for an economy including loss of international price competitiveness and a random redistribution of income.

Activity 46.3

Learners' own answers.

Exam-style questions: Multiple choice

1 **A** A progressive income tax is one which takes a higher proportion of the income of the rich than that of those on lower incomes. However, if everyone has the same income, no one group would pay a higher percentage. An absence of tax evasion would increase the amount of tax received but, as most are still likely to pay, it would not prevent the redistribution of income. Private ownership would generate income which could be taxed in a progressive way. State ownership of industry does not guarantee that income will be equal.

2 **C** A country's output will rise if injections exceed leakages, which they do in C. Higher output is likely to result in a rise in employment.

3 **B** An increase in a trade surplus would increase aggregate demand. If the country has a high rate of demand-pull inflation, it would not want aggregate demand to increase further. Higher aggregate demand would reduce cyclical unemployment. It would increase the rate of economic growth if there is spare capacity in the economy. It could also increase incomes which may increase development.

4 **A** High cost-push inflation will make the country's products less price competitive. An appreciation of the currency will increase the price of exports and so make the country's products even less price competitive. A rise in export prices will increase the country's terms of trade. The likely reduction in demand for the country's products will probably result in a rise in unemployment and a fall in employment. It is also likely to discourage investment.

5 **C** If productivity increased by more than the average wage rate, employers would have received a better return from employing workers. The country's products could have become more internationally competitive and so could have increased export revenue and reduced import expenditure. Cost-push inflation could also have been reduced.

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A could have caused demand-pull inflation and reduced a current account deficit. B could have increased cyclical unemployment. D would mean that the exchange rate would have appreciated, which could have caused a current account deficit.

6 B Bus transport is used mainly by those on low incomes. A reduction in the subsidy paid by bus companies is likely to raise the fares. This will increase the cost of living of the poor. A decrease in the top rate of income tax will increase the disposable income of the rich. The cut in the top rate of income tax will reduce the proportion of income tax paid by the rich. The poor will pay a higher proportion of the total income tax paid but will pay the same actual amount. It is possible that a few rich people may use bus transport but the vast majority will already use private transport. More expensive bus transport may make it difficult for those on low incomes to switch to jobs located further from their homes. A reduction in the top rate of income tax will increase the work incentive for the rich. Having to spend more on bus transport will reduce the amount the poor can spend on food. Having more disposable income will enable the rich to save more.

7 C Housing benefit is government assistance to help with the cost of housing. It is paid mostly to those on low incomes. A high rate of indirect tax does not directly affect income but it would fall more heavily on those on low incomes. A decrease in the national minimum wage would disadvantage the low paid. A decrease in state pensions would also disadvantage mainly those on low incomes as state pensions form a larger percentage of their income when they retire.

8 B The traditional Phillips curve suggests that a lower unemployment rate can be achieved if the government is prepared to accept a higher inflation rate. Increasing aggregate demand by, for example, raising government spending may create more jobs but may also result in higher prices.

9 C If workers expect a higher rate of inflation, they will press for higher wages. If they are successful, any rate of unemployment will now be combined with a higher inflation rate. A and D would increase aggregate demand and cause a movement along the short-run Phillips curve. B might reduce the bargaining power of workers and reduce upward pressure on wages. This would shift the short-run Phillips curve to the left.

10 B According to monetarists, it may be possible to reduce unemployment in the short run by expansionary fiscal or monetary policy. This results in an inverse relationship between unemployment and inflation in the short run. This means that the short-run Phillips curve is downward sloping. They think that in the long run the economy will move back to the same rate of unemployment but at a higher inflation rate as people will expect inflation to be higher. This means that the long-run Phillips curve is vertical.

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Coursebook answers

Chapter 47

Economics in context

Learners' discussion might include:

- To protect their industries. They may not think their industries can compete without protection. This may be because they are infant industries, facing dumping or are inefficient.
- Lower competition may lead to a lack of pressure to be productive.

Activities

Activity 47.1

Learners' answers might include:

1 a High unemployment would be likely to increase government spending on benefits and would reduce tax revenue. The two countries with a low unemployment rate had a government budget surplus. In contrast, the three countries with a high unemployment rate had a government budget deficit.

b A country's unemployment rate may be reduced as a result of an increase in a budget deficit but it may take time for increased government spending and lower taxes to have an effect.

Activity 47.2

Learners' own answers.

Activity 47.3

Learners' own answers.

Activity 47.4

1 A fall in the Egyptian pound would have increased the price of imports. This could have raised the costs of production and reduced the pressure on domestic firms to prevent price rises. A lower exchange rate could also have increased net exports which would have increased aggregate demand.

