TOPIC 2.3

Labour Market Forces and Government Intervention:
- Demand and Supply of Labour,
- Wage Determination in Perfect Markets,
- Wage Determination in Imperfect Markets.

MCQ Section

1. The table shows the current position of a firm in a perfectly competitive industry.

	factor X	factor Y
marginal physical product	2	8
factor price	$5.00	$10.00

If the firm sells its product for $1 and aims to maximise profits, what should it employ?

A more of both X and Y
B more of X and less of Y
C more of Y and less of X
D less of both X and Y

[J08/P3/Q4]

2. The government imposes a maximum earnings limit on recording artists.

What must result in the short run if the measure is effective?

A a decrease in the economic rent earned by recording artists
B a decrease in the transfer earnings of recording artists
C a decrease in the supply of recording artists
D a decrease in the profits of record companies

[J08/P3/Q5]

3. A firm currently employs 30 workers at a daily wage rate of $40.

It calculates that the marginal cost per day of hiring an additional worker would be $102.

By how much would the daily wage rate have to be increased to attract an extra worker?

A $2 B $42
C $62 D $102

[N08/P3/Q5]

4. In which circumstances is a trade union most likely to be successful in raising wage rates?

A The demand for the good produced is price-elastic.
B The industry faces substantial foreign competition.
C The industry's cost structure is capital-intensive.
D The workers are unskilled.

[N08/P3/Q6]

5. To increase its labour force from 100 to 101 workers, a firm has to increase its daily wage rate from $400 to $405.

What is the marginal cost of labour per day?

A $5 B $405
C $905 D $40 905

[J09/P3/Q4]

HELPS to MCQ

1. **D** Since per unit cost is higher than the price, therefore, less employment of both X and Y would increase MP and lower per unit cost.

2. **A** The excess that recording artists are paid over earnings from alternative occupation is going to decrease.

3. **A** Marginal factor cost (MFC) is the additional cost of hiring an extra worker.

TFC = number of workers x wage rate,

i.e. 1200 = 30 × 40.

TFC rises by $102 due to the hiring of 31st worker. Hence wage rate

$$= \frac{\text{TFC}}{\text{number of workers}}$$

$$= \frac{1302}{31} = 42$$

4. **C** Capital intensive cost structure suggests that the proportion of labour costs to total costs is low, therefore, the trade union enjoys bargaining strength. Options A, C and D would weaken the bargaining position of trade unions.

5. **C**

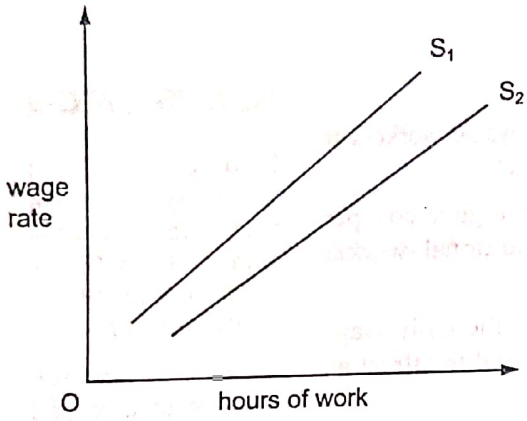
workers	wage rate ($)	total cost of labour	marginal cost of labour
100	400	40000	905
101	405	40905	

6. What could cause the demand curve for labour to shift to the left?

A a decrease in immigration
B a decrease in labour productivity
C a fall in real wages
D a rise in the money wage rate

[J10/P3/Q3]

7. In the diagram S_1 is an individual worker's supply of labour curve.



What could cause the curve to shift from S_1 to S_2?

A a decrease in the hourly wage rate
B a decrease in work satisfaction
C a decrease in the opportunity cost of leisure
D a decreased preference for leisure

[J10/P3/Q4]

8. A firm's workers join a trade union which negotiates an increase in the workers' wage rate.

The increase in the wage rate results in an increase in the number employed by the firm.

What could explain this?

A The demand for the firm's product is price-elastic.
B The firm is a monopsonist within its local labour market.
C The firm operates in a perfectly competitive labour market.
D There is a high degree of substitutability between capital and labour.

[J10/P3/Q5]

9. A firm in a perfectly competitive industry employs two factors of production, X and Y.

The table shows the factor price and the current marginal physical product of these two factors.

	factor X	factor Y
factor price	\$2.50	\$6.00
marginal physical product	2	8

If the firm sells its product for \$1 and aims to maximise profits, what should it do?

A employ less of both X and Y
B employ less of X and more of Y
C employ more of both X and Y
D employ more of X and less of Y

[N10/P3/Q4]

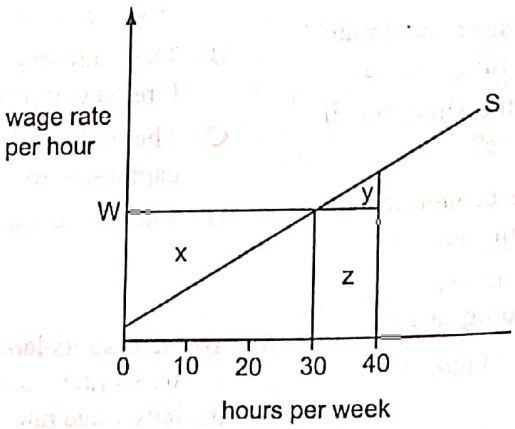
10. To increase its labour force from 100 to 101 workers, a firm has to increase the daily wage rate from \$300 to \$302.

What is the marginal cost of labour per day?

A \$2 B \$202
C \$302 D \$502

[N10/P3/Q6]

11. The diagram shows a worker's supply of labour curve.



The worker is required to work a minimum of 40 hours a week at the hourly wage, 0W.

Which area measures the economic rent obtained by the worker?

A x − y B x + y
C y − x D y + z

[N10/P3/Q7]

HELPS to MCQ

6. **B** $MRP_L = MPP_L \times MR$. A decrease in productivity would reduce MPP_L and MRP_L (demand curve for labour) to the left. A decrease in immigration would shift supply curve and a rise in money wage rate would result in a movement along the demand for labour curve, hence **A** and **D** are incorrect while option **C** is irrelevant.

7. **D** A decrease in preference for leisure means a decrease in opportunity cost of work hence would increase the supply of labour. A decrease in hourly wage rate would cause downward movement along the supply curve hence **A** is incorrect while **B** and **C** would shift supply of labour curve to the left.

8. **B** Bargaining power of trade union is weaken when demand for labour is elastic, hence **A** and **C** are incorrect. In a perfectly competitive labour market a trade union negotiates wage increase at the expense of number employed hence **C** is incorrect. Only in an imperfectly competitive labour market increase in the wage rate results in an increase in number employed.

12. What is meant by 'real wages'?

A the marginal physical product of labour

B the opportunity cost of labour

C the purchasing power of money wages

D wages net of tax

[N10/P3/Q15]

13. The table shows the main characteristics of employment in two occupations.

	occupation X	occupation Y
average annual wage	$100 000	$60 000
number of weeks annual leave	5 weeks	10 weeks
average length of working week	48 hours	44 hours
job security	low	high
length of training course to obtain job qualification	1 year	2 years

What can definitely be deduced from the table?

A Those employed in occupation Y attach greater importance to job security.

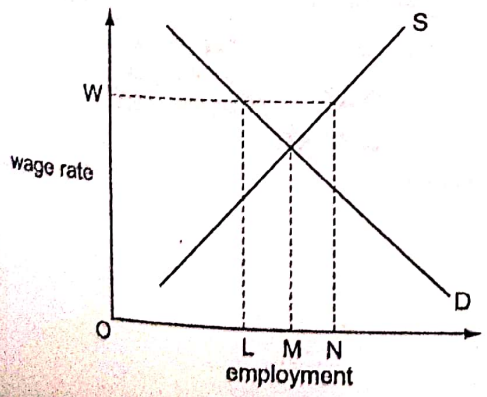
B Those employed in occupation X attach less importance to leisure activities.

C There will be more competition for places on training courses to enter occupation X than occupation Y.

D Occupation Y has greater non-pecuniary advantages than occupation X.

[J11/P3/Q3]

14. The diagram shows the supply and demand for labour in an industry.



Initially the industry's labour market is in equilibrium.

What effect will the introduction of a minimum wage OW have on the level of employment in the industry?

A It will decrease by an amount LM.

B It will decrease by an amount LN.

C It will increase by an amount LN.

D It will increase by an amount MN.

[J11/P3/Q6]

15. Individuals are free to choose the number of hours they work, how much of their income they save and which goods and services they buy.

Which type of tax will **not** distort the choices individuals make?

A a tax levied on the wealth accumulated by individuals

B a uniform tax which raises the same fixed amount from all individuals

C indirect taxes on specific goods

D proportional income taxes

[J11/P3/Q12]

16. An actor is paid $100 000 a year. The next best paid job he could get is as a lecturer at $60 000 a year.

What are his transfer earnings and his economic rent?

	transfer earnings	economic rent
A	$60 000	$40 000
B	$60 000	zero
C	$40 000	$60 000
D	$40 000	zero

[N11/P3/Q5]

HELPS to MCQ

9. B A profit maximizing firm would hire different inputs where:

$$\frac{MPx}{Px} = \frac{MPy}{Py}$$

Current employment gives the following: $\frac{2}{2.5} < \frac{8}{6}$

In order to equate the values the firm should hire less of X which would increase MPx and hence the value of fraction. It also needs to hire more Y so that MPy decreases.

10. D

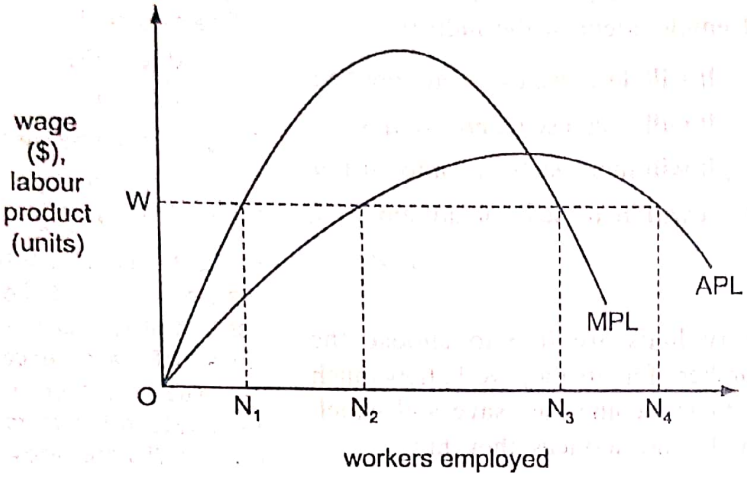
No. of workers	Wage rate	TC	MC
100	300	30000	
101	302	30502	502

11. A Economic rent is measured by the area above the supply curve and below the wage rate. At OW wage rate the worker obtains economic rent marked as X but triangle Y remains unattainable at OW.

12. C Wage rate adjusted for inflation is the real wage.

13. D Non-pecuniary benefits are non-monetary benefits such as duration of annual leave, average length of working week or job security. From the table the definite conclusion is that there are greater non-pecuniary advantages associated with occupation Y than X.

17. The diagram shows a perfectly competitive firm's average product of labour (APL) and marginal product of labour (MPL) curves.

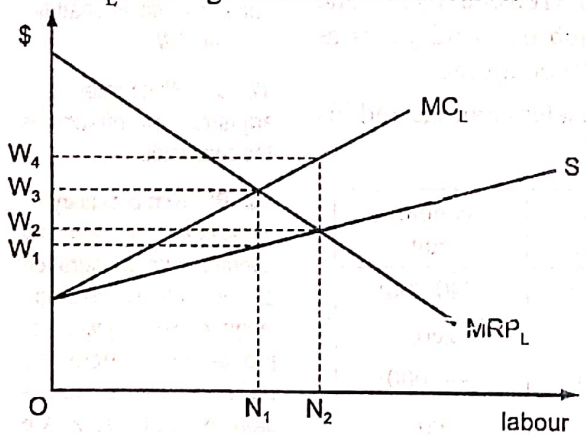


The market price of the firm's product is $1.
How many workers will the firm employ at a wage of OW?

A ON_1 **B** ON_2
C ON_3 **D** ON_4

[J12/P3/Q4]

18. In the diagram, MRP_L is a firm's marginal revenue product of labour curve, S is its supply of labour curve, and MC_L its marginal cost of labour curve.

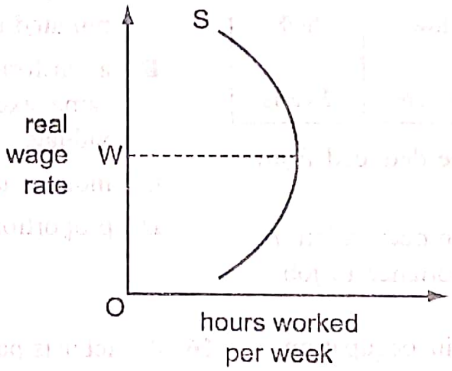


Assuming profit maximisation, how many workers will the firm employ and what wage will it pay?

	number employed	wage
A	N_1	W_1
B	N_1	W_3
C	N_2	W_2
D	N_2	W_4

[N12/P3/Q4]

19. The diagram shows a backward sloping supply curve of labour.



What is correct about the substitution effect and the income effect when the real wage rises above OW?

	substitution effect	income effect
A	negative	negative
B	negative	positive
C	positive	negative
D	positive	positive

[N12/P3/Q5]

HELPS to MCQ

14. A Demand for labour curve indicates employment at the given wage rate. Thus:
Employment without minimum wage = OM, and
Employment at OW (minimum wage) = OL
Hence minimum wage reduces employment by the amount LM.

15. B Both a tax on wealth and proportional income tax are likely to affect the choices of number of hours people work and the proportion of income they save thus A & D are incorrect. Option C is Inco-rrect because an indirect tax on specific goods will distort the choices of goods.

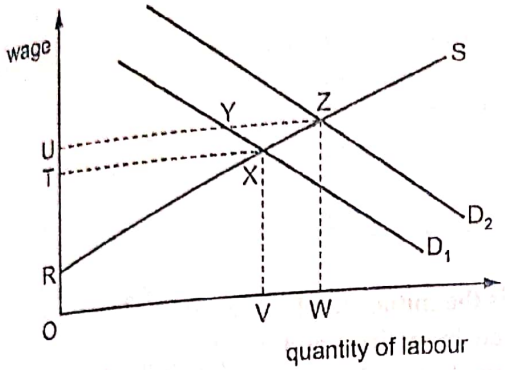
16. A Economic rent is the difference between present earnings and earnings from alternative employment (transfer earnings). Thus: transfer earnings = $60,000 and economic rent is $100,000 – $60,000 = $40,000.

