AS – ECONOMICS (9708)

MACRO

CHAPTER 2

Money & Inflation

Topics
1. Money
2. Types of Inflation
3. Measurement of Inflation
4. Causes and Effects of Inflation
5. Deflation
6. Policies to Correct Inflation and Deflation

TOPIC 1: MONEY

Definition | Money: Is anything generally accepted in payment of debt. In a modern economy money consists of cash, notes and coin, and bank deposits. Generally economists measure supply of money in narrow and broad terms.

— **Narrow money** consist of all the purchasing power that is immediately available for spending. It is therefore measured in terms of notes and coins in circulation.

— **Near money** is anything that performs some functions of money example various types of bank deposits, bonds, money markets, savings accounts and widely traded foreign currencies.

— **Broad money** is just adding near money and narrow money.

— **Liquidity** is the extent to which there is an adequate supply of assets that can be turned into cash. Higher the liquidity the better the business.

In order for money to function in an economy it must have the following characteristics

Characteristics	Description
1. Acceptability	Money needs to be generally acceptable in an economy if it is going to be used for exchange of goods and services. It implies that currency issued by law must be an acceptable medium of exchange.
2. Divisibility	It refers to the states issuing money in various denominations so that people spend just enough that they need to in order to buy a certain product.
3. Portability	This feature highlights that money needs can easily transferred from one place to another if it is going to be convenient. Example: Electronic funds are the most portable form of money as compared to physical cash.
4. Durability	It means that money should be able to holds its physical value and does not suffer from physical depreciation. Durability is a problem that may affect paper currency however in the form of bank deposits that only exists in the form of digital computers.
5. Scarcity	Money derives its value from scarcity. Its value lies in its capacity to be exchanged for goods and services now or in future.
6. Stability in Supply	The money needs to be stable in supply for a long period of time.
7. Uniformity	This ensures that money each note or coin of a particular denomination must have the exact same value. Example: A $1 note must be exactly equal to another $1 note otherwise people would start preferring one form of money to another.
8. Stability in Value	Money should retain its value over a period of time, although inflation might erode it.
9. Exchange Value	Money is difficult to counterfeit. Modern notes are issued with certain signs that cannot be easily replicated.

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Functions of Money | There are 4 Main Functions of MONEY

Function	Description
1. Medium of Exchange	It can be used to buy goods and services. It helps overcome the problem of barter system in which goods needed to be swapped, which was time consuming and inconvenient.
2. Measure of Value	It is used to value goods, services and assets. It is used to compare value of one good with the other. The value is in the form of prices and price are expressed in money. This helps in developing relative prices and gauge value. This feature helps overcome the problem in barter system of measuring value of one commodity against the other.
3. Store of Value	It is used to hold today's wealth (savings) to buy goods and services in the future. It is better than commodities since commodities tend to wear out with time. However, it should always be noted that due to inflation money starts losing its value however in the short run money has efficient stability.
4. Standard of Deferred Payment	Money helps people to borrow and lend. It helps in postponing payment and assists in measuring future claims. Example: Loans taken out today are repaid in money at some time in the foreseeable future.

Note: The functions are also the advantages of money and these functions have helped the economies over the world to grow.

Bartering and need for exchange

Definition: Bartering is the act of swapping items in exchange for other items through a process of bargaining and negotiation. Example: Trading 5 sacks of sugar to 2 chickens. However, this system had several problems due to which countries developed money.

Problems associated with barter are:

1. Double coincidence of wants – Two people engaged in trade must both demand what the other person is selling. This is not always the case.

2. Problem of Divisibility – There are several goods that cannot be divided. Example: two-thirds of a cow might not be useful for a trader.

3. Portability – In barter it was difficult to carry and move wealth. Example: Moving sacks of sugar to trade are very difficult as compared to taking currency notes.