2 In the short run, increased government spending might increase inflation as it would increase aggregate demand. In the long run, it could reduce inflation by raising labour productivity and reducing costs of production. The outcome would be influenced by whether the increased spending increases the quality of education and healthcare and how the extra spending is financed.

Activity 47.5

Learners' own answers.

Think like an economist

Learners' own answers.

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Exam-style questions: Multiple choice

1 B The expectations-augmented Phillips curve suggests that in the short run, higher government spending can reduce unemployment. However, this is at the expense of higher inflation. The rise in inflation means real wages and real profits have not risen. Some workers become voluntarily unemployed and some are made redundant. Unemployment returns to the natural rate of unemployment.

2 B Lower taxation and a lower interest rate will increase aggregate demand. This would raise the price level and increase spending on imports.

3 D An increase in the rate of interest would offset the expansionary effect of lower taxation, possibly leaving aggregate demand and employment unchanged. A, B and C are all likely to increase aggregate demand and may cause an increase in inflation.

4 B Quantitative easing increases the quantity of money in the economy, which would be expected to increase aggregate demand. A is a contractionary monetary policy measure. C is a fiscal policy measure and D is a supply-side policy measure.

5 A An increase in government spending on education would reduce inflation in the long run. This is because it could increase productivity and lower costs of production. B would add to aggregate demand but not directly increase aggregate supply. C would mean that aggregate demand may increase by a significant amount as a result of an injection. D would mean that inflation is already likely to be high.

6 D A, B and C are all likely to increase aggregate supply. A and B will create a greater incentive to work and enterprise. C will be likely to reduce costs of production and increase the reliability of production. In contrast, an increase in the rate of interest may reduce investment and so lower productive capacity.

7 C Automatic stabilisers smooth out fluctuations in economic activity. They do not balance the internal and external value of money or ensure that government spending equals tax revenue. They result in a lower and not higher tax revenue during a recession.

8 A A structural deficit is the deficit that will occur even when the economy is operating at full employment. In this case, the full employment deficit would be \$190bn − \$70bn − \$20bn.

9 D If investment becomes more interest inelastic, it means that a change in the rate of interest will cause a greater percentage change in investment. This means lowering or raising the rate of interest will have a significant effect on aggregate demand. To increase the effectiveness, consumption should also become more interest elastic. Monetary policy works through changes in the interest rate and the money supply rather than directly targeting income.

10 B Higher tariffs are likely to increase tax revenue. This can be used to finance extra government spending. An increase in government spending will raise aggregate demand. This could reduce cyclical unemployment. Government spending on education, training and infrastructure could reduce frictional and structural unemployment. A would increase unemployment in those who lose their jobs in declining industries and who cannot find jobs in other industries. C would reduce exports, which would counter the reduction in imports. D could increase the costs of production of domestic firms which could decrease demand for domestic products. This could reduce the country's output and increase unemployment.

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Coursebook answers

Unit 10

Exam-style questions: Data response

1 a Learners' answers might include:

- definition of expansionary fiscal policy.
- in Singapore, there was a decrease in the budget surplus.
- the government increased its spending. It spent more on infrastructure, land reclamation and helping those on low incomes.
- income tax revenue declined.

b Learners' answers might include:

- Singapore may export more – for example, demand for the electronics it produces would increase. More container ships will come into and go out from Singaporean ports.
- higher exports will act as injections into the circular flow of the Singaporean economy. Singapore's exports exceed its imports and so injections from exports exceed leakage from imports.
- a rise in net exports will cause GDP to rise by a multiple amount.
- higher GDP will be likely to create jobs and reduce unemployment.

c Learners' answers might include:

Knowledge and understanding

- definition of an inflation target.
- how the inflation rate can be measured.
- a country's inflation record will be examined by looking at its relative rate, its stability and whether its rate is positive or negative.

Analysis points

- Singapore's inflation rate was lower than the global rate over the period except in 2012. Singapore's lower rate is likely to have made Singapore's products more price competitive internationally.
- Singapore's inflation rate met the central bank's target for every year except 2012 and 2013.
- after 2013, the inflation rate was relatively stable, only varying from 1.0 to -0.5. It was very stable between 2017 and 2019.
- Singapore experienced deflation in 2015 and 2016 as the price level fell.

Evaluation points

- the stability of Singapore's inflation rate is likely to have made planning easier. This could have encouraged investment.
- the low inflation rate may have increased purchasing power if it was below rises in wages.