17. C $MP_L \times P = MRP_L$. And MRP_L = Wage rate will determine employment.

18. A $MC_L = MRP_L$ indicates number employed while S curve indicates wage.

19. C Above OW wage positive substitution effect is outweighed by negative income effect.

20. In the diagram D_1 and S are the initial demand and supply curves for building workers.



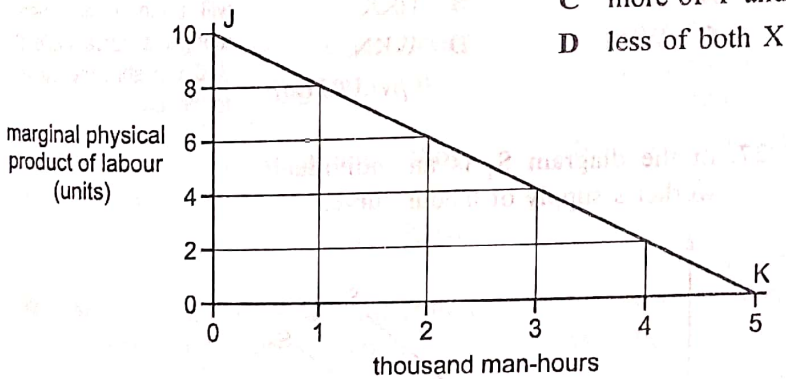
If the demand for building workers increases to D_2 by how much does the economic rent earned by building workers rise?

A RZU
B TXZU
C VWZX
D XZY

[N12/P3/Q6]

21. A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input.

In the diagram, the line JK shows the relationship between the marginal physical product of labour and the man-hours hired.



When the hourly wage is \$3.20, the firm employs 4000 man-hours per day.

What is the price of the product?

A \$1.60
B \$2.00
C \$3.20
D \$6.40

[J13/P3/Q5]

22. A fashion model is paid \$100 000 a year.

The next best paid job she could get is as a teacher at \$60 000 a year.

What are her transfer earnings and her economic rent?

	transfer earnings \$	economic rent \$
A	60 000	zero
B	60 000	40 000
C	100 000	zero
D	100 000	40 000

[J13/P3/Q6]

23. The table shows the current position of a firm in a perfectly competitive industry.

	factor X	factor Y
marginal physical product	3	12
factor price	\$5.00	\$10.00

If the firm sells its product for \$1 and aims to maximise profits, what should it employ?

A more of both X and Y
B more of X and less of Y
C more of Y and less of X
D less of both X and Y

[J13/P3/Q4]

24. A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input.

In the diagram, the line JK shows the relationship between the marginal physical product of labour and the man hours hired.

HELPS to MCQ

20. B The area above the market supply and below the equilibrium wage rate indicates economic rent.

21. A $MPP_L = 2$ and wage rate = \$3.20, thus,

$$\frac{3.20}{2} = \$1.60.$$

22. B Earnings from the next best job is called transfer earnings while the difference between current earnings and transfer earnings is known as economic rent.

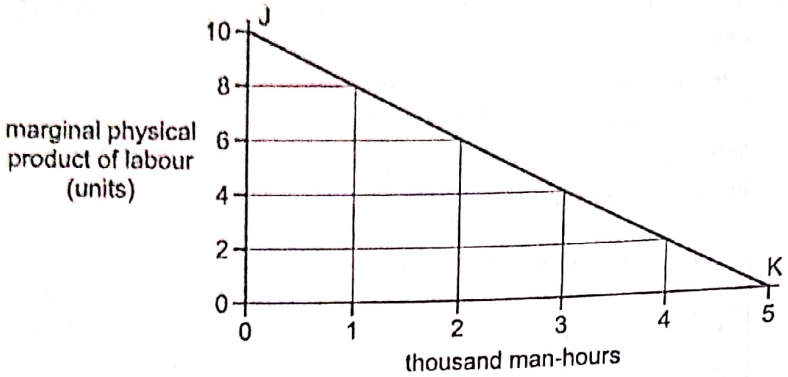
23. C A profit maximizing firm will hire the two factors up to the level where;

$$\frac{MPx}{Px} = \frac{MPy}{Py}$$

Following is the given situation,

$$\frac{3}{5} < \frac{12}{10}$$

In order to equate the two fractions the firm needs to hire less of factor X so that the MP_X increases and hence, increases the value of its fraction. The firm also needs to hire more of factor Y so that MP_Y decreases and hence reduces the value of its fraction. The firm needs to do this until the two fractions will have the same values.



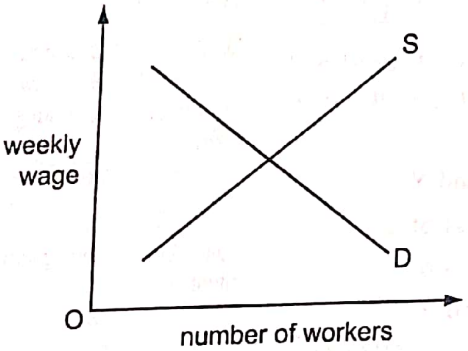
The price of the product is \$1.60.

What will be the number of man-hours hired by the firm if the hourly wage is \$6.40?

A 1000 **B** 2000
C 3000 **D** 4000

[N13/P3/Q4]

25. The diagram shows the initial position of a labour market.



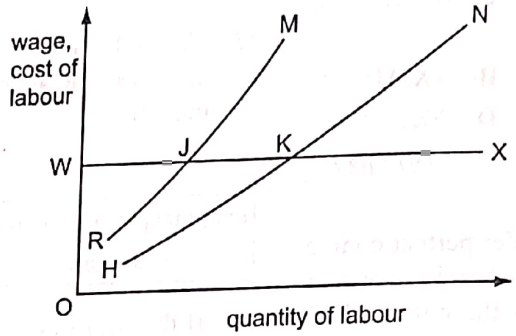
The government increases the number of statutory paid holidays to which workers are entitled from 10 days a year to 15 days a year.

How will this affect the supply and demand curves in the diagram?

	employers' demand curve	workers' supply curve
A	shifts to left	shifts to right
B	shifts to left	shifts to left
C	shifts to right	shifts to right
D	shifts to right	shifts to left

[N13/P3/Q5]

26. In the diagram, HN is the initial supply of labour curve faced by a firm, and RM is its initial marginal cost of labour curve.

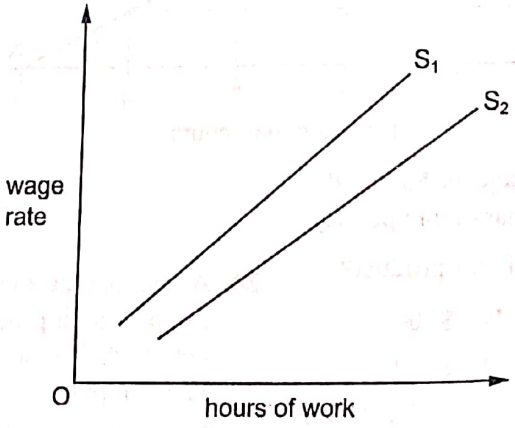


What will be the firm's new labour supply curve, if the workers join a trade union and achieve a union negotiated wage, OW?

A RJX **B** HKX
C WJM **D** WKN

[N13/P3/Q6]

27. In the diagram S_1 is an individual worker's supply of labour curve.



What could cause the curve to shift from S_1 to S_2?

A a decrease in the hourly wage rate
B a decrease in work satisfaction

24. C $\frac{6.40}{1.6} = 4$
When MPP = 4, the number of man-hours = 3000.

25. A Increase in paid holidays will increase labour cost thus shifts D curve to left, however more workers will be willing to work hence S curve will shift to right.

26. D Original S curve = HKN
New S curve = WKN i.e. KH part of S curve will now change to WK.

27. D A decreased preference for leisure suggests an increased preference for work. Option A will bring a movement along the curve while B & C will shift the curve to the left.

C a decrease in the opportunity cost of leisure

D a decreased preference for leisure

[J14/P3/Q4]

28. The table shows the marginal revenue product of labour schedule of a profit-maximising firm producing under conditions of perfect competition.

number of workers	1	2	3	4	5	6	7
marginal revenue product ($)	125	130	135	140	135	130	125

If the wage is $135, what is the maximum number of workers the firm will employ?

A 3 B 4

C 5 D 6

[J14/P3/Q5]

29. In 2004 union officials and businessmen in Argentina agreed to increase the minimum wage from 350 to 450 pesos.

In which circumstances would such a rise increase employment?

A Investment increases at a more rapid rate than consumption.

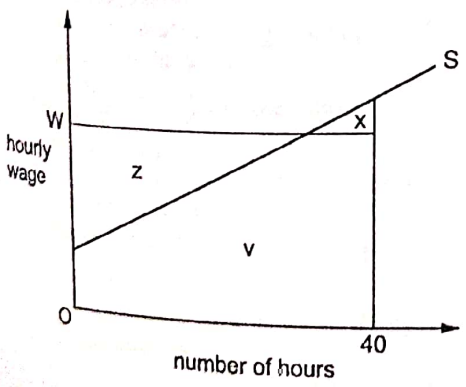
B Labour and product markets are competitive.

C The higher wage rate produces a proportionately greater rise in labour productivity.

D The minimum wage is set above the equilibrium level.

[J14/P3/Q6]

30. The diagram shows an individual worker's supply curve of labour.



The hourly wage is W and the worker is required to work a standard 40-hour week.

Which area measures the minimum amount per week he would be willing to accept?

A v B v+x

C v−x D z−x

[J14/P3/Q8]

31. A worker is considering accepting a job she has been offered. She draws up a list of the annual monetary values she places on the advantages and disadvantages of the job.

advantages and disadvantages of the job	value ($)
income	750
dangerous working conditions	500
long working hours	250
high prestige of the job	200
cost of providing own uniform	150
opportunity for travel	100
short holidays	50

What can be concluded from the table?

A She values the pecuniary advantages more highly than the non-pecuniary advantages.

B She would take the job even if it had none of the non-pecuniary advantages.

C The job has no pecuniary disadvantages.

D The non-pecuniary advantages outweigh the non-pecuniary disadvantages.

[N14/P3/Q4]

HELPS to MCQ

28. C A profit maximizing firm hires workers up to the point where its MRPL = MCL In such a market W = MCL. Also a firm decides number of workers hired only on the decreasing part of MRPL, therefore **B** is incorrect.

29. C It will increase demand for labour and hence result in an increase in employment.

30. B Minimum amount acceptable refers to transfer earnings i.e. the area below the supply curve.

31. A

Pecuniary (Monetary) advantage	
Income	$750
Non-Pecuniary (Non-Monetary) advantages	
High prestige of the job	$200
Opportunity of travel	$100
Short holidays	$50
Total	**$350**
Non-Pecuniary (Non-Monetary) disadvantages	
Dangerous working conditions	$500
Long working hours	$250
Cost of providing own uniform	$150
Total	**$900**

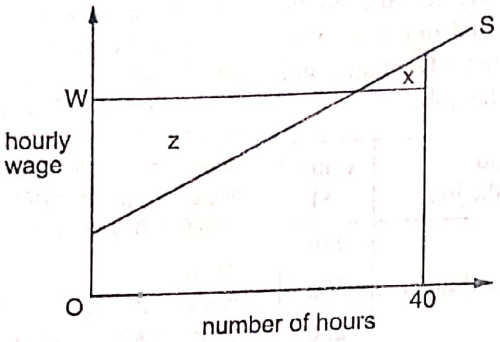
32. To increase its labour force from 100 to 101 workers, a firm has to increase its daily wage rate from $500 to $502.

What is the marginal cost of labour per day?

A $2 B $200
C $202 D $702

[N14/P3/Q5]

33. The diagram shows an individual worker's supply curve of labour.



The hourly wage is W and the worker is required to work a standard 40-hour week.

Which area measures the net improvement in the worker's welfare if he were allowed to choose the number of hours he wished to work per week?

A x B z−x
C z+x D z

[N14/P3/Q6]

34. A firm's workers join a trade union which negotiates an increase in the workers' wage rate.

The increase in the wage rate results in an increase in the number employed by the firm.

What could explain this?

A The demand for the firm's product is price-elastic.

B The firm is a monopsonist within its local labour market.

C The firm operates in a perfectly competitive labour market.

D There is a high degree of substitutability between capital and labour.

[N14/P3/Q7]

35. The introduction of a minimum hourly wage for all workers over 21 years of age is expected to increase the average wages of these workers.

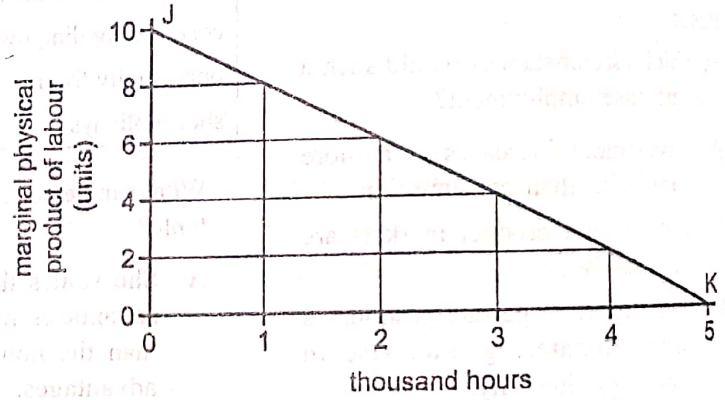
What will be the likely effect on workers under 21?

	unemployment for under 21s	average wages for under 21s
A	falls	fall
B	falls	rise
C	rises	fall
D	rises	rise

[N14/P3/Q16]

36. A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input.

In the diagram, the line JK shows the relationship between the marginal physical product of labour and the hours worked:



When the price of the product is $1.60, the firm uses 3000 hours of labour.

What is the hourly wage?

A $0.40 B $2.40
C $5.60 D $6.40

[J15/P3/Q5]

HELPS to MCQ

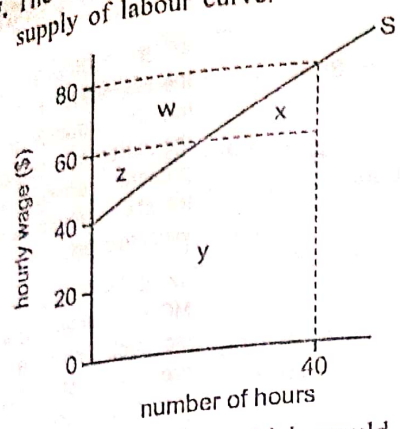
32. D

Wage rate × labour force = TC_L	MC
$500 × 100 = $50,000	$702
$502 × 101 = $50,702	

33. A The S curve indicates that at OW wage rate the worker chooses less than 40 hours, therefore, avoids triangular area x that represents negative economic rent at 40-hour week.

34. B A trade union facing a monopsonist manages to increase both wage rate and employment. Options A & C will weaken the bargaining position of trade unions while D is incorrect because in a perfectly competitive market trade unions manage to increase wage rate by compromising on employment.

37. The diagram shows an individual's supply of labour curve.



He is offered a job which would require him to work a standard 40-hour week. Which area measures the lowest amount he would have to be paid per week to get him to accept this job offer?