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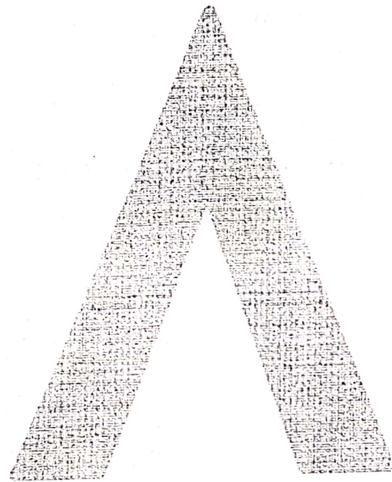
Key terms in Money

Term	Description
1. Cash and bank deposits	Cash is money in the physical form of currency, such as banknotes and coins. Bank deposits consist of money placed into banking institutions for safekeeping.
2. Cheques	A cheque or check is a document that orders a bank to pay a specific amount of money from a person's account to the person in whose name the cheque has been issued.
3. Near money	These are non-cash assets that can be quickly converted into cash. Example: Foreign currency, bonds, certificates, savings accounts etc.
4. Liquidity	This is the extent to which there is an adequate supply of assets that can be turned into cash. Higher the liquidity the better the business.



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TOPIC 2: TYPES OF INFLATION

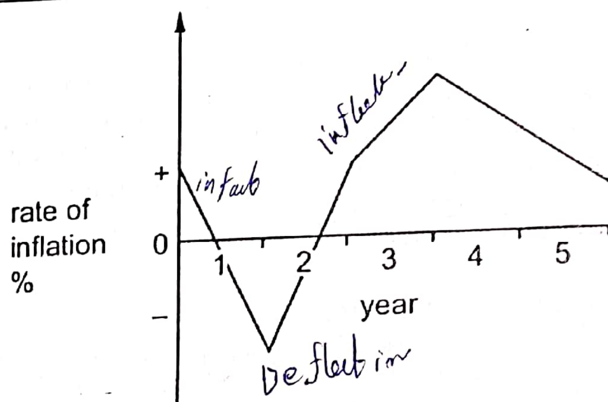
1. INFLATION

Definition: It is a persistent increase in general price level in an economy over time. High inflation rates tend to reduce the value of money hence government wants to keep it low.

Types of Inflation

Types	Description
1. Mild inflation	When price level rise by a relatively high rate it is known as mild inflation. (5%-10%)
2. Galloping inflation	When price level rise by a high rate is known as galloping inflation. (10-20%)
3. Hyper inflation	It is an extreme form of inflation in which price level rises by 100's and 1000's. The money starts losing its value and the economy may collapse.
4. Deflation (opposite of inflation)	It is a persistent fall in general price level. This leads to a rise in value for money.
5. Disinflation	It is a situation where general price level rises which a decreasing rate. Price level rises, but rate of inflation slows down.

Example



Key Points:

1. As long as the Rate of inflation is +ve. Even if the graph is sloping downward prices are increasing.
2. When the Rate of inflation is -ve. Only then will prices go down. Which is called deflation.
3. From Year 0 to Year 1 we see disinflation. As the % of inflation is going down but it is still in the +ve zone.
4. Between year 1 and year 2 these is deflation
5. After year 2 to 3.5 there is inflation where prices are increasing
6. After year 3.5 again we experience disinflation.

TOPIC 3: MEASUREMENT OF INFLATION

Definition: Inflation is measured by changes in the retail price index (RPI) or Consumer Price Index (CPI) which records changes in the genera price level. The RPI is a statistical device that indicates changes in the general price level from the base year to the current year, measuring the changes in the value of money. There are EIGHT steps in the calculation of RPI:

STEP 1: To show the changes in general price level, it is simple impossible to record and calculate the price changes of all the goods and services produced in a country. Therefore, by using the statistical techniques of sampling almost a basket of goods is selected for indication of changes in general price level. This basket of goods contains goods and services that an average family uses, food, clothing, fuel etc. Goods and services that are used by a very limited group of people will not be taken in the selected basket e.g. luxury cars, designer clothing etc.