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- as inflation rates tend to overstate price rises and the inflation rate was very low, the country may have experienced deflation in more years than officially recorded.
- influences on the effects of deflation on an economy.
- the fall in the price level in 2015 and 2016 may have put downward pressure on output which was reflected two years later in the fall in economic growth.

d Learners' answers might include:

Knowledge and understanding

- the top income tax rate is the highest rate of income tax paid.
- tax revenue includes revenue from both direct taxes, such as income tax, and indirect taxes, such as GST.
- tax revenue received from income tax will be influenced by the rate charged, the incomes earned and the incomes declared.

Analysis points

- the Laffer curve suggests a cut in the top rate of income tax would raise tax revenue if the rate is above the optimum rate.
- a Laffer curve diagram showing how a cut in the tax rate could increase tax revenue.
- how a lower income tax rate could increase consumption and tax revenue.
- why a lower income tax rate may encourage some existing workers to work longer hours and reduce voluntary unemployment.
- why a lower rate could attract more MNCs.
- a lower income tax rate could result in more people declaring their earnings and no longer evading paying tax.

But

- why a lower income tax may encourage some existing workers to work fewer hours.
- some workers are not able to change the hours they work. If their hours are unchanged, income tax revenue could fall.
- why MNCs may be discouraged by a lower income tax rate.
- how the distribution of income can affect how much consumption may rise.

Evaluation points

- the influence of the flexibility of labour markets.
- Singapore's top rate is low and so may be to the left of the optimum tax rate. If this is the case, a rise in the income tax rate, rather than a reduction, would increase tax revenue.
- the relationship between tax rates and tax revenue is uncertain. It is debatable whether there is an optimum tax rate.

Exam-style questions: Essay

2 Learners' answers might include:

Knowledge and understanding

- description of government policy tools that can be used to reduce unemployment.
- how inflation can be linked to unemployment through changes in aggregate demand and aggregate supply.

Analysis points

- what the traditional Phillips curve suggests about the trade-off between reducing unemployment and increasing inflation.

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- a traditional Phillips curve showing how a reduction in the unemployment rate causes a rise in the inflation rate.
- how an increase in government spending could reduce unemployment but cause inflation.
- what the expectations-augmented Phillips curve suggests about the effect of government attempts to reduce unemployment below its natural rate.
- an expectations Phillips curve showing how the unemployment rate returns to its initial rate after increasing the unemployment rate.
- how reducing the price of the currency may affect unemployment and inflation.
- how protectionism may affect unemployment and inflation.
- how supply-side policy may affect unemployment and inflation.

Evaluation points

- whether government attempts to reduce unemployment will cause inflation to be influenced by the level of economic activity.
- supply-side policy combined with demand-side policy may enable unemployment to be reduced without causing inflation.
- the Phillips curve and expectations-augmented Phillips curve concentrate on how higher AD and higher wages can cause inflation.

3 Learners' answers might include:

Knowledge and understanding

- definition of supply-side policy.
- definition of fiscal policy.
- definition of economic growth.

Analysis points

- supply-side policy may be used to increase productive capacity and allow higher AS to match higher AD and cause real GDP to increase.
- the effects of interventionist policy tools and market-based supply-side policy tools.
- how fiscal policy seeks to promote economic growth.

Evaluation points

- the influence of the level of aggregate demand and the size and type of any output gap.
- whether the size of the multiplier has been accurately measured.
- how economic agents react.
- the benefits of combining supply-side policies and fiscal policies.

4 Learners' answers may include:

Knowledge and understanding

- definition of cyclical unemployment.
- government policy tools used.
- the alternative to using government policy to reduce cyclical unemployment is to leave it to market forces.

Analysis points

- how expansionary fiscal policy and expansionary monetary policy may reduce cyclical unemployment.
- Keynesian view on why cyclical unemployment can continue in the long run.
- why the aggregate labour market may stay in disequilibrium.

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- a diagram showing disequilibrium unemployment with the wage rate being above where the aggregate demand for labour equals the aggregate supply of labour.
- the new classical economists' view that government intervention is not necessary to eliminate cyclical unemployment.
- why the aggregate labour market may move to equilibrium.
- a diagram showing equilibrium unemployment where the aggregate labour force is greater than the aggregate supply of labour at the going wage rate.

Evaluation points

- the difficulty of determining whether unemployment is cyclical, structural or frictional.
- the influence of the scale and persistence of cyclical unemployment.
- the influence of how flexible labour markets are.

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Coursebook answers

Chapter 48

Economics in context

Learners' discussion might include:

- There are a range of reasons such as an increase in incomes at home, lower quality of domestic products, lack of price competitiveness due to high exchange rate, a fall in incomes abroad, high inflation and low productivity.
- Probably not. There would be risk that the repayment of the loan may be delayed or even not paid. However, the economic performance of the Argentinian economy may improve and the interest be paid in full and the debt repaid.