A w+z
B x+y
C x+y−z
D w+x+z+y

[J15/P3/Q6]

38. The government introduces a minimum wage above the equilibrium market wage rate.

How will this affect low-paid workers?

A All those initially in employment will receive the new guaranteed minimum wage.
B Fewer of those not already in employment will enter the labour force.
C There will be an increase in the number of low-paid workers in employment.
D Some low-paid workers will lose their job.

[J15/P3/Q15]

39. What will result from the differences in the non-pecuniary advantages of various occupations?

A disequilibrium in the labour market
B long-term differentials in wage rates
C monopsony in particular labour markets
D shortages of labour in particular occupations

[N15/P3/Q4]

40. A firm currently pays its employees on an hourly basis.

Even though the management acknowledges that its employees work to the best of their ability and could not work any harder, the firm decides to switch to a piece-rate system of remuneration whereby the wage paid to each employee depends on their level of output.

Why might this new system of remuneration result in a significant improvement in labour productivity?

A It will dispense with the need for management to monitor the actions of its employees.
B It will increase the losses that workers will incur if they are dismissed for not working hard enough.
C It will lead to the recruitment and retention of more highly talented workers.
D It will strengthen the incentives for workers to increase their earnings.

[N15/P3/Q6]

41. A fashion model is paid $500 000 a year.

If the next best paid job he could get is as a teacher at $100 000 a year, what are his transfer earnings and his economic rent?

	transfer earnings $	economic rent $
A	zero	400 000
B	100 000	400 000
C	400 000	zero
D	400 000	100 000

[N15/P3/Q7]

42. A firm employs a worker who adds less to output than the previous worker employed.

What does this illustrate?

A decreasing marginal costs
B diseconomies of scale
C increasing returns to scale
D the law of diminishing returns

[J16/P3/Q14]

HELPS to MCQ

35. B Increase in minimum wage of above 21 will encourage the employers to employ more of those below 21, therefore demand for workers below 21 and hence their wage rate is likely to increase.

36. D At three thousand hours MPP_L=4 units and the firm is operating in a perfectly competitive product market, therefore, $MPP_L \times P = MRP_L$ i.e. (4 × $1.6 = $6.4). Since in a perfectly competitive labour market a firm hires labour upto the point where its MRP_L = wage rate, therefore, W = $6.4.

37. B The S curve represents minimum wage rate acceptable to work on this job for each hour. Thus, it shows the worker's opportunity cost (transfer earnings). So the worker will accept this only when his earnings at least equal to his transfer earnings measured by the area below the supply curve up to 40 hours.

38. D A minimum wage rate fixed above the market equilibrium wage rate causes demand for labour to contract, therefore, results in less employment.

39. B Lower wages are compensated by non-monetary advantages; otherwise wage differentials will be eliminated by the movement of labour from low wage market to those offer higher wages.

40. C Because it will help to identify who produces how much in a given time.

43. To increase the number of cleaners at a local school from 10 to 11, the employer has to raise the hourly rate of pay from $8.00 to $8.50.

What is the marginal cost of labour per hour to the employer?

A $0.50 **B** $13.50
C $88.50 **D** $93.50

[J16/P3/Q15]

44. For a firm in imperfect competition, the marginal revenue product of labour at any given level of employment is equal to

A marginal revenue divided by the number employed.
B marginal revenue divided by the wage rate.
C the marginal physical product of labour multiplied by marginal revenue.
D the marginal physical product of labour multiplied by the wage rate.

[J16/P3/Q16]

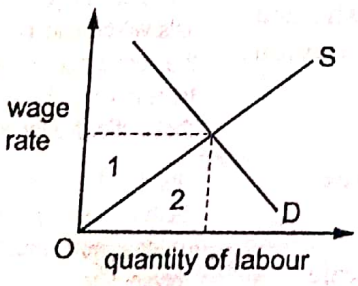
45. 'The addition to revenue which results from employing one additional unit of a factor of production, the quantities of all other factors of production remaining constant'.

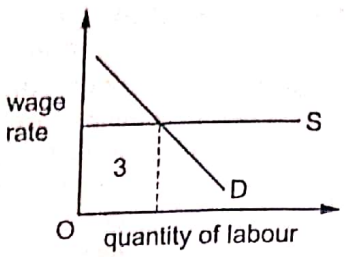
What does this define?

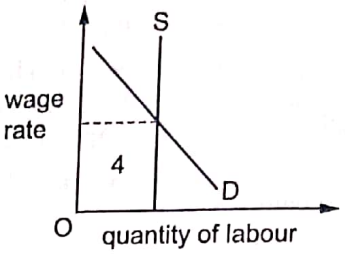
A marginal factor cost
B marginal revenue
C marginal revenue product
D the law of diminishing returns

[N16/P3/Q17]

46. The diagrams show the demand for and supply of labour.







Which two areas represent economic rent?

A 1 and 3
B 1 and 4
C 2 and 3
D 2 and 4

[N16/P3/Q18]

47. The table shows the short-run production function of a firm with labour as the variable factor of production.

number of workers employed	total output per day
1	10
2	20
3	40
4	50
5	60

If workers are hired in a perfectly competitive labour market at a wage rate of $50 per day, when will the labour cost per unit of output be at its lowest?

A 2 workers **B** 3 workers
C 4 workers **D** 5 workers

[N16/P3/Q19]

HELPS to MCQ

41. B $100,000 from the alternative job is his transfer earnings while the difference between present earnings and transfer earnings is his economic rent.

42. D In this case MC rises, therefore A is incorrect. Options B & C are incorrect because they apply in the long run when all inputs can change.

43. B

wage x workers = TC_L	$MC_L = \Delta TC_L / \Delta$workers
$8 × 10 = $80 $8.5 × 11 = $93.5	$13.5

44. C

$MRP_L = MPP_L \times MR$

45. C By definition.

46. B It is the area above the S curve and below the wage rate.

47. B Labour cost per unit of output $= \frac{TC_L}{\text{output}}$.

48. Over a given period the amount of overtime worked in manufacturing industry increases.

What is likely to be a consequence of this?

A a decrease in employment

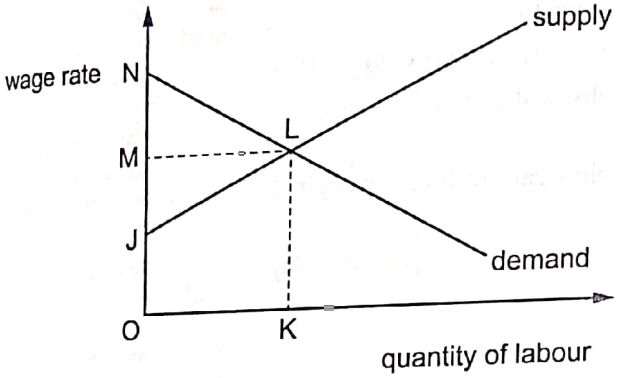
B a decrease in the rate of inflation

C a more rapid growth in average earnings than in hourly wage rates

D a more rapid growth in manufacturing output than in productivity

[N16/P3/Q20]

49. The diagram shows the supply and demand situation in a particular labour market.



When the market is in equilibrium, which areas measure the economic rent and transfer earnings received by employees?

	economic rent	transfer earnings
A	JLN	OKLJ
B	JML	OKLJ
C	NML	OKLM
D	OKLM	NML

[J17/P3/Q17]

50. In 2015 a company drilling for oil wished to reduce its workforce because of a fall in the price of oil. The workers' trade union opposed the proposal.

Which situation would have helped the trade union in the negotiations?

A Capital and labour were close substitutes.

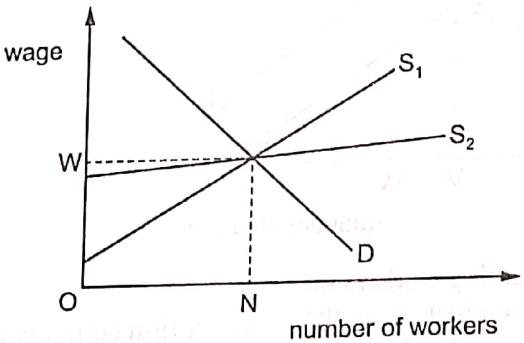
B The cost of labour had been a small percentage of total cost.

C The demand for oil had been price inelastic.

D There had been a large supply of labour.

[J17/P3/Q18]

51. The diagram represents the market for labour.



What would be the effect on transfer earnings and economic rent of a change in the supply curve from S_1 to S_2?

	transfer earnings	economic rent
A	fall	falls
B	fall	rises
C	rise	rises
D	rise	falls

[N17/P3/Q18]

HELPS to MCQ

48. C Overtime wage rate is usually higher than the normal time wage rate.

49. B Area above the supply curve and below the wage rate is labeled as economic rent while total earnings – economic rent = transfer earnings. (OMLK – MJL = OJLK).

50. B Inelastic demand for labour would help the trade union's cause. Options **A** & **B** suggest elastic demand for labour while **D** would clearly not help.

51. D Economic rent is the area that is above the supply curve and below the wage rate and S_1 shifting to S_2 reduces it. Area below the supply curve is transfer earnings and it rises.

52. The total cost to a school of employing ten cleaners is $60 per hour.

The school estimates that the hourly marginal cost of employing an eleventh cleaner would be $11.50.

By how much would the hourly wage have to increase to employ an additional cleaner?

A $0.50 B $0.65
C $2.25 D $11.50

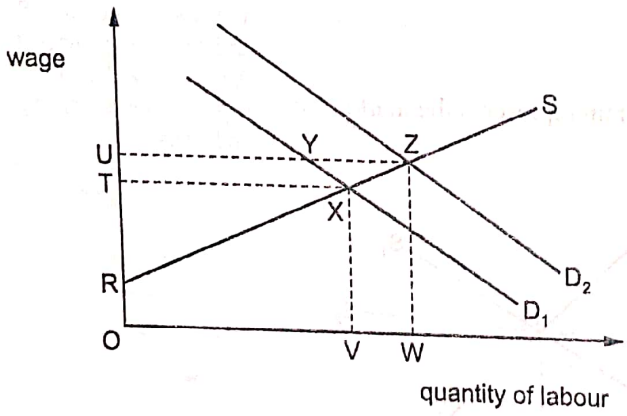
[J18/P3/Q14]

53. What would cause a rise in the productivity of labour?

A an increase in indirect taxes
B an increase in the quality of capital
C a rise in consumer surplus
D a rise in the elasticity of supply of labour

[J18/P3/Q15]

54. In the diagram D_1 and S are the initial demand and supply curves for building workers.



If the demand for building workers increases to D_2 by how much does the economic rent earned by building workers rise?

A RUZ B TUZX
C VXZW D XYZ

[J18/P3/Q16]

55. What would help to explain why there was a reduction in wage inequality in a country during the post-2008 economic recession?

A a decline in the share of wages in national output
B a decline in trade union bargaining power
C the existence of a minimum wage
D the trend towards later retirement

[N18/P3/Q14]

56. How is marginal revenue product calculated?

A marginal physical product × marginal revenue
B marginal physical product ÷ price
C total physical product × marginal cost
D total physical product ÷ marginal cost

[N18/P3/Q15]

57. A firm currently employs 30 workers at a daily wage of $50 each.

The marginal cost of employing one extra worker is $112 per day.

By how much will the firm have to increase the daily wage in order to increase its labour force from 30 to 31 workers?

A $2 B $4
C $62 D $112

[N18/P3/Q16]

HELPS to MCQ

52. A

Cleaner	TC ($)	MC ($)	Wage Rate ($)
10	60		$\frac{60}{10}$ = 6
		11.50	
11	71.5		$\frac{71.5}{11}$ = 6.50

53. B Improved tools would help workers to improve their efficiency. All other options are not related to productivity.

54. B On a demand & supply diagram economic rent is measured by the area below the wage rate and above the supply curve. So at D_1 curve economic rent = RTX while at D_2 = RUZ, hence it increases by the area TUZX.

55. C Minimum wage must have prevented a wage fall for relatively lower income group however, in recession it would not have prevented a wage fall for all those who were on a higher pay scale. Thus it would have reduced income inequalities. Options A & B would have increased inequalities while C is irrelevant.

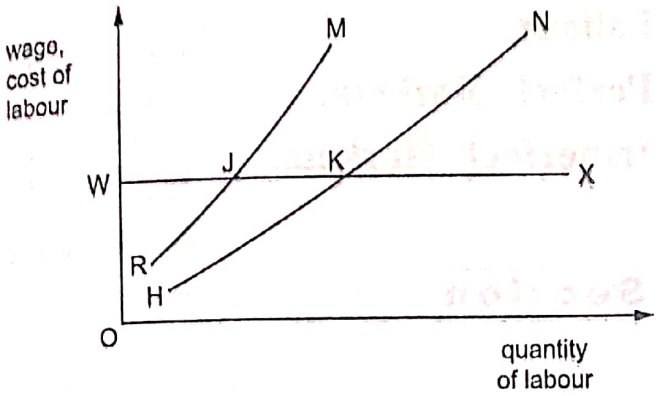
56. A By definition

57. A rate = TC / no. of workers.

MC of employing 31st worker = $112, it therefore increases TC to 1612.

No. of workers	wage	TC MC	MC
30	50	1500	112
31	52	1612	

58. In the diagram, HN is the initial supply of labour curve faced by a firm, and RM is its initial marginal cost of labour curve.



What will be the firm's new labour supply curve if the workers join a trade union and achieve a union negotiated wage, OW?

A RJX
B HKX
C WJM
D WKN

[N18/P3/Q17]

59. Output per worker in an industry increases more slowly than the industry's total output.

What could explain this?

A a decrease in labour productivity
B an increase in employment
C an increase in overtime working
D an increase in the hourly wage rate

[N18/P3/Q18]

HELPS to MCQ

58. D Wage fixed by the union prevents it from decreasing below OW, therefore HK part of the supply curve is replaced by WK. Beyond WK if the firm hire more workers it will be facing KN part of the old supply curve.

59. B Total output increases more than a rise in productivity only when an economy employs more workers. Option **A** will decrease total output while **C** & **D** will affect cost.

TOPIC 2.3

Labour Market Forces and Government Intervention:

- Demand and Supply of Labour,
- Wage Determination in Perfect Markets,
- Wage Determination in Imperfect Markets.

ESSAY Section

LIST OF QUESTIONS

Q1 (J08/P4/Q3)

In some countries the power of trade unions has decreased. In other countries, trade unions have organised major strikes resulting in employees refusing to work.

(a) Is the existence of a trade union likely to be the main factor that affects the supply of labour? [10]

(b) Discuss how the theory of wage determination through market forces might need to be altered when trade unions exist in an industry. [15]

Q2 (N08/P4/Q5)

The economic theory of wages assumes first that there is a perfect market and secondly that the market will reach a stable equilibrium. It therefore has little relevance to a commercial world full of change and uncertainty.