STEP 2: A normal economic year in which there are no political or economic imbalances should be taken as the "Base Year". Base year is a standard year with which rest of years prices are compared. Price level in base year is represented by 100.

STEP 3: Statistical department of govt. collects information about the prices in base year as well as current year. This information about prices of selected basket of goods is collected from retail outlets, newspapers, price lists etc.

STEP 4: Consumers spend much more of their incomes on certain goods and services and these should be given greater importance in the index. For instance, more consumers spend more of their incomes on bread than on television cable. Commodities should be given a weight which reflects their relative importance in the consumer spending.

$$\text{Weight} = \frac{\text{Expenditure on the good}}{\text{Total Expenditure}} \times 100$$

STEP 5: Index are calculated using the following formulae

$$\text{Index} = \frac{\text{Current Year Price}}{\text{Base Year Price}} \times 100$$

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STEP 6: Weights are multiplied by indexes to calculate the weighted indexes:

$$\text{Weighted Index} = \text{Index X Weighted Index}$$

STEP 7: RPI is obtained by taking sum of all weighted indexes and dividing it by the total weights.

$$\text{RPI} = \frac{\text{Total Weighted Index}}{\text{Total Weights}}$$

STEP 8: Rate of inflation is calculated by taking percentage change in the current year average price (i.e. RPI of current year) to the base year (i.e. RPI of base year)

$$\text{Rate of Inflation} = \frac{RPIc - RPIb}{RPIb} \times 100$$

100

There are **TWO** Types of Questions on calculation of inflation.

Type 1: Example [M/J 2009/Q24]

What is the average weighted price change illustrated by the table below?

product	percentage of income spent on product	price change %
P	10	+8
Q	15	+6
R	25	+4
S	50	−9

A 9.0%   B 7.2%   C 4.5%   D −1.8%

STEP 1: Always convert % of income spent in decimals and take % change in price as it is.
STEP 2: Multiply Weight and Index to calculate the weighted index
STEP 3: Total the Weighted Index

Weight / % of income spent	Index / % Change in Price	Weighted Index
0.10	8	0.80
0.15	6	0.9
0.25	4	1
0.50	-9	-4.5
		-1.8% [ANSWER] ROI

Type 2: Example [O/N 2015/Q26]

The table shows the Consumer Price Index (CPI) for a country.

year	CPI
2008	100
2009	104
2010	102
2011	105
2012	108
2013	111

In some quesitons the CPI is already given. In this case we just have to apply the formulea of % change in CPI to calculate the rate of inflation.

$$\text{Rate of Inflation} = \frac{RPIc - RPIb}{RPIb} \times 100$$

Year	Rate of Inflation
2008	-
2009	4%
2010	-1.92%
2011	2.95%
2012	2.86%
2013	2.77%

— Difference between RPI and CPI

RPI	CPI
1. RPI include cost of housing, mortgage interest payments and other housing costs.	1. CPI cost paid of financial services only.
2. Calculates for average households and ignore the very poor and the very rich.	2. Takes into account all the individuals.
3. Calculated using arithmetic mean.	3. Calculated using geometric mean.

— Money values vs Real Values

Definition | Money Values: Values at the prices operating at the time. (no minal value)
Definition | Real values: Values adjusted for inflation.

Example: For example, a worker's wages may rise from $5,000 in 2015 to $6,000 in 2016.

Money Values	Real Values
In money values the wage went up by 20%. (1000/5000) x100 = 20% ↑	In real terms inflation also occurred. Where consumer price index went up from 100 in 2015 to 125 in 2016. His real income would be $6,000 × 100/125 = $4,800 (200/5000) * 100 = 4%↓

Conclusion: So in real terms, his 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.