Activities

Activity 48.1

1. €246bn (€1293bn – €1071bn – €20bn + €92bn – €48bn).
2. – €220bn (– €44bn – €113bn – €62bn – €1bn)
3. – €28bn (the net errors and omissions figure has to ensure that balance of payments total figure comes to zero. Here the current account balance plus the financial account balance plus the capital account balance comes to €28bn (€246bn – €220bn + €2bn). So net errors and omissions must be €28bn – €28bn = 0.)

Activity 48.2

Learners' answers might include:

1. Possible causes of South Africa's current account deficit: lack of international competitiveness of the country's services rather than products here., services foreigners working in the country sending money home to their relatives.
2. A current account deficit might cause a fall in the exchange rate which would make the country's products more price competitive.

Think like an economist

Learners' answers might include:

1. A surplus. The financial account balances out the current and capital accounts. The current account is in deficit and the capital account balance is likely to be low. There is also a net outflow of profits, interest and dividends which suggest an inflow of direct investment, portfolio investment and loans.
2. Yes, India should diversify the service sector as it is heavily dependent on one service, software services, and on three main destinations.

Activity 48.3

Learners' answers might include:

1. To get rid of surplus stock and to capture the market.
2. Subsidising firms may be justifiable in the case of infant, declining and strategic industries.

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Activity 48.4

Learners' own answers.

Exam-style questions: Multiple choice

1 **B** The purchase and sale of shares between countries appears in the financial account as portfolio investment. It is the income earned and paid on portfolio and direct investment and loans that appears in the primary income balance of the current account.

2 **C** An increase in corporate tax may reduce an inflow of direct investment which would reduce a surplus on the financial account of the balance of payments. A, B and D are all likely to encourage more multinational companies (MNCs) to set up in the country and foreigners to buy shares in the country's firms and so increase the surplus. A would be expected to raise the skills of workers. B would be likely to increase aggregate demand and so profits. D would provide a financial incentive for MNCs to set up in the country.

3 **C** Investment in a branch abroad is direct investment and appears in the financial account. Copyrights are non-produced, non-financial assets. The purchase of copyrights is one of the items in the capital account.

4 **B** The trade balance is - $4m and the effect on the financial account is + $6m, totaling $2m.

5 **B** A government subsidy involves government spending and so may be regarded as a fiscal policy tool. The subsidy could also be designed to reduce imports of steel and so may be a protectionist policy tool. A is an exchange rate policy tool if brought about by the action of a central bank and C is a monetary policy tool. D is a protectionist policy tool but not a fiscal policy tool.

6 **D** If 10 000 cars, for example, are usually imported in each year and a quota is set at 12 000 cars a year, there will be no effect on the number of cars imported. A and C would increase the effectiveness of the quota. B would have no impact on its effectiveness.

7 **D** The balance of payments should balance. If there is a deficit on the current account, the other two components should have an overall surplus. A deficit will reduce aggregate demand which is likely to increase unemployment. It is also likely to cause an appreciation of the currency.

8 **A** An increase in a country's interest rate may reduce consumption as it will be more expensive to borrow and more rewarding to save. It may increase the exchange rate as it may attract hot money flows. A higher interest rate may increase government spending as more will have to be paid in interest on the national debt. It is more likely to increase the exchange rate. It will be likely to reduce lending and increase saving.

9 **C** An expenditure-reducing measure is one designed to decrease imports and increase exports by reducing domestic spending on all goods and services, wherever they come from. It does not discriminate between imports and domestically produced products. A limit on bank lending would be likely to reduce borrowing and spending on products from all sources. A, B and D are all expenditure-switching measures, designed to encourage spending to switch from foreign to domestically produced goods and services.

10 **B** An expenditure-switching policy may increase employment by raising exports. Both expenditure-switching and expenditure-reducing policies may increase a current account surplus but this will not be their aim. An expenditure-reducing policy may reduce economic growth and inflation.

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Coursebook answers

Chapter 49

Economics in context

Learners' discussion might include:

- Both the internal and external value of the Ghanaian currency fell over the period shown. Inflation reduced the internal value and the fall in the exchange rate reduced the external value.
- It would appear that changes in the external value of the cedi had more impact on the current account balance. Each year there is a negative change in the exchange rate, showing that it declined each year. So, Ghana's exchange rate fell over the period shown and the current account deficit got smaller. Ghana's inflation was relatively high and noticeably higher than two of its main trading partners. Of course, inflation rate figures are only given for two of Ghana's trading partners.

Activities

Activity 49.1

1 The real exchange rate is $\$1 = \frac{20 \times 144}{120}$

This means the real exchange rate is \$1 = 24 pesos.