Discuss whether you agree with this opinion. [25]

Q3 (J09/P4/Q3)

Discuss what might cause inequalities in wage rates in an economy. [25]

Q4 (N09/P4/Q3)

By 2007, the telecommunications business had become dominated by fewer organisations. One of them, Cable and Wireless, announced there would be 3000 job losses. Another, Tiscali, announced 800 job losses and BT, the UK telecoms giant, announced a £450m major investment and restructuring resulting in thousands of job cuts.

Analyse whether the above is what marginal revenue product theory predicts will happen when a labour market becomes less competitive and large investment takes place. [25]

Q5 (J10/P4/Q4)

(a) Analyse whether an increase in the wage rate always leads to an increase in the number of hours worked by an individual. [10]

(b) A government stated that pay increases in the coming year should be kept to a minimum. Discuss whether the main determinants of wage rates are factors such as trade unions and the government rather than market forces. [15]

Q6 (N10/P4/Q4)

Recently, employers in some countries have employed foreign workers instead of local workers. The local workers argue that they should have priority over foreign workers and also that more products should be produced at home rather than being imported.

(a) Explain, with the help of a marginal revenue productivity diagram, why an employer might prefer to switch to foreign workers. [12]

(b) Discuss whether it would be beneficial for a country to give priority to its local workers. [13]

Q7 (J11/P4/Q5)

In imperfect competition, labour markets can lead to worker exploitation in terms of the wage rates they receive compared with wage rates in perfect competition. Discuss this opinion. [25]

Q8 (N11/P4/Q4)

The market is the fairest means of wage determination. To what extent do you support this opinion? [25]

Q9 (J12/P4/Q4)

Wage rates in some non-essential occupations, such as entertainment, are very high while wage rates in essential occupations, such as public sector hospital nurses, are much lower. This is unfair.

Analyse how economic theory can explain these differences in wage rates and consider whether you agree with the conclusion of this statement. [25]

Q10 (N12/P4/Q4)

Some workers producing non-essential luxury goods or services are paid very highly. The wage rate is not related to the economic value of a good or service but more to social factors or fashion. The economic theory of wages is, therefore, of little use in explaining wage differentials.

Assess this argument. [25]

Q11 (J13/P4/Q3)

In 2011, as a result of a recession, the governments of some countries reduced the wages that they paid to public sector workers. Trade unions organised mass demonstrations in protest.

Discuss how the economic theory of wage determination in perfect competition can be adapted to explain such a situation. [25]

Q12 (N13/P4/Q3)

(a) Analyse whether in a perfectly competitive labour market it is true that a profit maximising firm will employ labour only up to the point where the marginal revenue product of labour is at its maximum. [12]

(b) Discuss whether the marginal revenue productivity theory of wages is useful in explaining wage determination in an imperfect market where there is a trade union. [13]

Q13 (J14/P4/Q4)

(a) Some top executives and some sports people are paid very high salaries. It is argued that this is inevitable as people are paid the market rate for the job. Use economic analysis to support this opinion. [12]

(b) It is argued that the wage determination in imperfect markets leads to exploitation. It is therefore necessary and beneficial if the government intervenes in the determination of wage rates. Discuss whether there is any truth in this argument. [13]

Q14 (N14/P4/Q4)

A huge company with a turnover of $99.3 billion paid its chief executive $10.9 million in 2011. At the same time it was reported that the company did not pay what was regarded as a living wage to all its employees.

(a) Use economic analysis to help explain why there can be wide differences in wage rates. [12]

(b) Discuss how this analysis could be adapted if a trade union intervened in the process of wage determination. [13]

Q15 (J15/P4/Q4)

'Wage determination in the factor market is just like price determination in the product market. It is entirely dependent on the forces of supply and demand.'

Do you agree with this statement? [25]

Q16 (N15/P4/Q7)

(a) Distinguish between supernormal profit and economic rent and consider the circumstances when each occurs. [12]

(b) Discuss whether you agree with the opinion that a trade union might be able to achieve higher wages for its members but only by causing some unemployment. [13]

Q17 (J16/P4/Q4)

(a) 'In perfect competition in the short run, wage rates in some occupations will be higher than in others.'

Explain the economic analysis underlying this. [12]

(b) Do you agree that in an imperfect labour market any activity by trades unions designed to increase wage rates would inevitably lead to unemployment in that market? [13]

Q18 (N16/P4/Q6)

(a) Some occupations that do not have pleasant working conditions, such as rubbish collection, receive low pay, while those with pleasant conditions, such as senior managers, receive high pay.

How far does economic analysis explain this situation? [12]

(b) Discuss what influence a trades union and a government can have in determining wage rates. [13]

Q19 (J17/P4/Q4)

(b) In 2016 the Trade Unions called a strike of bus and train drivers after a demand for higher wages was rejected.

Use the economic theory of wages to discuss whether a demand for higher wages is likely to be successful. [13]

Q20 (N17/P4/Q5)

The merit of the economic theory of wage determination is that it clearly shows what the best level of wage rates should be and thus is evidence that there is no need for either the government or trades unions to fix wages.

Discuss this assertion. [25]

Q21 (J18/P4/Q4)

(a) Explain how a firm derives its demand curve for labour and consider how the structure of the product market in which the firm operates affects the firm's demand curve for labour. [12]

(b) Discuss whether it is possible for a trade union to negotiate higher wages and more employment. [13]

Q22 (N18/P4/Q4)

Consider whether wages are only determined by the market forces of supply and demand. [25]

Question 1

In some countries the power of trade unions has decreased. In other countries, trade unions have organised major strikes resulting in employees refusing to work.

(a) Is the existence of a trade union likely to be the main factor that affects the supply of labour? [10]

(b) Discuss how the theory of wage determination through market forces might need to be altered when trade unions exist in an industry. [15]

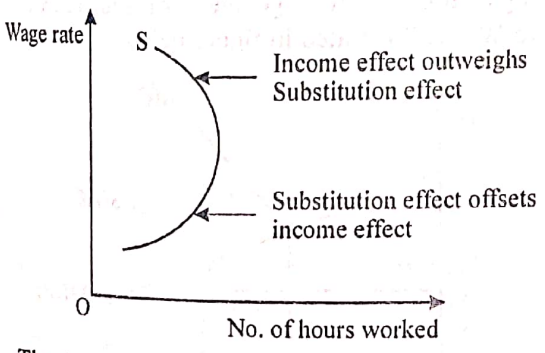
[J08/P4/Q3]

Essay

(a) Labour is the effort, both physical and mental, made by human being in production. By the supply of labour we mean the number of hours of work offered. The total supply of labour to a market depends on the price of labour i.e. wage rate, the size of the population, the age composition of the population, the labour force participation rate, the occupational and geographical mobility of the labour force and the tendency of labour force in terms of trade off between work and leisure.

The wage rate is all important in determining the supply of labour. We first begin by deriving the supply curve of labour for an individual worker and then extend our analysis to market supply of labour.

The individual's supply curve of labour is backward bending. This means that after a certain wage rate, higher wages will result in fewer hours being worked per day, with individuals demanding more leisure time as shown in fig. below:



The backward bending supply curve can be analysed by applying income and substitution effect. Substitution effect of a rise in wages on number of working hours is positive whereas income effect is negative. At low wage rate substitution effect outweighs income effect resulting in up sloping supply curve but when income effect offsets substitution effect, higher wages can lead to less hours worked and a backward bending supply curve.

The industry's supply curve of labour is obtained by the horizontal summation of the supply curves of individual workers and it will normally be positively sloped. Thus, the supply of labour in a particular market can be expanded by increasing the wage offered. This will attract labour of the same or of a nearly similar kind from other industries, occupations, and localities. The extent to which quantity supplied changes depends on occupational and geographical mobility of labour.

However, the position of the market supply curve of labour will depend on the number of people willing and able to do the job at each given wage rate. This in turn depends on three factors:

Firstly, any changes in the number of qualified people for a certain occupation results in a change in supply of labour. Secondly, the benefits and costs of the job such as the pleasantness or otherwise of the working environment, job satisfaction or dissatisfaction, status, power, the degree of job security, holidays, perks and other fringe benefits also alter the position of supply curve. Thirdly, the wages and non-wage benefits in alternative jobs can change the position of the supply of labour curve. For instance, the higher the job-attractiveness in an occupation the greater the supply of labour. Alternatively, higher wages and attractive benefits offered in other similar industries will reduce the supply of labour in an occupation.

Trade unions are made up of groups of workers who share the same interest. Their aims can range from increasing the wage rate to improving the working environment or taking up the case of those who the trade unions see as being unfairly treated. A trade union may be significantly strong to restrict the supply of labour by lengthening the time it takes to complete apprenticeship or by restricting membership and have closed shop agreements preventing non-members from being employed. However, in a situation of open shop a union is weak and cannot influence the supply of labour. Thus, the ability of a trade union to limit the supply of labour is detrimental to certain factors such as union friendly legislation, its ability to control employment contracts and most importantly the size of its membership relative to the total market supply of labour.

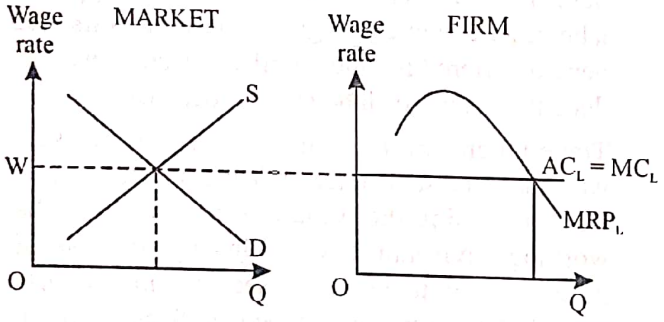
Hence, it can be stated that mere existence of trade unions is not the main factor that affects the supply of labour, rather it depends on the relative strength rendered to them by legislation and the size of their membership.

(b) Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the demand for and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. MRP_L is determined by the MPP_L(marginal physical product of labour) multiplied by the MR i.e.

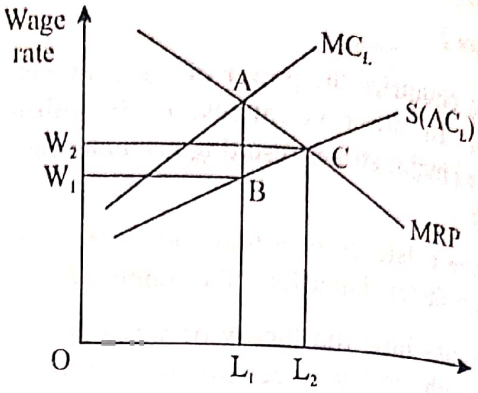
$$MRP_L = MPP_L \times MR.$$

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



In the figure above the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves. Each individual firm will find it profitable to hire this type of labor up to the point at which marginal revenue product (MRP_L) is equal to marginal resource cost (MC_L).

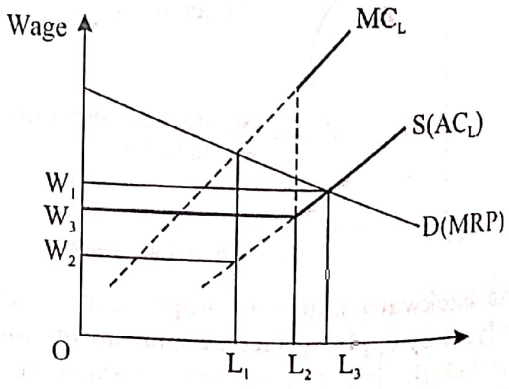
However, labour markets are likely to contain imperfections, for instance, there may be a single buyer of labour-a monopsonist. If this is the case, then the monopsonist will be facing upward sloping market supply curve and hence in order to recruit additional workers it has to offer a higher wage rate. This is illustrated in the figure below:



The marginal cost curve for labour (MC_L) being above the average cost curve for labour (AC_L) can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he or is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRP_L, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve $S(AC_L)$ and this will be W_1. The overall wage bill to the monopsonist will, therefore, be OW_1B_{L1}. In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively.

Trade unions seek to increase the wage rate of their members by either restricting the supply of labour (explained in part a) or by direct negotiation. Collective bargaining involves wage negotiation between trade unions, acting on behalf of their members, and the employers. Successful bargaining could raise the wage rate, for instance, from W_1 to W_3, as illustrated in figure below:



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment to L_1. The entry of a trade union to the industry, which sets a minimum wage of W_3, will kink the supply curve of

labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour, shown by the demand curve, is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_1 that employment starts to fall.

The bargaining strength of trade unions when dealing with employers depends on a number of factors. For instance, a trade union will be in a better bargaining position when it is not easy for employer to substitute labour with capital and the elasticity of demand for the product that the firm produces is relatively low. Also, the low proportion of labour costs out of the total costs, majority of the workers belong to the union and most importantly suitable political and economic climate will add to their bargaining strength. On the other hand high price elasticity of demand for the product, possibility of labour substitution with capital, high proportion of labour costs to total cost , low profits and a period of high unemployment will weaken their power.

To sum up, the introduction of trade unions is deemed to change the analysis of wage determination but the extent to which changes have to be made is subject to the collective bargaining strength of trade unions.

Question 2

The economic theory of wages assumes first that there is a perfect market and secondly that the market will reach a stable equilibrium. It therefore has little relevance to a commercial world full of change and uncertainty.

Discuss whether you agree with this opinion. [25]

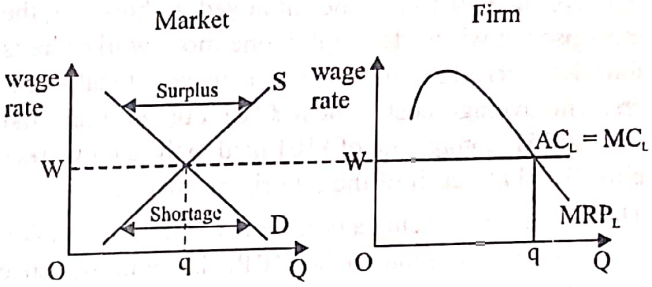
[N08/P4/Q5]

Essay:

Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the demand for and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. MRP_L is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e. $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.

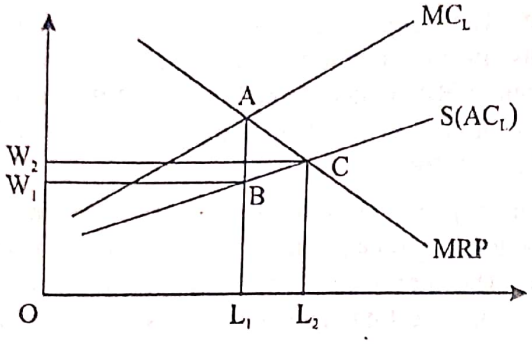


In the figure above, both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left panel of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRP_L) is equal to marginal cost of labour (MC_L) shown in the right panel of the graph. At a wage rate above W there is an excess quantity of workers supplied and at a wage rate below W there exists a shortage of workers. A mismatch between QD and QS forces the wage rate to equilibrium position.