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TOPIC 4: CAUSES AND EFFECTS OF INFLATION

There are FOUR main causes of inflation:

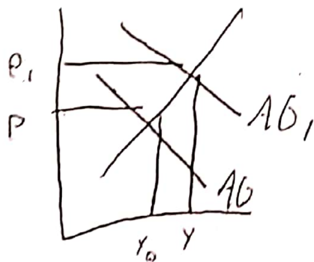
1. Demand-pull Inflation
2. Cost-push Inflation
3. Monetary Inflation
4. Imported Inflation

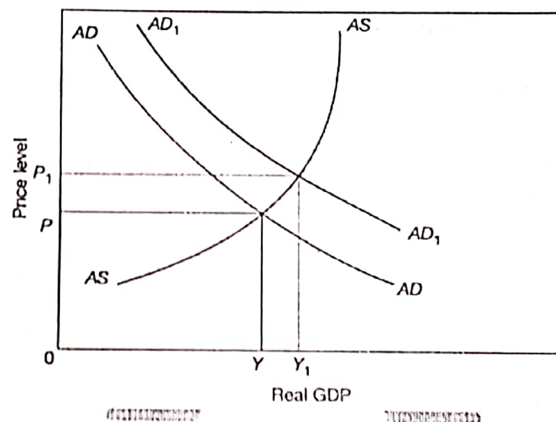
1. Demand-pull Inflation

Definition: If there is too much demand in the economy relative to the supply of goods and services prices will rise and this type of inflation is known as demand-pull inflation. Demand-pull inflation can occur when:

1. Economy is below full employment
2. Economy is already at full employment.

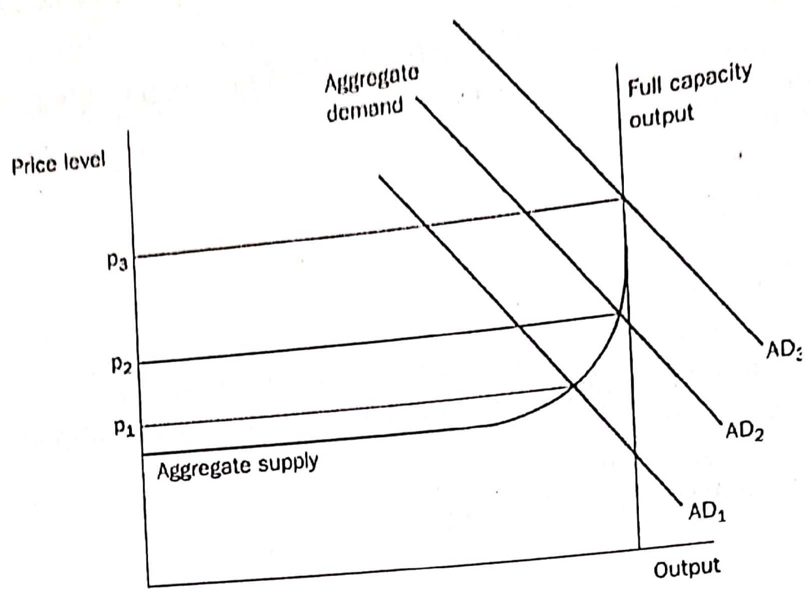
- Economy is below full employment: When the economy is initially operating below full employment, increase in AD will lead to an increase in price as well as real GDP. It can be shown with the following diagram:





As AD increase from AD to AD1, according to the figure above price level rises from P to P1 causes demand-pull inflation. However, there is an increase in total output from Y to Y1 because the economy was operating below the full employment.

- Economy is already at full employment: When we say that there is full employment in the economy, we mean that all the economy's resources are employed and that the economy is operating at full-capacity. Any further increase in AD at full employment will lead to inflation without further increase in real output. It can be shown in the diagram below. When AD rises from AD2 to AD3, price level rises from P2 to P3 however there is no increase in level of output.



Note: Demand-pull inflation is associated with low unemployment because excess demand in the economy lead to increased production and employment. This is a tradeoff between demand-pull inflation and unemployment.