2 The dollar is overvalued as the real exchange rate is higher than the nominal exchange rate.

Activity 49.2

Learners' answers might include:

1 A stable exchange rate can promote international trade and investment.

2 A central bank might want to avoid a rise in its country's exchange rate as it could worsen the current account balance, reduce economic growth and increase unemployment.

3 The price of the Swiss franc fell between 2017 and 2018. 1 euro bought more Swiss francs and each Swiss franc bought a lower value of euros. A fall in the Swiss exchange rate would have lowered the price of Swiss exports in terms of foreign currency.

Activity 49.3

Learners' answers might include:

a Aruban consumers are likely to gain as the price of imports will fall. The price of domestically produced products may also fall as the lower price of imports will reduce costs of production and increase the competitive pressure on Aruban producers to keep down price rises.

b Aruban importers will gain as they will have to pay less for the products they are buying from the USA.

c Exchange rate dealers who were holding the Aruban currency will gain as its value has increased.

d US consumers who buy Aruban products will lose as their price will rise.

e US exporters who sell to Aruba may gain as their prices will decrease in Aruba which may increase their export revenue.

f US tourists to Aruba will lose as their holidays will be more expensive.

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Think like an economist

Learners' answers might include:

1 It would be expected that the price of the somoni would have fallen. It had been coming under downward pressure. More imports were purchased which would have increased the supply of the currency.

2 Learners' own answers.

Activity 49.4

Learners' own answers.

Exam-style questions: Multiple choice

1 **D** She would initially have sent home $300 × 10 rupee = 3000 rupee. After the devaluation she would have sent home $300 × 15 rupee = 4500 rupee.

2 **A** A revaluation will increase the price of the country's exports and lower the price of imports. Higher expenditure on imports would reduce a current account surplus. A lower price of imports would lead to higher demand for imports. For this demand to be met, it is important that more imports can be supplied. B is not significant as the country's output would not need to increase. C and D would be likely to increase the current account surplus.

3 **D** A devaluation is likely to increase the domestic price level as the price of imported raw materials and capital goods will increase and aggregate demand will rise. So, a government is unlikely to want to devalue the currency when there is high inflation. In contrast, it may want to devalue the currency when unemployment is high. This is because a devaluation may increase net exports which could create more jobs.

4 **D** A central bank will be responsible for maintaining the exchange rate at its target price. The central bank may finance a budget deficit, but it does not try to influence the size of the budget deficit. An improvement in the terms of trade may involve either the exchange rate rising in value or the internal value of the currency falling. The first is what the central bank is trying to avoid in the case of a fixed exchange rate and the second would put downward pressure on the currency, again something the central bank would try to avoid. The central bank may provide loans to commercial banks but not to firms and households.

5 **B** Reserves are used to support a currency's price when it is under downward pressure. The reserves will be used to purchase the currency to maintain its price. A decrease in workers' remittances received from other countries would result in a reduction in demand for the currency. Less foreign currency would be sold to purchase the domestic currency. A, C and D would all put upward pressure on the exchange rate. In these cases, the central bank may sell the currency to keep its price down. The foreign currency gained would be added to the reserves.

6 **B** Downward pressure on the currency occurs when the demand for the currency falls and/or the supply of the currency rises. A net outflow of primary income would increase the supply of the currency on the foreign exchange market. For example, interest paid on deposits held in the country's banks by residents of other countries will require foreign currency to be purchased. A would increase demand for the currency as the loans would be given in the domestic currency. C would decrease the supply of the currency and D would be likely to increase demand for the currency.

7 **C** An exporting firm can take advantage of devaluation by allowing its prices, in terms of foreign currency, to fall. This is because it is likely to gain higher sales and increased revenue when it is converted back into the domestic currency. It could also keep the price the same in terms of the foreign currency. This would mean its sales would be unlikely to change. In this case, its revenue in terms of foreign currency would also be unchanged but a higher value will be earned when it is converted back into the domestic currency.

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8 A According to the Marshall-Lerner condition, a devaluation will succeed in improving the trade balance only when the combined elasticities of demand for exports and imports is greater than 1. In the case of A, the combined elasticity is only 0.8. In the case of B, C and D, the combined elasticities are all greater than 1.

9 B The J curve effect suggests that a fall in the exchange rate will initially worsen the trade balance, and so the current account balance, because demand for exports and imports will be price inelastic. However, after a period of time the trade balance will improve as demand for exports and imports will become price elastic. Increased length of contracts would reduce the extent to which demand for exports and imports could change as a result of a change in price. A and D would make demand for exports and imports more price elastic. C would make supply more price elastic.