The theory further assumes that changes in market forces will eventually restore a stable equilibrium at a new wage level.

Although economic theory of wage determination assumes a perfectly competitive labour market and commodity market with a stable equilibrium, however, the theory could be extended to allow various market imperfections, which exist in real world. For instance, there may be a single buyer of labour —a 'monopsonist'— where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer reperesented by a horizontal straight line and hence there is no stable equilib-

rium in the labour market. Instead the wage rate increases as more labour is employed. Hence, monopsonist faces an upward sloping market supply curve and in order to recruit additional workers the monopsonist must offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate as illustrated in the figure below:

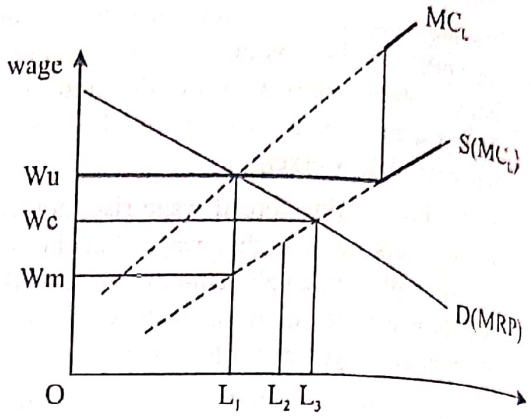


The marginal cost curve for labour (MC_L) being above the average cost curve for labour (AC_L) can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRP_L, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve $S(AC_L)$ and this will be W_1. The overall wage bill to the monopsonist will, therefore, be OW_1BL_1. In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively.

The analysis of economic theory of wage determination could be further extended to allow the presence of trade unions. Trade unions seek to increase the wage rate of their members by either restricting the supply of labour or by direct negotiation. Collective bargaining involves wage negotiation between trade unions, acting on behalf of their members, and the employers. Successful bargaining could raise the wage rate, for instance, from Wm to Wu, as shown in the figure below: Suppose a strong industrial union is formed by the workers. In other words the union is a monopolistic seller of labur supply and can influence wage rates, but it faces a monopsonistic employer of labour who can also affect wages by altering its employment. The result is bilateral monopoly.

This situation is shown in the fig. below.



The monopsonist will seek the below-competitive-equilibrium wage rate such as Wm and the union will press for some above-competitive-equilibrium wage rate such as Wu. The outcome is indeterminate since economic theory does not explain what the resulting wage rate is. In fact we should expect the wage outcome to lie somewhere between Wm and Wu. All we can predict is that the party with the most bargaining strategy will be able to get its opponent to agree to a wage close to the one it seeks.

The bargaining strength of trade unions when dealing with employers depends on a number of factors. For instance, a trade union enjoys better bargaining position when it is not easy for employer to substitute labour with capital or the elasticity of demand for the product that the firm produces is relatively low. Also, the low proportion of labour costs to the total costs, majority of the workers belonging to the union and most importantly suitable political and economic climate all add to their bargaining strength. On the other hand high price elasticity of demand for the product, possibility of labour substitution with capital, high proportion of labour costs to total cost, low profits and a period of high unemployment will weaken their power.

To sum up, the conclusion drawn on the basis of economic theory of wage determination is that it has more than little relevance to the real dynamic commercial world. In fact the theory needs to be modified to allow various market imperfections such as mnopsony and trade unions, but the extent to which changes have to be made is subject to the collective bargaining strength of trade unions and the monopsonist employer.

The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The entry of a trade union to the industry, which sets a minimum wage of W_2, will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of

labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_c that employment starts to fall.

Question 3

Discuss what might cause inequalities in wage rates in an economy. [25]

[J09/P4/Q3]

Essay

Wages or the price of labour, like other prices, are determined by economic factors. However, social and political factors also play a part in wage determination, as labour is a unique factor, being the human factor.

The main factor which determines the level of wages in a particular occupation is the interaction of demand for labour and supply of labour involved in that occupation. If demand is high for a category of labour then it is likely that wages will rise and vice versa, If supply of a certain category of labour is limited then, again, it is likely that wages will rise and vice versa. If labour was a homogeneous factor and was sold in a perfectly competitive labour markets, every person would earn the income in equilibrium. Disequilibrium differentials in wages would arise, but workers move from lower income to higher income jobs until the differentials had disappeared.

In the real world, however, some workers scrape out a bare living, others earn modest but adequate incomes, while yet others earn enough to afford many of life's luxuries.

If a unit of labour produces a certain physical amount of a good which sells at a particular price (marginal revenue product) then the employer cannot afford to pay the worker a wage greater than the MRP. The MRP (which is a derived demand) is obtained from the product of MPP of labour and price of the product. Hence an improvement in the productivity of labour would increase the demand for labour; likewise, an increase in the price of the product will increase the demand for labour. Thus the demand for labour is greatly affected by the value of its MRP. The higher the MRP of labour then the greater the demand for labour and the higher will be wages going to labour.

If demand for a particular type of labour is inelastic then the likelihood is that labour will receive higher wages. Demand for labour will be inelastic 'when other factors cannot easily be substituted for it, when the demand for the good it produces is inelastic and if labour forms only a small percentage of the entrepreneur's total costs. If labour has a high MRP and demand for its services is inelastic then the probability is that wages for that labour will be high. Thus labour in expanding industries will probably earn more than labour in declining industries because they will have a high MRP and demand for their services will be inelastic. Moreover skilled workers, compared to unskilled workers, will, also have a high MRP and inelastic demand so again their wages will tend to be higher.

The supply of labour to an industry is said to be determined by the principle of net advantages. Labour will try to move from an industry of lower net advantage to an industry of higher net advantage. The supply of labour in a particular occupation depends on the skills and ability required, qualifications and training required and the ability of trade unions and professional bodies to restrict entry into an occupation.

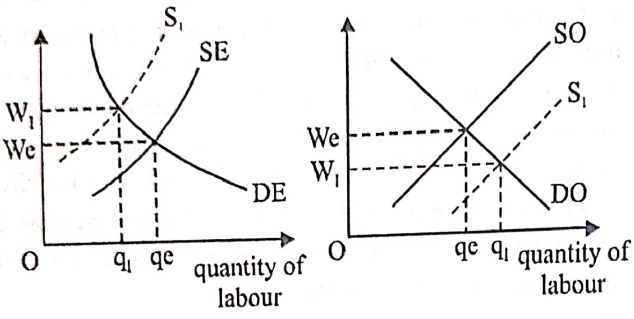
Some income differentials arise because basic human characteristics cause the supply of some types of labour to remain low relative to the demand for it, even in the long run. For instance, pop stars or footballers where relatively rare ability is required. Similarly if a job requires specific qualifications training then supply of labour will be reduced and wages higher; For instance, barristers and doctors need good qualifications and a long period training which limits the number of people who are able to do these job. Investment in such training is usually costly, and the return is usually in terms of higher labour productivity and hence higher earning power.

The strength of a trade union to achieve higher wages will also be a considerable factor determining the level .of wages to a particular occupation. If trade unions and professional bodies can limit entry into certain occupations by apprenticeships and the need to pass exams then supply will be limited and wage higher. Thus industries with a strong trade union are likely to pay more than those with a weak trade union.

Likewise some forms of discrimination makes it difficult, or impossible, for certain groups to take certain jobs, even if they are equipped by skill and education for these jobs. Until very recently, non-whites and women found many occupations closed to them. Even today, when overt discrimination in hiring is illegal, many feel that more subtle forms of discrimination are applied.

To isolate the effects of discrimination, we begin by considering a non-discriminating labour market and then introduce discrimination between two groups of equally qualified workers called group X and group Y. The analysis, however, applies generally to' 'situations

in which workers are distinguished on grounds other than their ability, such as female and male, black and white, alien and citizen, Catholic and Protestant. Suppose that, except for the fact that half of the people are marked with X and the other half are marked with Y, the groups are the same; each has the same number of members, the same proportion who are educated to various levels, identical distribution of talent, and so on. Suppose that there are two occupations. Occupation E (for elite) requires people of above average education and skill, and occupation O (ordinary) can use anyone.



Elite market Ordinary market

Sometimes the supply of labour to a particular occupation may be limited because the job is dangerous or dirty. Such occupations may command higher wages, as for miners. Other jobs, such as teaching or the "Civil Service, have pleasant working conditions, job security and good pension schemes. Consequently, such jobs may earn lower wages. Similarly some jobs may have a great many perks and fringe benefits and the money wages may be lower because of these advantage.

If the area has a large pool of unemployed people because of declining industries then the supply of labour to many occupations may be high and may make for lower wages in comparison to similar occupations in other parts of the country. Thus the more limited the supply of labour to a particular industry the greater likelihood of higher wages.

Many wage inequalities result from several types of market imperfections which impede workers from moving from their current jobs to take higher-paying jobs. For instance workers may simply not be aware of job opportunities and wage rates in other geographic areas and in other jobs for which they qualify. Consequently, the flow of qualified labor from lower-paying to higher-paying jobs-and thus the adjustments in labor supply-may not be sufficient to equalize wages within occupations. Also many workers are reluctant to move to new places; to leave friends, relatives, and associates, to force their children to change schools; to sell their houses; and to incur the costs and inconveniences of adjusting to a new job and a new community. The reluctance or inability of workers to move enables geographic wage differentials within the same occupations to persist.

It can thus be seen that wage inequalities are caused by demand and supply of labour, strength of unions, various market imperfections and non monetary differences.

Question 4

By 2007, the telecommunications business had become dominated by fewer organisations. One of them, Cable and Wireless, announced there would be 3000 job losses. Another, Tiscali, announced 800 job losses and BT, the UK telecoms giant, announced a £450m major investment and restructuring resulting in thousands of job cuts.

Analyse whether the above is what marginal revenue product theory predicts will happen when a labour market becomes less competitive and large investment takes place. [25]

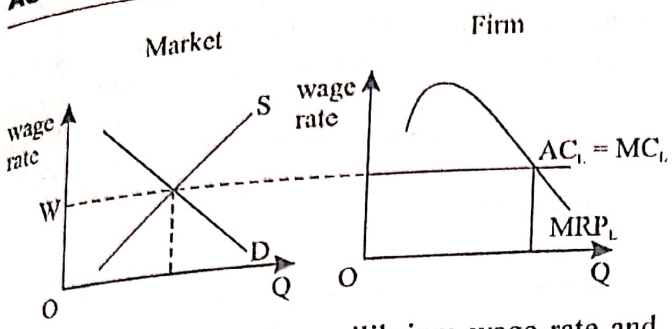
[N09/P4/Q3]

Essay

Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the demand for and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

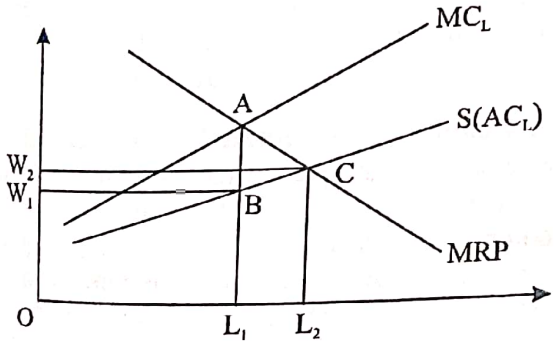
The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRPL, is the increase in revenue due to employing one more unit of labour. MRP_L is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e.. $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



In the figure above both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRP_L)is equal to marginal cost of labour(MC_L) shown in the right part of the graph.

Although economic theory of wage determination is primarily concerned with a perfectly competitive market, however, the theory could be extended to allow various market imperfections, which exist in real world. For instance, there may be a single buyer of labour—a 'monopsonist'—where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer reperesented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate This is illustrated in the figure below:



The marginal cost curve for labour (MC_L) being above the average cost curve for labour (AC_L) can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he or is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRPL, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve $S(AC_L)$ and this will be W_1. The overall wage bill to the monopsonist will, therefore, be OW_1BL_1. In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively.

In telecommunications, the decrease in demand for labour is unlikely to be caused by a decrease in demand for the product. In fact, the job losses appear to be the fall out of large investment in capital which might have caused factor substitution in favour of capital.

It appears that the technology in communication is such that labor and capital are substitutable. The firms might have estimated that they can produce some specific amount of output using a relatively small amount of labor and a relatively large amount of capital. The effect on the demand for labor will be the net result of two opposed effects: the substitution effect and the output effect.

The decline in the price of machinery or improvement in technology prompts the firms to substitute machinery for labor. This allows the firm to produce its output at lower cost. So, at the fixed wage rate, smaller quantities of labor are now employed. This substitution effect decreases the demand for labor. In case when firms make large investment as a result of a decrease in the price of machinery, the costs of production might also decline. With lower costs, the firm finds it profitable to produce and sell a greater output. The greater output increases the demand for all resources, including labor. So this output effect increases the demand for labor.

The substitution and output effects are both present when the price of an input changes, but they work in opposite directions. For a decline in the price of capital, the substitution effect decreases the demand for labor and the output effect increases it. The net change in labor demand depends on the relative sizes of the two effects.

Large investment in response to some technological improvements which increase the quality of capital, have the same effect. The better the quality of capital, the greater the productivity of labor used with it and the greater the likelihood of higher wages for those remained employed.

In conclusion we can say that the outcome of large investment on employment of labour and wage rate depends on the net result of substitution and output effect.

Question 5

(a) Analyse whether an increase in the wage rate always leads to an increase in the number of hours worked by an individual. [10]

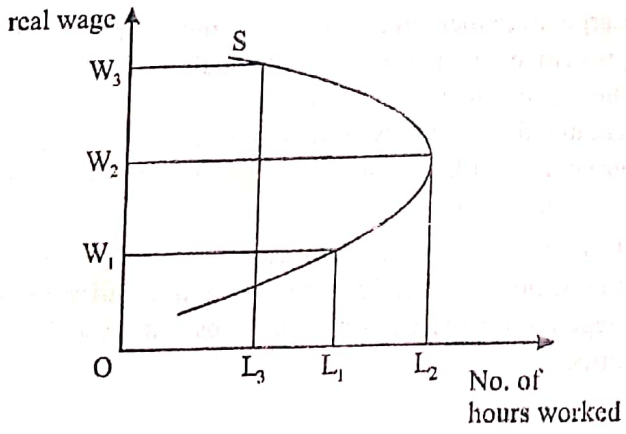
(b) A government stated that pay increases in the coming year should be kept to a minimum. Discuss whether the main determinants of wage rates are factors such as trade unions and the government rather than market forces. [15]

[J10/P4/Q4]

Essay

(a) The wage increase not only influences the number of people in the labour force, but it also affects the number of hours worked for each worker. When workers sell their services to employers, they are giving up leisure in order to gain income with which to buy goods. They can therefore be thought of as trading leisure for higher income and hence goods.