Reasons for increase in AD

AD = C + I + G + (X-M)

1. Consumer spending increased due to excessive income, lower interest more wealth etc.
2. Capital investment increased due to lower interest rates, business optimism, better technology
3. Government Spending increased due to expansionary fiscal policy, too much spending on health care, schools etc.
4. Exports increased and imports decreased. This can be due to fall in the value of domestic currency etc.

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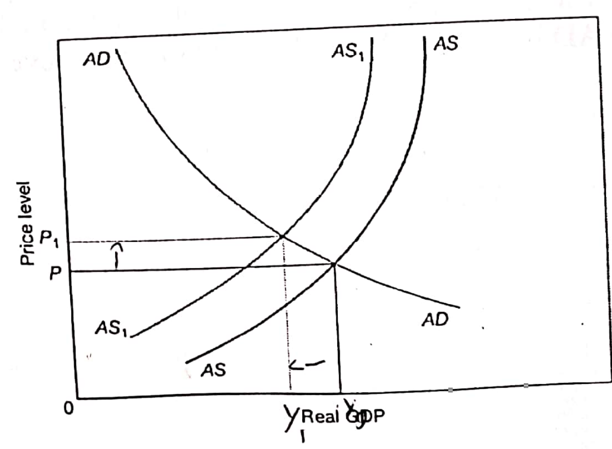
2. Cost-push Inflation

Definition: Cost-push inflation is caused by higher costs of production, which makes firms raise their price in order to maintain their profit margins. This may be due to increase in raw material prices, wages, indirect taxes, import prices etc. This can be shown with the following diagram:



As we see from the above diagram let's suppose the cost of raw material went up which shifted the AS supply to the left from AS1 to AS2, forcing up the general price level from P1 to P2 and reducing the national output from Y1 to Y2.

Note: If the increase in the cost of production is because of an increase in wages, the same effect would be generated however it would have also caused unemployment with inflation. This concept is known as stagflation.

3. Monetary Inflation

Definition: This inflation is caused by the growth of money supply. This can be due to easier credit, e.g. loans and credit cards. More money supply increases total spending, hence raising the AD causing inflation.

The monetarist believe that the main cause of inflation is the growth of money supply. They believe that excess demand and rising costs are symptoms of inflation and not the cause. Their argument is based on the quantity theory of money.

$$MV = PY$$

M = Quantity of Money
V = Velocity of circulation
P = Price level
Y = Level of output

It is assumed that in the shot-run V and Y don't change much. Therefore any change in M, the quantity of money will cause prices P to rise.

$$P = \frac{MV}{Y}$$

4. Imported Inflation

Definition: This occurs due to higher import prices, forcing up cost of production and therefore causing domestic inflation. 1) This can happen due to an increase in costs in another country or the value of the currency of the domestic economy dropped

5. EFFECTS OF INFLATION

Inflation affects different people differently. Following are some of the consequences of inflation:

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Advantages of Inflation

1. Creeping inflation might signal investors that the economy is expanding and there is rising demand.
2. The value of government debt and interest payments will decline in real term.
3. Inflation might shift individuals into higher tax brackets which can generate more tax revenue for the government, hence higher government spending on merit goods.
4. Borrowers gain from inflation as they have to return less of what they actually borrowed, in real terms.
5) Increases GDP and employment (demand-pull inflation)

At last

Disadvantages of Inflation [Internal]