10 B A reverse J curve effect occurs when a current account surplus initially gets larger as demand for exports and imports may be inelastic. This is because it takes time for firms and households to notice the price changes and switch to cheaper substitutes. In the longer run, the surplus will decline as demand becomes more elastic. The more expensive exports will cause export revenue to fall and the cheaper imports will result in a rise in import expenditure.

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Coursebook answers

Chapter 50

Economics in context

Learners' discussion might include:

- Learners' own answers.
- In some countries, information is produced on quality of life adjusted years as people who experience poor health may not enjoy living longer.

Activities

Activity 50.1

Learners' own answers.

Activity 50.2

1 There is some positive correlation but it is not consistent. Europe has the most years of schooling and the highest GNI per capita. South Asia and Sub-Sahara Africa appear 5th and 6th in both columns. However, Latin America comes 2nd in terms of education but only 4th in terms of income. The Arab states and East Asia and the Pacific are also in a different order.

   It would be expected that there would be a positive correlation as more years of schooling is likely to lead to a more productive labour force.

2 Yes, Sub-Saharan Africa had the lowest HDI value, the fewest years of education, the lowest life expectancy and the lowest income per head.

Activity 50.3

Learners' answers might include:

1 Health poverty can be measured in the MPI by examining child mortality and nourishment data.

2 For example, poor housing and only a few years of schooling.

3 A lack of education is an important indicator of poverty as it indicates that people are not able to educate their children or that the country does not have the resources to provide state education free to parents and their children. It also suggests that those who do not get much education are unlikely to be able to gain a highly-paid job.

Think like an economist

Learners' discussion might include:

1 Among the range of policy tools are increased government spending on healthcare, education and training, increased state benefits, anti-discrimination legislation and a progressive tax system.

2 Learners' own answers.

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Activity 50.4

Learners' own answers.

Exam-style questions: Multiple choice

1 **A** If income has become more unevenly distributed, it is possible that most people may not have benefited from the higher income. B would mean that real income has risen, which will be more beneficial than just a rise in nominal income. C would result in a rise in GNI per head. D would be likely to increase the quality of life, at least in the short run.

2 **D** Country D is likely to have the highest level of development as it has the highest income per head, the joint highest % of the population with access to the internet and the smallest percentage of the population who are homeless.

3 **A** This is a definition of purchasing power parity. D is a definition of the real exchange rate. In the case of B, a floating exchange rate may move to a position where there is equilibrium on the current account of the balance of payments. In the case of C, there is no exchange rate which will ensure that incomes in two trading partners are equal.

4 **A** A decrease in the death rate is likely to be associated with an increase in life expectancy. A higher life expectancy would increase the HDI value. An increase in emigration is likely to reduce output by more than population as emigrants are often of working age. A reduction in average years of schooling would directly reduce the HDI value and a recession would reduce the HDI value as it will lower GNI per head.

5 **D** Over time, life expectancy increases in most countries. If life expectancy stays the same in one country, it is likely to be overtaken by other countries. Expected years of schooling is usually greater than mean years of schooling as the number of years of schooling usually increases over time. If GNI falls by less than population, it means that GNI per capita has increased which may have caused a rise in relative development. Income distribution is not included in HDI.

6 **B** High productivity can result in high income per head. The other three characteristics are more likely to be found in a country with low development. A country with high development will be likely to have high income per head, high investment and a high literacy rate rather than a high illiteracy rate.

7 **B** Sanitation is one of the indicators of living standards in the MPI. It does not appear in the HDI. Leisure time appears in MEW but not in either MPI or HDI. Years of schooling appears in both MPI and HDI. Tax revenue does not appear as an item in either MPI or HDI.

8 **C** While HDI takes GNI per head into account, MEW starts with GDP.

9 **D** An increase in income per head will directly increase HDI and MEW. It is likely to decrease MPI as for example health and nutrition are likely to improve.

10 **D** The Kuznets curve suggests that as countries develop, income inequality first increases, peaks and then decreases. The initial rise in inequality could be seen as unfair. A is the Phillips curve, B the J curve and C is an environmental Kuznets curve.

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Coursebook answers

Chapter 51

Economics in context

Learners' discussion might include:

- Advantages of living in a country with a declining population include less congestion, possibly less pollution, fewer children to support and possibly innovation as there may be more reliance on capital equipment. Advantages of living in a country with an increasing population include more demand, possibly more workers, more ideas, more output and more variety of goods and services.
- Japan's population may decline by less than predicted if Japanese families decide to have more children, the Japanese live longer than expected and more people move from other countries to live in Japan.

Activities

Activity 51.1

1 a Germany's birth rate was $\frac{790{,}000}{82.6\text{m}} \times 1000 = 9.6$.

b the number of people who died in Germany was $\frac{82.6\text{m}}{1{,}000} \times 11.3 = 933\ 380$.