Economic theory suggests that the real wage is a key determinant of the number of hours. The real wage is the money wage rate adjusted for changes in the price level and it measures the quantity of goods and services that can be bought from each hour worked. An increase in the real wage on offer in a job should lead to someone supplying more hours of work over a given period of time, although there is the possibility that further increases in the going wage rate might have little effect on an individual's labour supply. Indeed, there is the possibility of a backward-bending individual labour supply curve. This is illustrated in the figure below:



In the figure above, higher real wages do lead to an increase in the number of extra hours supplied, although the rate at which the individual is prepared to give up his leisure time diminishes as the real wage rises. But the labour supply curve meets the standard prediction that higher wages attract people to work longer hours. But when as real wages step upwards, eventually an individual may choose to actually work fewer hours (ceteris paribus) thus producing a "backward bending" labour supply curve.

In order to understand this we consider the income and substitution effects that arise from a change in the real wage being paid to an individual worker. We start with the income effect.

Higher real wages increase the income that someone can earn from a job, but they also mean that a target real wage can be achieved with fewer hours of labour supply. So this income effect might persuade people to work less hours and enjoy extended leisure time.

The substitution effect of a higher wage rate should unambiguously give people an incentive to work extra hours because the financial rewards of working are raised, and the opportunity cost of not working (measured by the wages given up when people opt for leisure instead) has increased.

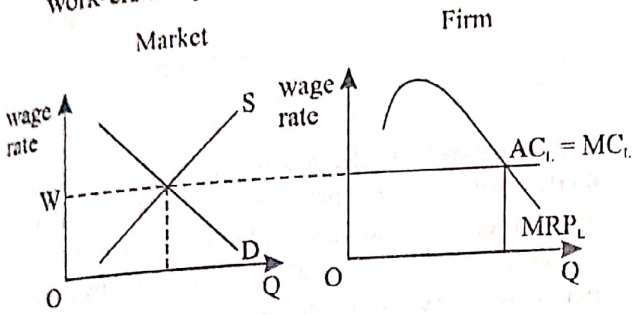
The relative magnitude of these two effects determines the slope of the individual supply curve. It is normally assumed that the substitution effect outweighs the income effect, especially at lower wages thus producing an upward sloping supply curve. This can be noted on the upward sloping part of supply curve in the graph above where wage increase from W_1 to W_2 generates a positively sloping supply curve. However if the wage rate becomes high enough for the income effect to dominate, the supply curve will begin to slope backwards. This occurs above a wage rate of W_2.

(b) In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the demand for and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRPL, is the increase in revenue due to employing one more unit of labour. MRPL is determined by the MPPL(marginal physical product of labour) multiplied by the MR i.e.

$$MRP_L = MPP_L \times MR.$$

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these work-ers away from other industries.

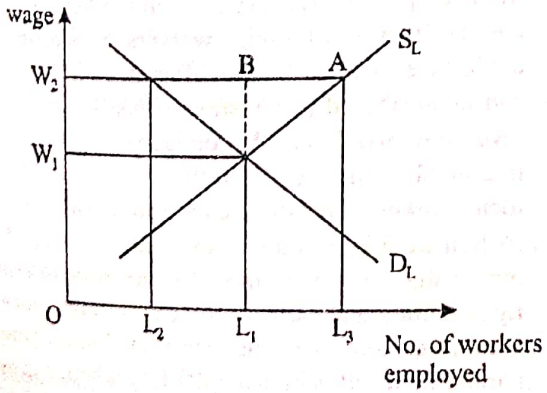


In the figure above, both the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as shown in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its MRPL is equal to marginal cost of labour (MCL) as given in the right part of the graph.

Although economic theory of wage determination is primarily concerned with a perfectly competitive market, however, the theory could be extended to allow various market imperfections, such as trade unions and government intervention.

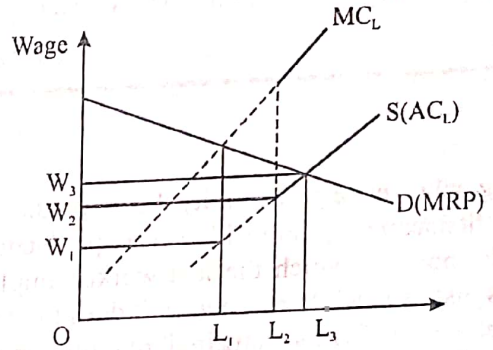
Trade unions are made up of groups of workers who have a common interest. Their objectives can range from improving the working environment to taking up the cases of those members the unions see as being unfairly dismissed. Their most important function is to increase the wage rate of its members.

Trade unions influence the market through collective bargaining. It involves the direct negotiation between a trade union and the employers. Successful collective bargaining in a perfectly competitive labour market could raise the wage rate from W_1 to W_2, as illustrated in figure below.



The trade union may be unwilling to supply labour below the wage rate of W_2; therefore, the supply curve becomes W_2AS_L, being perfectly elastic over the section W_2A. At the equilibrium wage of Wj, with no trade union involvement, Lj workers would be employed. However, with a wage of W_2, only L_2 are demanded and therefore L_3 - L_2 are unable to find employment. There may be individuals who are willing to work for a wage below W_2 but they would be prevented from doing so by the union agreement.

Government fixing a minimum wage to protect largely non-unionised labour from being exploited by employers will produce the similar outcome. However in a modern mixed economy the government acts as a monopsonist, paying wages below the market equilibrium levels. This brings trade union and government into conflict. This can be explained by the graph below:



The government facing a large number of employees in the industry will force the wage rates down to OW_1 and restrict employment L_1. The entry of a trade union to the industry, which sets a minimum wage of W_2, will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour. The government, acting as a monopsonist, has an incentive to hire extra workers so long as the MRPL is higher than the MCL. Hence, it will employ L_2 workers

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall.

However, successful wage negotiation depends on a number of factors. Firstly, a trade union enjoys better bargaining position when it is not easy for employer to substitute labour with capital. Secondly the elasticity of demand for the product that the firm produces is relatively low. Thirdly, the proportion of labour costs out of the total costs is low and majority of the workers belong to the union. Lastly, the suitable political and economic climate will add to their bargaining strength.

To sum up, trade unions can influence the wage rate both in public and private sector whereas government can influence the wage rate only in the public sector of the economy.

Question 6

Recently, employers in some countries have employed foreign workers instead of local workers. The local workers argue that they should have priority over foreign workers and also that more products should be produced at home rather than being imported.

(a) Explain, with the help of a marginal revenue productivity diagram, why an employer might prefer to switch to foreign workers. [12]

(b) Discuss whether it would be beneficial for a country to give priority to its local workers. [13]

[N10/P4/Q4]

Essay

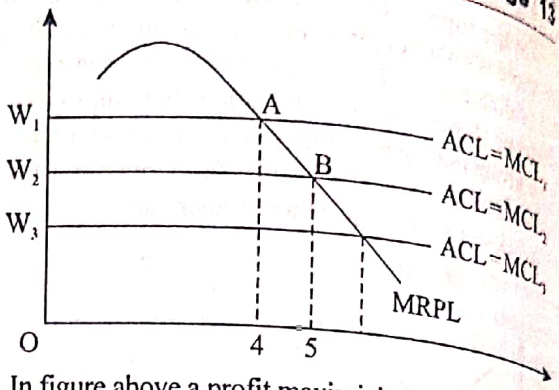
(a) Marginal revenue productivity theory predicts that a profit maximising firm will increase production up to the point at which the last worker employed adds just as much to revenue as it does to cost. In other words firm's marginal revenue product (MRPL) = firm's marginal cost of labour (MCL). In outlining the theory we will initially assume;

1. Perfectly competitive product market.
2. Perfectly competitive labour market.

Marginal Revenue Product of Labour (MRPL) is the additional revenue a firm earns from employing one more worker. It is the revenue from output that each extra worker produces, i.e. the marginal physical product multiplied by the marginal revenue. Hence: MRP labour = MPP labour × MR good

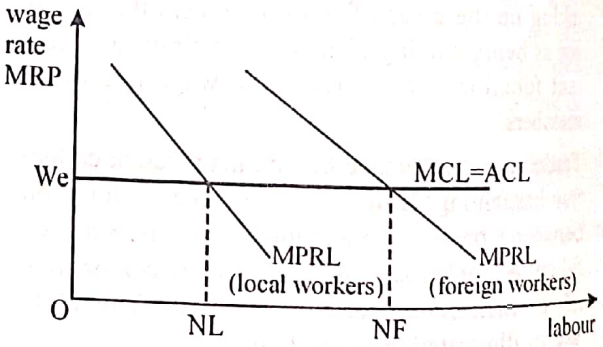
Marginal Physical Product (MPP) is the addition to total product as a result of the employment of an additional unit of labour whereas MR is the additional revenue from selling an extra unit.

Marginal Cost of Labour (MCL) is the addition to total cost resulting from employing an extra worker. Note, in a perfectly competitive labour market MCL = Wage rate and in a perfectly competitive product market P = MR.



In figure above a profit maximizing firm faces a perfectly elastic supply curve for labour MCL = ACL_1 which means that additional labour can be hired at the same wage rate. So at W_1 wage rate the number of workers employed is 4 because the profit-maximizing firm hires the quantity of workers that equates the MRPL with the MCL (wage). If the wage rate was to fall to W_2 then the labour supply curve would shift to MCL = ACL_2 and the firm would, therefore, increase the number of workers employed to 5. Thus a decrease in wage rate causes a movement along the curve from A to B and vice versa. The MRPL curve therefore represents the firm's demand curve for labour. It is important to note that the demand curve is only the downward sloping section of the MRPL curve.

So profit seeking firms tend to hire more foreign workers if. as compared to the local workers, either the cost of hiring them is low or MRPL is higher or both. The graph below sums up the situation with the assumption that the firm is wage taker.



In the graph MRPL curve of local workers is below the MRPL curve of foreign workers. This difference could be explained by the differences in MPP and can be attributed to the superior skills and higher level of motivation of the foreign workers resulting in a much higher output in the given time than the local workers. This difference could also arise due to health, vigor, education and training. This means that, even with the same quantity and quality of natural and capital resources foreign workers would be more efficient than their local counterparts. The result is higher MRPL and hence greater demand.

Assuming firm can hire both foreign and local workers at the given wage rate We, then the profit maximizing rule of MCL = MRPL results in NL employment of local workers but NF employment of foreign workers. Overall firms would prefer to hire foreign workers mainly due to the higher MRPL.

The other aspects include easy availability and relatively low wage acceptability by the foreign workers which induces the producers to prefer them to local workers. Cheaper foreign labour would reduce the cost and be reflected in the supply curve.

Thus we conclude that higher productivity of foreign workers is reflected in higher MRPL and hence greater demand for them whereas easy availability of cheap foreign labour is reflected in the supply of labour curve. In both situations profit-seeking businesses would prefer to hire foreign workers to local workers.

(b) Hiring foreign workers for the reasons discussed in part 'a' might cause unemployment of local workers thus worsening one of the most pressing macro economic issues. In a larger perspective growing unemployment of local workers brings numerous problems therefore it is important to keep unemployment levels as low as possible.

High unemployment is expensive for the government and, therefore, for the taxpayer. For every unemployed person, there are two costs to the government. First, the unemployed worker will be entitled to benefit. Secondly, there is the less obvious cost of the loss of tax revenue these workers would have been paying through their purchases. There are other costs of unemployment. There is the cost to the whole economy in terms of wasted, unused resources. The existence of any idle resources means that the economy will be at a point within its production possibility frontier (PPF).

Furthermore, unemployed workers (young men, in particular) may create other external costs in the economy, like crime for example. Finally, there is the personal human cost to each worker. In the short term the unemployed worker has to put up with the loss of earnings. But in the long run, the unemployed will find it harder and harder to find a job, as they find that the skills they have become less relevant and they have had no new training.

Preference to the local workers will help government to overcome these problems and achieve one of the most important macro economic objectives.

Besides this foreign workers tend to make sizable remittances to their families at home. This would cause increasing outflow of income and would result in worsening of current balance. Hiring more of local workers would keep most of the income earned with in the economy and hence would help to improve living standard.

Hiring local workers becomes even more important if a particular region is dependent on one major industry and does not offer alternative employment. Government may wish to increase employment of local workers in order to increase national income. Employment and national income are closely related therefore has a direct impact on the quality of life.

Achieving higher employment rate may have an impact on country's exports and imports and hence overall balance of payment. Government may wish to achieve high employment rate in order to produce goods the country is importing and to increase the output of goods country exports.

However, hiring foreign workers are not necessarily bad in all situations. Foreign workers increase the supply of goods and services with their labour and simultaneously increase the demand for goods and services with their income and spending. In short foreign workers, in particular situations, can prove to be an engine of growth. More efficient foreign workers can also help the country to maintain its comparative advantage which otherwise would have been eroded by the rising wage rate of less efficient local workers.

In the end it can be concluded that although foreign workers compete with domestic workers for scarce jobs, pull down the average level of real wages and burden the welfare system yet, in particular situations, they bring benefits in terms of efficiency, possibly higher growth and better living standard.

Question 7

In imperfect competition, labour markets can lead to worker exploitation in terms of the wage rates they receive compared with wage rates in perfect competition. Discuss this opinion. [25]

[J11/P4/Q5]

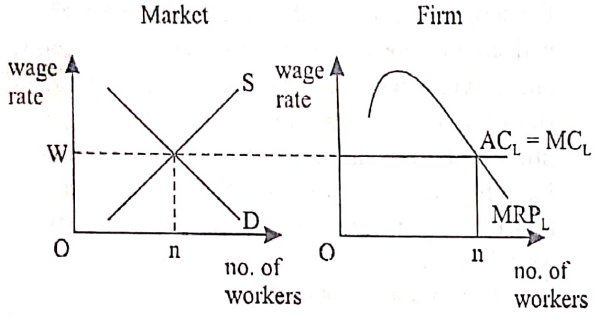
Essay

Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the demand for and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of

market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

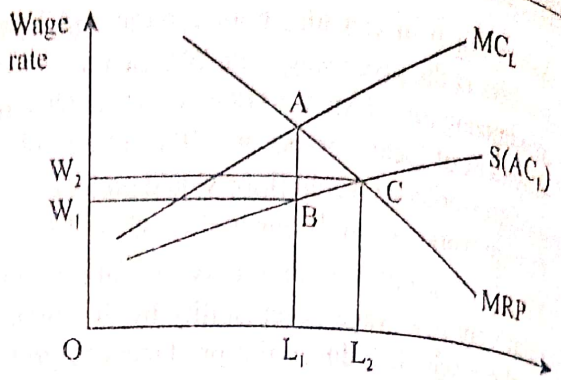
The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRPL, is the increase in revenue due to employing one more unit of labour. MRPL is determined by the MPPL (marginal physical product of labour) multiplied by the MR i.e., MRPL = MPPL × MR.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



In the figure above both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRPL) is equal to marginal cost of labour (MCL) shown in the right part of the graph.