Factor	Description
1. Menu Costs	Businesses need to regularly update the prices on menus, catalogues, vending machines etc. which is costly.
2. Consumers	Consumers lose since their real income decreases and less goods can be bought with the same amount of money.
3. Shoe Leather costs	Consumers will spend more time searching for reasonable prices.
4. Savers only if the rate of inflation is greater than the interest rate.	If the rate of inflation is higher than the interest rate savers tend to lose on their savings and hence save less. This reduces the value of available funds in the economy.
5. Lenders	Lenders are reluctant to lend because money is worth less upon time of repayment.
6. Fixed Income earners	They lose since the value of their pensions and salaries do not grow at the same rate with inflation.
7. Low income earners	Poor people tend to be more affected by inflation as compared to high income earners. This is because poor people usually have one stream of income where as rich people tend to have multiple source of revenue.
8. Exporters	Exporters lose because the goods are expensive in the international market making the exporter less competitive.
9. Importers	Imports become expensive because of the decline in the purchasing power of money.
10. Employers	Employees demand higher wages in times of inflation, this increases the labor cost. This causes a wage-price spiral where higher wages cause inflation and more inflation causes a further increased demand for higher wages.
11. Business Confidence Level	Inflation causes business uncertainty since investors are unsure about the return on their investment. This reduces the level of investment in an economy.
12. Hoarding and Black markets.	To profit from rising prices producers hoard stocks of their commodities. Consequently, creating an artificial scarcity of the product, resulting in a formation of black market.

Disadvantages of Inflation [External]

1. Impact on Trade and Exchange Rate: Uncertainty caused by inflation also affects the country's foreign trade. If, for instance, a country. suffers from relatively high inflation, its exports will become less competitive in the world market. At the same time, imports will become relatively cheaper than will fall home-produced goods. Thus exports will fall and imports will rise.

2. International Investment Flows: Due to raising prices foreign firms prefer not to establish operations in a country with high rate of inflation because cost of production would be high and the amount of profit that the firm earns would be less in real terms. Furthermore more inflation would mean expensive goods which reduces the chance of selling. However if it is due to demand-pull inflation this shows extra demand in the economy and potential economic growth which can lead to firms entering and trying to capitalize on it.

Factors affecting the consequences of inflation [Evaluation]

Factor	Description
1. The cause of inflation	If it is demand pull inflation it is less harmful since it results in an increase in output and employment. However if it is due to cost push then it will lead to not only increasing prices but also low employment and fall in output.
2. The rate	A high rate of inflation is likely to cause more damage than a low rate especially if the high rate develops into hyperinflation. This leads to households and firms losing faith in the currency and may bring down a government.
3. Accelerating or stable rate	An accelerating inflation rate, and indeed even a fluctuating inflation rate, will cause uncertainty and may discourage firms from undertaking investment. They need to devote more time and effort to establishing future inflation will increase costs.
4. Expected or sudden	Unanticipated is more dangerous since consumers and firms can't adjust their spending and investment patterns instantly. Consumers might save more and firms might buy today since they know machinery will become more expensive in the future.
5. Comparison with other countries	If the rate of inflation is below that of rival trading partners, its products may become more internationally competitive. Your vs other

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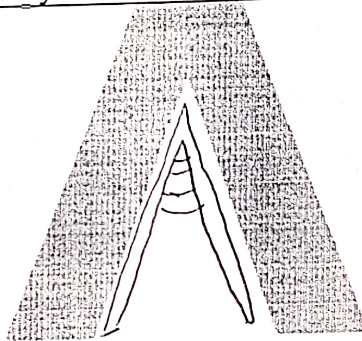

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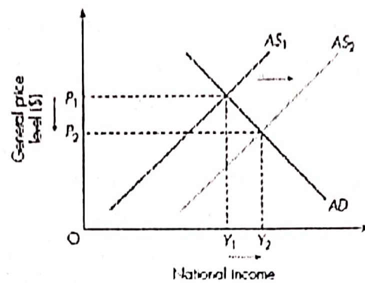
TOPIC 5: DEFLATION