2 The net change was $15 - 9 - 2 = 4$. The population would have increased by $\frac{30\text{m}}{1{,}000} \times 4 = 120\ 000$.

Activity 51.2

Learners' own answers.

Activity 51.3

Learners' own answers.

Activity 51.4

1

Percentage of the population	% share of income	Cumulative % of income
Poorest 20%	7	7
Next poorest 20%	14	21
Middle 20%	18	39
Next richest 20%	23	62
Richest 20%	38	100

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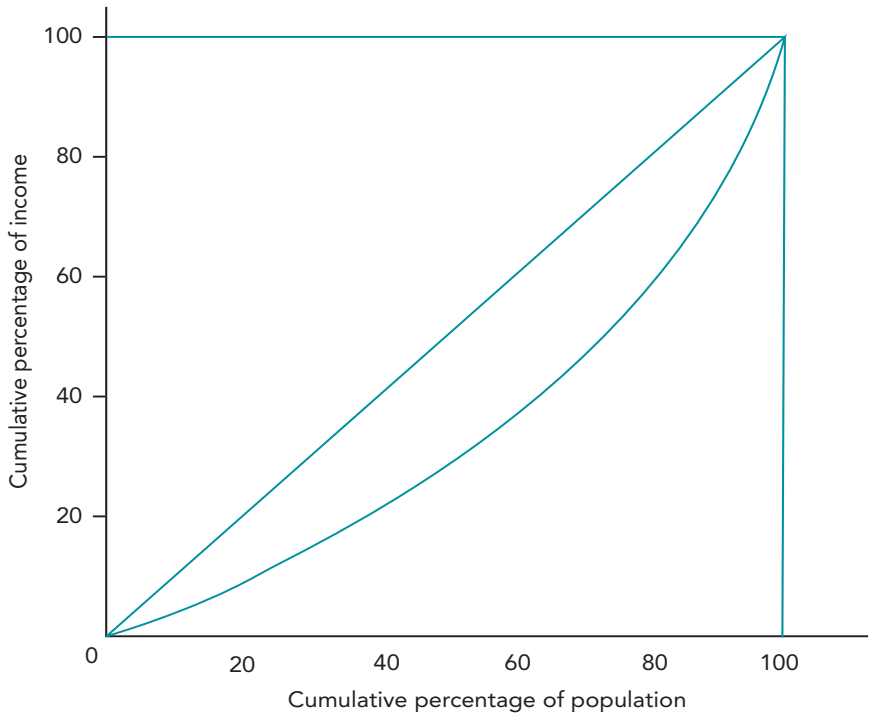
2



Lorenz curve showing income distribution in Sweden, 2015

Think like an economist

Learners' own answers.

Activity 51.5

Learners' own answers.

Exam-style questions: Multiple choice

1 A There would have been 12 (28 – 16) more people per thousand. So, the increase in population would have been $\frac{10\,\text{m}}{1000} \times 12 = 120\,000$.

2 C If children have to spend longer in school, the cost of raising children will increase. This may discourage some people from having children. A, B and C are all likely to increase the birth rate.

3 D A country with a high level of development is likely to have a low population growth rate. A, B and C are all likely characteristics of a country with low development.

4 A If income is more evenly distributed in Country Y, more of the country's residents may have access to good healthcare. B, C and D would all be likely to result in lower life expectancy in Country Y.

5 B A greater quantity or quality of resources will mean that a higher output could be produced for any given level of population.

6 A A rise in a country's Gini coefficient indicates that income inequality has risen and vice versa. Income is still more unevenly distributed in Country Z, although the gap in inequality has narrowed. The Gini coefficient does not show how income has changed in absolute amount nor how the total income in one country compares with the total income in another country.

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7 B If the Lorenz curve has moved further from the line of equality, it means that income has become more unevenly distributed. A decrease in the top rate of income tax would benefit the highly paid most. This would be likely to increase income inequality. A, C and D are all likely to benefit those on low incomes most and may help to reduce the gap in income between those in the lowest income groups and those in the highest income groups.

8 B As a country develops, the death rate falls as the quality of healthcare, nutrition, education and housing increase. The more developed an economy is, the higher the proportion of its students that will progress on to university.

9 C The manufacturing forms the largest part of the secondary sector and the service sector is another term for the tertiary sector. Initially the primary sector tends to account for the highest proportion of employment. The manufacturing sector then becomes more significant and then the service sector.

10 A A country with a high level of development and income per head is likely to export services and may import primary products.

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Exam-style questions and sample answers have been written by the authors. In examinations, the way marks are awarded may be different.