Although economic theory of wage determination is primarily concerned with a perfectly competitive market, however, the theory could be extended to allow various market imperfections, which exist in real world. For instance, there may be a single buyer of labour – a 'monopsonist' – where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (ACL) is no longer reperesented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:

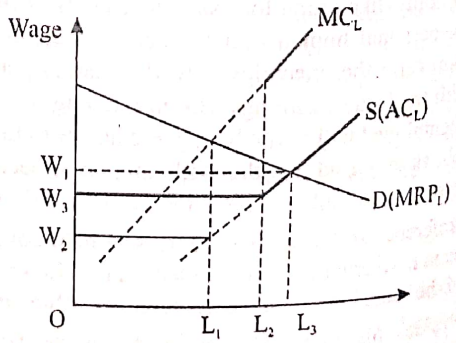


The marginal cost curve for labour (MC_L) being above the average cost curve for labour (AC_L) can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he or is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRPL, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve S (AC_L) and this will be W_1. The overall wage bill to the monopsonist will, therefore, be OW_1BL_1. In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market.

However, this comparative lower wage rate and employment can be corrected by incorporating trade unions or government.

Trade unions seek to increase the wage rate of their members by either restricting the supply of labour (explained in part a) or by direct negotiation. Collective bargaining involves wage negotiation between trade unions, acting on behalf of their members, and the employers. Successful bargaining could raise the wage rate, for instance, from W_1 to W_3, as shown in the figure below:



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The entry of a trade union to the industry, which sets a minimum wage of W_3, will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall. Minimum wage fixed by the government will also produce the same result.

Thus a comparison of wage rate between perfect and imperfect market ascertain the opinion. However, a strong trade unions or government can reduce and in some cases completely eliminate the wage difference.

Question 8

The market is the fairest means of wage determination. To what extent do you support this opinion? [25]

[N11/P4/Q4]

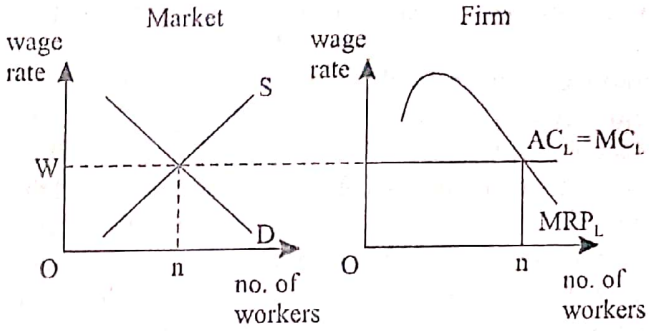
Essay

Wages are the price paid for labour. The concept of fair wage is a normative issue therefore involves value judgment. However, according to the economic analysis a fair wage means that the wage rate equals marginal revenue product of labour (MRP_L). If the wage rate is less than the worker's MRP_L it will be considered unfair.

In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the demand for and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

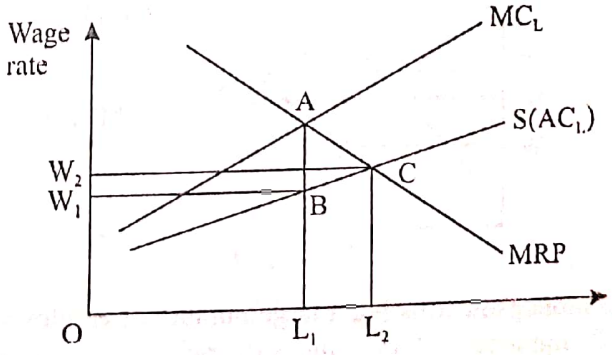
The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. MRP_L is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e., $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



In the figure above both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRP_L) is equal to marginal cost of labour (MC_L) shown in the right part of the graph.

Although economic theory of wage determination is primarily concerned with a perfectly competitive market, however, the theory could be extended to allow various market imperfections, which exist in real world. For instance, there may be a single buyer of labour – a 'monopsonist' – where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer represented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:

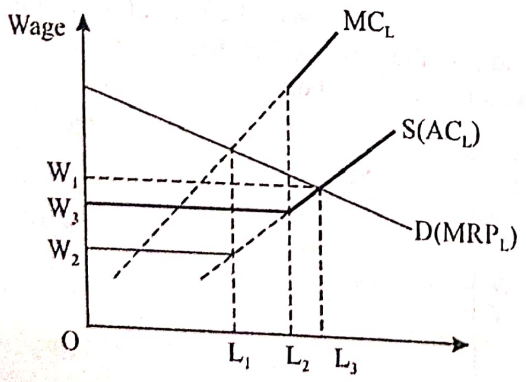


The marginal cost curve for labour (MC_L) being above the average cost curve for labour (AC_L) can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he or is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRP_L, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve S (AC_L) and this will be W_1. The overall wage bill to the monopsonist will, therefore, be OW_1BL_1. This will allow the monopsonist to make larger profits, while at the same time workers are getting less than the MRP_L. Economists refer to this as a form of exploitation and an unfair wage rate because the wage rate is less than the last worker's MRP. In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus the wage rate determined by the market forces is considered fair because wage rate equals the last worker's MRP. Thus monopsony power in a labour market will result in a lower level of employment and an unfair wage rate than would exist in a competitive labour market.

However, this comparative lower wage rate and employment can be corrected by incorporating trade unions or government.

Trade unions seek to increase the wage rate of their members by either restricting the supply of labour (explained in part a) or by direct negotiation. Collective bargaining involves wage negotiation between trade unions, acting on behalf of their members, and the employers. Successful bargaining could raise the wage rate, for instance, from W_1 to W_3, as shown in the figure below:



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The entry of a trade union to the industry, which sets a minimum wage of W_3, will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall. Minimum wage fixed by the government will also produce the same result in an imperfect market. However, the effect of minimum wage fixed above the equilibrium wage rate in a perfectly competitive labour market is likely to increase unemployment therefore, it can worsen the situation for those who lose their jobs.

Thus a comparison of perfect and imperfect market suggests that the wage rate fixed in a perfectly competitive market is fair because $W = MRP_L$. However, the wage rate determined in an imperfectly market is viewed as unfair because MRP_L is higher than W. There is therefore a role for the trade unions and government to increase the wage rate to the level considered fair i.e. $W = MRP_L$.

Question 9

Wage rates in some non-essential occupations, such as entertainment, are very high while wage rates in essential occupations, such as public sector hospital nurses, are much lower. This is unfair.

Analyse how economic theory can explain these differences in wage rates and consider whether you agree with the conclusion of this statement. [25]

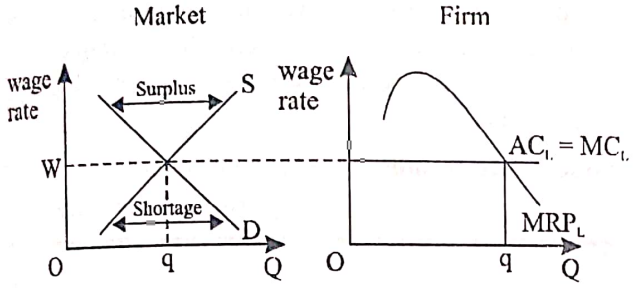
[J12/P4/Q4]

Essay

Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. MRP_L is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e. $MRP_L = MPP_L \times MR$.

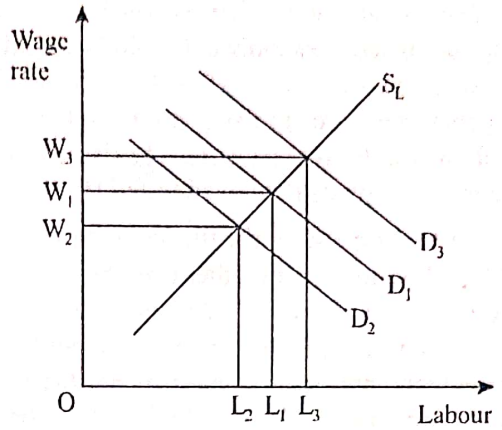
On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labour slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



In the figure above, both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left panel of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRP_L)is equal to marginal cost of labour (MC_L) as shown in the right panel of the graph. At a wage rate above OW the number of workers available to work is in excess than the employment opportunities. While at a wage rate below OW there exists a shortage of workers. Thus a mismatch between QD and QS in either situation forces the wage rate to equilibrium position.

The theory further assumes that changes in the market forces of demand and supply will eventually restore a stable equilibrium at a new wage level.

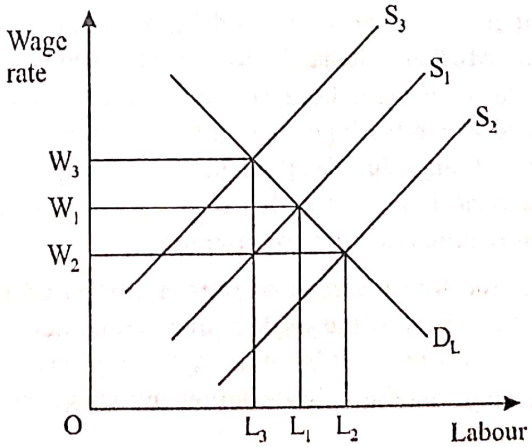
Demand for labour curve shifts if one of the conditions of demand changes. As mentioned above that the demand for labour curve is derived from the MRP curve, which, in turn, is calculated by MPP × MR. Therefore if there is an improvement in labour productivity then this will mean that the workers will produce more at any given wage rate , and the MPP curve will shift to the right, shifting the MRP curve to the right. Similarly, if the price of the good being produced changes, then this will change the MR and hence the MRP at all wage levels and the MRP curve will shift leading to a change in wage rate as shown in the graph below.



We can see how shifts in demand curve will affect the equilibrium wage and labour employed. The initial equilibrium is wage W_1 and employment L_1. If, for example, there were an improvement in the productivity levels of the workers in an industry say due to a more efficient use of labour through shift, then the labour demand curve (MRP curve) would shift to the right, causing a rise in the real wage rate to W_2 and a rise in numbers employed to L_2. Likewise a fall in the price of the good say due to a fall in real incomes would make the value of MRP to fall for all wage levels, and so the labour demand curve would shift to the left, giving wage W_3 and labour employed L_3.

Just like the demand for labour, changes in supply of labour can also lead to a change in equilibrium wage rate and employment. An increase, for instance, in the number of people in the economy available to work in the given industry will increase supply. This could be because of an increase in net immigration or a change in the demographics of the economy. These increases in numbers will shift the supply of labour curve to the right.

A less obvious cause is the situation in other industries. If, in relative terms, the wage rate becomes less attractive in a similar industry, or the working conditions deteriorate, then the industry in question will experience an increase in the number of workers offering their labour services. This will shift the supply of labour curve to the right.



In the diagram above, we can see what happens to the equilibrium when the supply curve shifts. A shift to the right causes the wage rate to fall (from W_1 to W_2) and the numbers employed to rise (from L_1 to L_2). A shift to the left causes the real wage rate to rise (from W_1 to W_3) and the numbers employed to fall (from L_1 to L_3).

Referring to the question the theory better explains the market for hospital nurses rather than the entertainment workers. In case of public sector hospital nurses, low wage rate can be explained by the monoposony model where government is the biggest, if not the sole, employer of nurses and relatively high and elastic supply of workers. The market demand for such workers would be low and relatively elastic. It is low because the society places relatively lower value on their services therefore their MRP_L and wage rate is relatively is lower. It is elastic because their role in providing health care is not particularly considered essential. On the other hand supply of nurses would be large and relatively elastic. The supply would be abundant because low entry requirements short training period and low cost.

In addition the lower wages of public sector nurses are more likely to result from the weaker bargaining strength of trade union due to the low and elastic demand and abundant supply. Also the government might have exercised its monopsony powers to maintain the wage rate at a lower level.

In the case of entertainment workers the economic theory does not explain high wage rate adequately. None of the assumption of the theory fits in the entertainment industry. There is no situation of many buyers and many workers because there are few employers and few workers. The entertainment industry is an oligopoly; where a few large entertainment firms dominate the industry. There are not many professional workers available and they are not homogeneous thus making it difficult to plot a market demand and supply curve rather each worker has his own demand and supply. Workers are not mobile at least in the short run. Over all supply is relatively inelastic because it requires talent and a long training period to become an accomplished actor or a singer. Thus the workers in entertainment industry can command high wages due to a higher MRP and demand and restricted supply. Their demand is inelastic because their role cannot be substituted with other inputs and it is high because people place a high value for their services. Supply on the other hand is restricted due to the particular natural talent required and cost on training.

Thus, the lower wages of nurses compared to the wages received by the workers in entertainment industry is the result of different market conditions, weaker bargaining position of trade union and the government control. Whether it is unfair is value judgment and therefore depends on who is being asked. Public sector nurses might feel that they are not being paid fare wages while workers in entertainment industry might feel it is fair for them to receive higher wages mainly due to the nature of work and the longer period of training. On the other hand government might feel that according to the economic situation and market conditions they are paying fair wages to nurses.

Question 10

Some workers producing non-essential luxury goods or services are paid very highly. The wage rate is not related to the economic value of a good or service but more to social factors or fashion. The economic theory of wages is, therefore, of little use in explaining wage differentials.

Assess this argument.

[25]

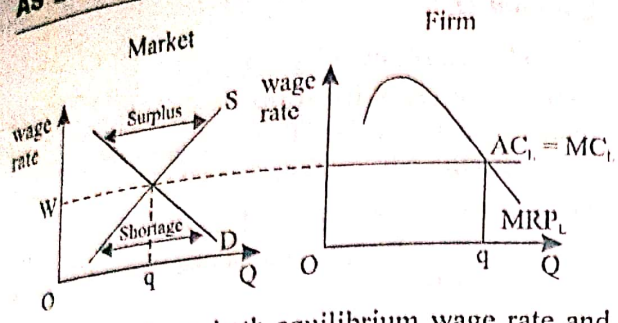
[N12/P4/Q4]

Essay

Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. Many firms competing with one another in hiring a specific type of labour characterize this type of market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor de-mand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. MRPL is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e. $MRP_L = MPP_L \times MR$.

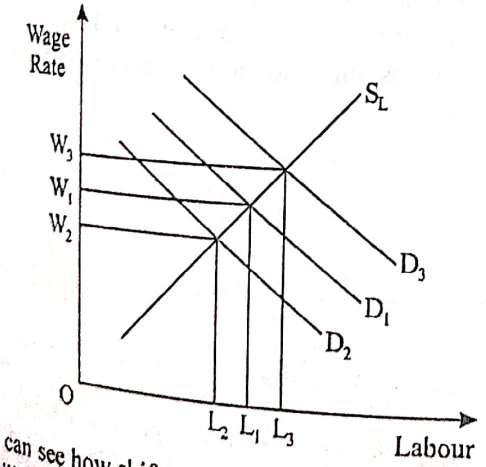
On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these work-ers away from other industries.



In the figure above, both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left panel of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRP_L)is equal to marginal cost of labour (MC_L) as shown in the right panel of the graph. At a wage rate above OW the number of workers available to work is in excess than the employment opportunities. While at a wage rate below OW there exists a shortage of workers. Thus a mismatch between QD and QS in either situation forces the wage rate to equilibrium position.