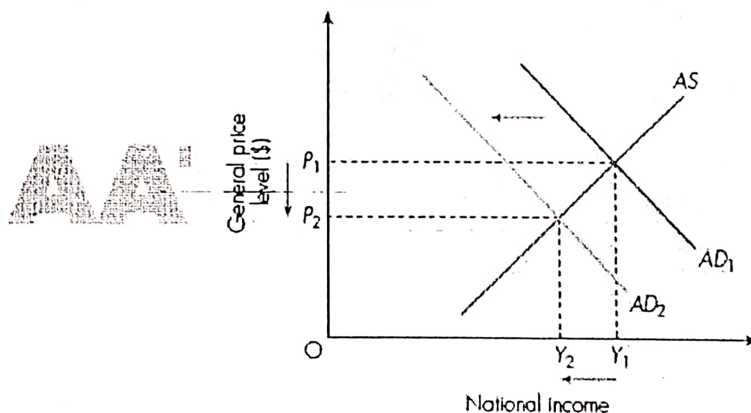
Definition: It is a persistent fall in general price level of goods and services in the economy. In other words, it is a negative rate of inflation. Deflation can happen because of the following reasons:
1. Increase in Aggregate Supply (AS)
2. Decrease in Aggregate Demand (AD)

1. Increase in Aggregate Supply (AS)
AS can increase because of better technology, cheap factors of production, lower taxes, better education etc. The effects can be show with the diagram:



As we see from the diagram above the AS1 curve shifts rightward to AS2, reducing the general price level from P1 to P2 and increasing national output from Y1 to Y2. This type of deflation is benign or non-threatening.

2. Decrease in Aggregate Demand (AD)
AD can decrease in times of economic recession and rising level of unemployment. This type of deflation is harmful for the economy as it reduces national output and standard of living. The effects can be shown with the following diagram:



As we see from the diagram above the AD1 curve shifts leftwards to AD 2, reducing the general price level from P1 to P2 and decreasing national output from Y1 to Y2.

Advantages	Disadvantages
1. Deflation from increased efficiency and lower costs of production. The right kind of deflation involves lower prices through increased productivity and better technology. Aggregate Supply curve shifting to the right – which both lowers the price level and increases real GDP.	1. Unemployment: As the AD falls, less labor is required to produce goods and services which causes layoffs.
2. Improved international competitiveness. If one country has deflation, and others have inflation, then that country will become more internationally competitive, leading to a rise in exports. During Japan's deflation, they saw strong exports – which helped offset the fall in consumer spending (though it still wasn't enough). However, if there is a region-wide period of deflation then you are not getting this competitive advantage.	Due to people not having jobs and firms don't have profit incentive anymore. 2. Bankruptcies: As Consumers spend less, hence lower sales and profits for the firms. This causes firms to shut down.
	3. Increase Debt: The real cost of borrowing increases.
	4. Consumer Confidence: It decrease as consumers might postpone spending in anticipation of ever lower price in the future, worsening the problem.

3. If it happens due to increase in AS, it can even lead to economic growth and more employment.

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TOPIC 6: POLICIES TO CORRECT INFLATION & DEFLATION

1. POLICIES TO CORRECT INFLATION

1. Contractionary fiscal policy (Reduces AD)
2. Contractionary monetary policy (Reduces AD)
3. Supply Side Policies (Increase AS)

1. Contractionary fiscal policy (Reduces AD)

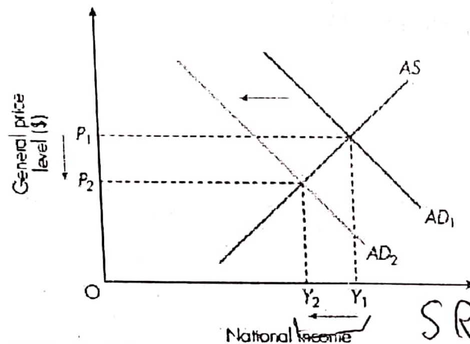
Definition: In this the government reduces government spending and increases taxes. Reducing government spending and increase taxation reduces consumption and government spending.

Tax↑ Income ↓ Consumption ↓AD ↓ Inflation ↓
Govt. Spending ↓ AD ↓ Inflation ↓

2. Contractionary monetary policy (Reduces AD)

Definition: In this the government reduces the money supply and increases the interest rates.