Coursebook answers

Chapter 52

Economics in context

Learners' discussion might include:

- In the short run, ending child labour may increase poverty as families' income may fall. In the long run, it is likely to reduce poverty. This is because it is likely to increase the education children receive and so their productivity and income.
- The arguments for accepting the loan are that it is possible that the conditions may improve macroeconomic performance and raise living standards. If a government is spending more than its tax revenue, it may build up unsustainable national debt. Privatisation and making it easier to sack workers may increase efficiency. Firms in the private sector may have to keep costs low and productivity high to stay in business. Knowing that it is easier to sack workers may encourage firms to employ more workers when demand is increasing. Accepting the loan may also encourage others to lend to and invest in the economy.

  However, the conditions imposed may reduce the country's macroeconomic performance and lower living standards. A cut in government spending and increase in taxation could lower aggregate demand. This, in turn, could reduce output and increase unemployment. Privatisation and making it easier to sack workers could increase unemployment. Private sector firms are likely to be more concerned with profits rather than protecting workers' jobs.

Activities

Activity 52.1

Learners' discussion might include:

Increased expenditure on aid will involve an opportunity cost. Some governments may consider that governments should give priority to, for example, spending on education in its country. This may be because of a perceived need to raise educational standards in the country or because it may be politically popular.

As well as for humanitarian reasons, there may be economic reasons for devoting a greater percentage. In the long run, the increase in development in other countries will, for example, increase the country's exports and reduce the pressure on housing etc. arising from economic refugees.

Activity 52.2

Learners' own answers.

Think like an economist

Learners' own answers.

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Activity 52.3

Learners' discussion might include:

Writing off the debts of a low or middle-income country may make its government less concerned to ensure that any future foreign aid is used efficiently. It may also make it more difficult to attract private sector loans.

On the other hand, writing off the debts would mean that the money it was spending servicing and repaying the debt could be used to promote development and economic growth. For instance, instead of paying interest, it could spend money on education. Over time, a country may be paying more in interest on past loans than it is currently receiving in new loans. The country may be experiencing difficulty meeting its interest payments and may have to borrow more just to pay interest on its past loans.

The lower the income per head in the country, the stronger is the case that can be made for writing off the country's debts.

Activity 52.4

Learners' own answers.

Exam-style questions: Multiple choice

1 **C** If a country has a large supply of unskilled labour, it may be beneficial to help the country build up a labour-intensive industry. A would not have a direct influence on the outcome. B would make it more likely that the country's workers would be able to make full use of the capital equipment. D would be a possible reason why the country could not afford the capital equipment and would need assistance to obtain it.

2 **A** A decrease in the country's infant mortality rate would indicate an improvement in healthcare and so an increase in development. Higher tax revenue and greater price stability are more likely to promote economic growth and development rather than the opposite. A fall rather than a rise in the death rate would indicate higher development.

3 **C** The demand for and the supply of primary products tend to be inelastic. This means that any change in demand and supply will have more of an impact on price rather than on quantity traded. If, for example, there is a good harvest of cherries, the price of cherries may fall by a considerable amount.

4 **C** An increase in external debt will mean that there will be the need to repay more to the country's lender. This money represents a claim on the country's resources as it can be used to buy some of its goods and services. More interest will have to be paid. Demand-pull inflation may occur as there will be money in the country. The more the country owes, the less people and institutions are likely to be willing to lend to it.

5 **A** Repaying debt involves money leaving the country. It will benefit those who receive the payments. B, C and D will be likely to result in both higher economic growth and an improvement in living standards.

6 **A** A decrease in the country's exchange rate would increase the amount the government would have to repay in its own currency. For instance, if the exchange rate was initially 5 rupees = $1, the government would have expected to repay 100 million rupees. If the exchange rate fell to 8 rupees = $1, it would now have to repay 160 million rupees. B would reduce the cost of the loan, C would make it easier for the country to repay and D does not directly affect the cost of the loan or the country's ability to repay the debt.

7 **D** An MNC is a firm that has its headquarters in one country that produces in another country or countries. A, B and C are examples of firms and a school selling goods and services to another country rather than producing in another country.

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8 B If MNCs export products from the country, demand for its currency will increase. This is likely to result in a rise in the exchange rate. A, B and D would increase the supply of the currency as MNCs would have to exchange the currency to get the currencies of their home countries to buy raw materials and capital goods and to send money back home.

9 D A domestic economic boom would increase the ability of a government to spend on aid. It would increase tax revenue and reduce the need to spend so much on domestic welfare payments. A global boom may reduce the need for aid as income per head will be increase in other countries.

10 D The IMF seeks to promote the growth of international trade which protectionism might threaten. It also tries to encourage exchange rate stability and will often lend to countries in balance of payments difficulties.

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