Money Supply ↓ People have less money to spend ↓ Consumption ↓ Inflation ↓
Interest Rates ↑ Borrowing ↓ Consumption ↓ Inflation ↓



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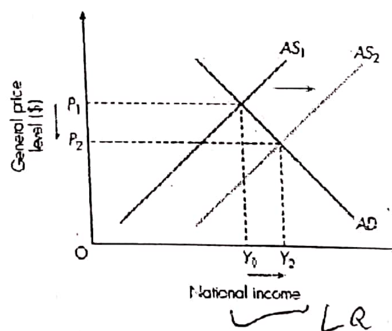
3. Supply Side Policies (Increase AS)

Definition: All the supply side polices like labor market reforms, training, privatization, deregulation can be used to used increase the supply to reduce inflation.



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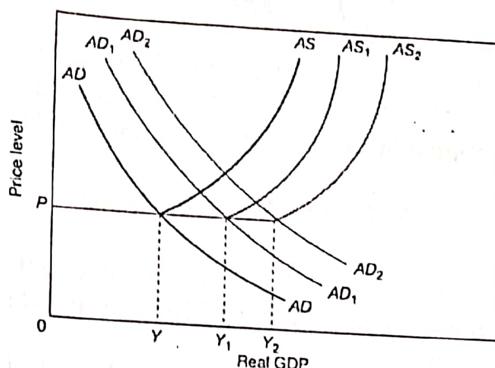
To reduce the risk of demand-pull inflation in the longer term, governments use supply side policy measures. Over time aggregate demand tends to increase. If increases in aggregate supply can keep pace with higher aggregate demand, a country can enjoy higher output (higher real GDP) without experiencing inflation.



2. POLICIES TO CORRECT DEFLATION

1. Expansionary fiscal policy (Increases AD)
2. Expansionary monetary policy (Increases AD)
3. Print money (Increases AD)
4. Devaluation (Increases AD)

1. Expansionary fiscal policy (Increases AD)

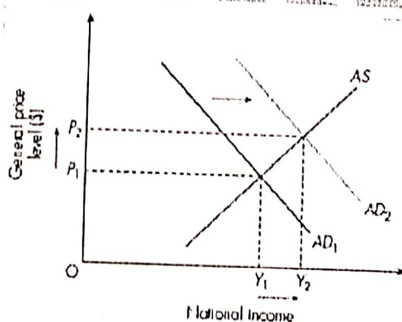
Definition: In this the government increases government spending and reduces taxes. Increasing government spending and reduction taxation increases consumption and government spending.

Tax↓ Income ↑ Consumption ↑ AD ↑ Deflation ↓
Govt. Spending ↑ AD ↑ Deflation ↓

2. Expansionary monetary policy (Increases AD)

Definition: In this the government increases the money supply and reduces the interest rates.

Money Supply ↑ People have more money to spend ↑ Consumption ↑ Deflation ↓
Interest Rates ↓ Borrowing ↑ Consumption ↑ Deflation ↓



3. Print money (Increases AD)

Printing money will increase price according to the quantity theory of money. As – we should get inflation. A particular policy for printing money is termed the 'helicopter drop' – where the Central Bank gives newly created money to consumers directly. Central Banks have been reluctant to pursue this strategy, presumably because it goes against the mentality of serious Central Bankers and their inflation-fighting credentials. But, it would be a solution to deflation. The most challenging aspect would be knowing about much money to print, to get the right amount of inflation.

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4. Devaluation (Increases AD)
Reducing the value of the currency, through selling domestic currency and/or increasing the money supply to try and devalue the currency. Devaluation will help increase inflation and inflation expectations, through a boost to domestic exports and higher import prices.

X ↑ M ↓ AD ↑ Deflation ↓

The difficulty is that in an era of general deflation – many countries may be trying to do the same thing, leading to competitive devaluation. Also, it will reduce living standards by making imports more expensive.

Modification in the currency can also help to overcome inflationary and deflationary pressures. If the govt. wants to reduce inflation, it will appreciate the currency and if the govt wants to reduce deflation, it should devalue the currency.

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