The theory further assumes that changes in the market forces of demand and supply will eventually restore a stable equilibrium at a new wage level.

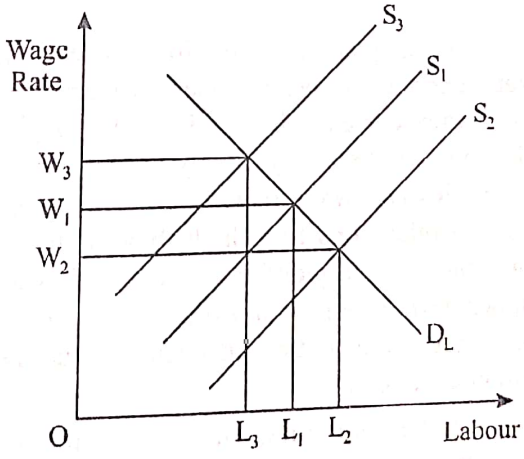
Demand for labour curve shifts if one of the conditions of demand changes. As mentioned above that the demand for labour curve is derived from the MRP curve, which, in turn, is calculated by MPP × MR. Therefore if there is an improvement in labour productivity then this will mean that the workers will produce more at any given wage rate and the MPP curve will shift to the right, shifting the MRP curve to the right. Similarly, if the price of the good being produced changes, say due to the change in fashion or preference, then this will change the MR and hence the MRP at all wage levels and the MRP curve will shift leading to a change in wage rate as shown in the graph below.



We can see how shifts in demand curve will affect the equilibrium wage and labour employed. The initial equilibrium is wage W_1 and employment L_1. If, for example, there were an improvement in the productivity levels of the workers in an industry say due to a more efficient use of labour through shift, then the labour demand curve (MRP curve) would shift to the right, causing a rise in the real wage rate to W_2 and a rise in numbers employed to L_2. Likewise a fall in the price of the good, say due to a change in trend or fashion would make the value of MRP to fall for all wage levels, and so the labour demand curve would shift to the left, giving wage W_3 and labour employed L_3.

Thus the demand for labour is greatly affected by the value of its MRP. The higher the MRP of labour the greater the demand for labour and the higher will be wages going to labour and the wage and vice versa Hence wage differentials between different occupations could be linked with differences in their values of MRP_L.

Just like the demand for labour, changes in supply of labour can also lead to a change in equilibrium wage rate and employment. An increase, for instance, in the number of people in the economy available to work in the given industry will increase supply. This could be because of an increase in net immigration or a change in the demographics of the economy. These increases in numbers will shift the supply of labour curve to the right. A less obvious cause is the situation in other industries. If, in relative terms, the wage rate becomes less attractive in a similar industry, or the working conditions deteriorate, then the industry in question will experience an increase in the number of workers offering their labour services. This will shift the supply of labour curve to the right.



In the diagram above, we can see what happens to the equilibrium when the supply curve shifts. A shift to the right causes the wage rate to fall (from W_1 to W_2) and the numbers employed to rise (from L_1 to L_2). A shift to the left causes the real wage rate to rise (from W_1 to W_3) and the numbers employed to fall (from L_1 to L_3).

Thus some wage differentials arise because basic human characteristics cause the supply of some types of labour to remain low relative to the demand for it, even

in the long run. For instance, pop stars or footballers where relatively rare ability is required. Similarly if a job requires specific qualifications training then supply of labour will be reduced and wages higher; For instance, barristers and doctors need good qualifications and a long period training which limits the number of people who are able to do these job.

However differences in wages between different occupations could result from some other factors not accounted by the economic theory. If trade unions and professional bodies, for instance, can limit entry into certain occupations by apprenticeships and the need to pass exams then supply will be limited and wage higher. Thus industries with a strong trade union are likely to pay more than those with a weak trade union.

Likewise some forms of social factors such as discrimination makes it difficult, or impossible, for certain groups to take certain jobs, even if they are equipped by skill and education for these jobs. Thus due to the discriminatory practices the supply in certain occupations remains low and hence results in higher wages compared to the occupation not really affected by social discrimination.

Sometimes the supply of labour to a particular occupation may be limited because the job is dangerous or dirty. Such occupations may command higher wages, as for miners. Other jobs, such as teaching or the "Civil Service", have pleasant working conditions, job security and good pension schemes. Consequently, such jobs may earn lower wages. Similarly some jobs may have a great many perks and fringe benefits and the money wages may be lower because of these advantage.

Many wage inequalities result from several types of market im-perfections which impede workers from moving from their current jobs to take higher-paying jobs. For instance workers may simply not be aware of job opportunities and wage rates in other geographic areas and in other jobs for which they qualify. Consequently, the flow of qualified labor from lower-paying to higher-paying jobs — and thus the ad-justments in labor supply — may not be sufficient to equalize wages within occupations.

It can thus be concluded that the economic theory gives only a limited account of wage differences between occupations. In real world, however, these differences could arise due to many other factors not explained by the theory.

Question 11

In 2011, as a result of a recession, the governments of some countries reduced the wages that they paid to public sector workers. Trade unions organised mass demonstrations in protest.

Discuss how the economic theory of wage determination in perfect competition can be adapted to explain such a situation.

[25]

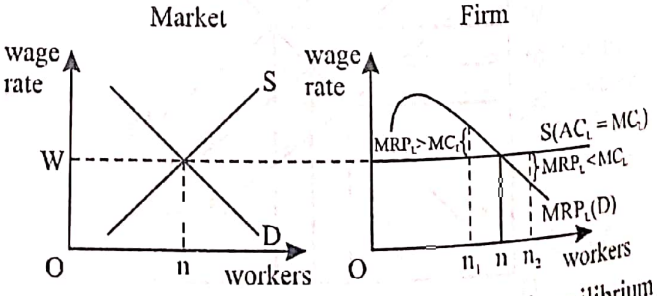
[J13/P4/Q3]

Essay

Wages are the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. In such a market many firms compete with one another in hiring a specific type of labour. Moreover, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The market demand for labor curve is found by summing horizontally the labor de-mand curves (MRP_L curves) of the individual firms. The marginal revenue product (MRP_L) is the increase in revenue that results from employing one more worker. MRP_L is obtained by multiplying marginal physical product of labour (MPP_L) and the firm's marginal revenue (MR). Thus $MRP_L = MPP_L \times MR$. MPP_L is the increase in total output when one more worker is employed and is subject to the law of diminishing returns while MR is determined by the price of the finished product.

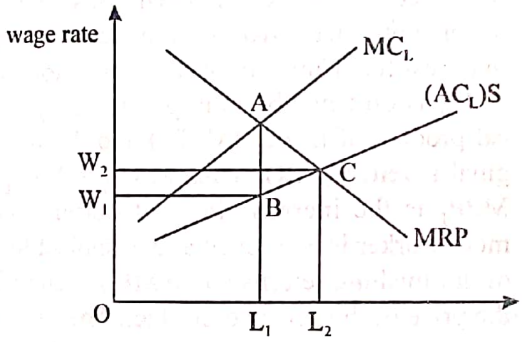
On the supply side of labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labour slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



The graph sums up wage determination and equilibrium for a profit maximising firm facing a perfectly competitive labour market. The left panel shows that the wage rate is determined in the market by demand and supply forces and the firm is a wage taker. On the right panel

the downward sloping portion of the firm's MRP_L curve is its demand for labour. The firm faces a perfectly elastic supply curve of labour that also represents firm's MC_L & AC_L. It implies that additional labour can be hired at the same wage rate, therefore $W=MC_L=AC_L$. So, according to the MRP theory the firm will find it profitable to hire ON workers where its MRP_L equals MC_L. The firm would not employ more than On workers because each additional worker would add less to the revenue than its costs thus leading to a fall in its profit. Similarly, On1 workers employed indicates that the firm can increase its profit by employing more because each additional worker hired up to On would add more to the firm's revenue than its costs.

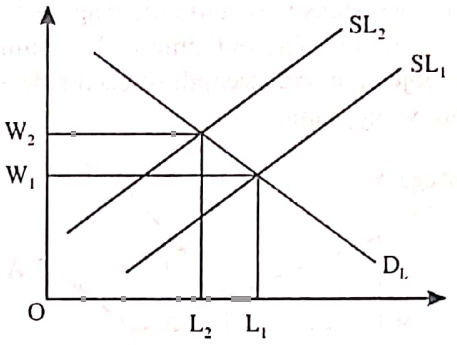
Although economic theory of wage determination assumes a perfectly competitive market, however, the theory could be extended to allow various real world market imperfections. There may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer represented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:



The higher MC_L than AC_L can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

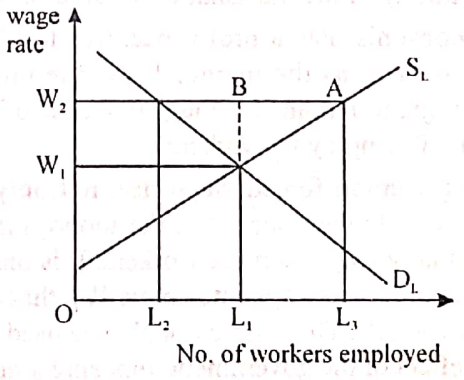
Similar to the perfect market a monopsonist, being a profit maximiser, will employ where its MC_L equals MRP_L, indicated by point A in the graph, hence L_1 workers will be employed. The wage rate W1, however, is given by the S curve (AC_L). In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market. However, this comparative lower wage rate and employment can be corrected by incorporating trade unions or government.

In the context of question statement if government enjoys monopsony power then trade unions could seek to resist the wage decrease of their members by either restricting the supply of labour or by direct negotiation. They can restrict the supply of labour through the use of a closed shop or by lengthening the time it takes to complete an apprenticeship. Over a period of time this could reduce the supply of labour to an industry, shifting the supply curve from SL_1 to SL_2 shown in the figure below.



The result would be an increase in the wage rate from W_1 to W_2, but with a reduced number employed, i.e. L_2 instead of L_1.

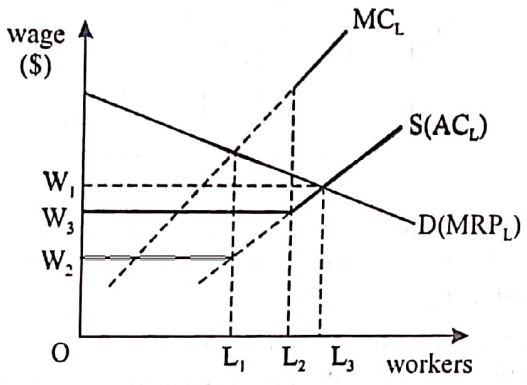
Alternatively, trade unions can influence the market through collective bargaining. It involves the direct negotiation between a trade union, bargaining collectively on behalf of its members, and the employer(s). If they are operating in a perfectly competitive labour market a successful collective bargaining could raise the wage rate from W_1 to W_2, as illustrated in the figure below.



The trade union may be unwilling to supply labour below the wage rate of W_2; therefore, the supply curve becomes W_2AS_L, being perfectly elastic over the section W_2A. At the equilibrium wage of W_1, with no trade union involvement, L_1 workers would be employed. However, with a wage of W_2, only L_2 are demanded and therefore $L_3 - L_2$ are unable to find employment.

There may be individuals who are willing to work for a wage below W_2 but they would be prevented from doing so by the union agreement. So through collective bargaining a wage rate of W_2 has been agreed, with L_2 being employed. The same result is obtained when government fixes the minimum wage at W_2. The union, however, could attempt to maintain employment at the equilibrium level of L_1 while obtaining a wage W_2. This would involve forcing the employer off the demand curve, thus obtaining position B. This will only be successful if the government is able to sustain employment at L_1 while paying a wage rate of W_2.

In other case suppose that the workers in this industry organize themselves under a single union so that the government being a monopsonistic employer now faces a monopoly union—a bilateral monopoly. In this case the two sides will settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side as shown in the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The successful resistance from the trade union sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall. This figure can also be used to illustrate the effect of the government imposing a minimum wage of W_3 on a monopsonistic labour market where the equilibrium wage was initially W_2.

Thus the theory of wage determination can be modified to analyse various labour market imperfections such as the government setting up the wage level or trade unions influencing the market through various measures.

Question 12

(a) Analyse whether in a perfectly competitive labour market it is true that a profit maximising firm will employ labour only up to the point where the marginal revenue product of labour is at its maximum. [12]

(b) Discuss whether the marginal revenue productivity theory of wages is useful in explaining wage determination in an imperfect market where there is a trade union. [13]

[N13/P4/Q3]

Essay

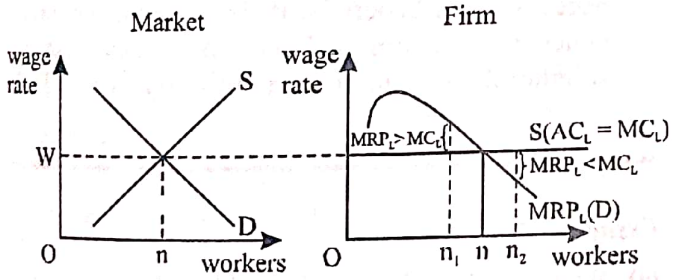
(a) Wage is the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. In such a market many firms compete with one another in hiring a specific type of labour. Moreover, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The market demand for labor curve is found by summing horizontally the labor demand curves (MRP_L curves) of the individual firms. The marginal revenue product (MRP_L) is the increase in revenue that results from employing one more worker. MRP_L is obtained by multiplying marginal physical product of labour (MPP_L) and the firm's marginal revenue (MR). Thus $MRP_L = MPP_L \times MR$. MPP_L is the increase in total output when one more worker is employed and is subject to the law of diminishing returns while MR is determined by the price of the finished product. Therefore a firm, in the short-run, may experience production, revenue and profit as shown in the following table:

No. of workers	Marginal physical product (MPP_L)	Price = AR = MR	MRP_L = $MPP_L \times MPP_L$	wage rate W = MC_L	Profit MRP–W
1	5	10	$50	$200	–$150
2	19	10	$190	$200	–$10
3	33	10	$330	$200	$130
4	43	10	$430	$200	$230
5	50	10	$500	$200	$300
6	30	10	$300	$200	$100
7	9	10	$90	$200	–$110

The MRP_L rises and then declines due to the law of diminishing returns. The wage rate (W) is constant at $200 and this represents the marginal cost (MC_L) and the average cost (AC_L) of labour. The profit maximising position for the firm is where $MRP_L = MC_L$. In the table this is where 6 workers are employed. The firm would not employ the 7th worker since he would only add $90 to revenue but would cost the firm $200 - hence reduces firm's profit by £110. Thus the firm hires six workers at the wage rate $200 and this gives us one point on the firm's demand curve. A change in the wage rate would require the firm to readjust its point of $MRP_L = MC_L$ (equilibrium) hence generating more points on the demand curve.

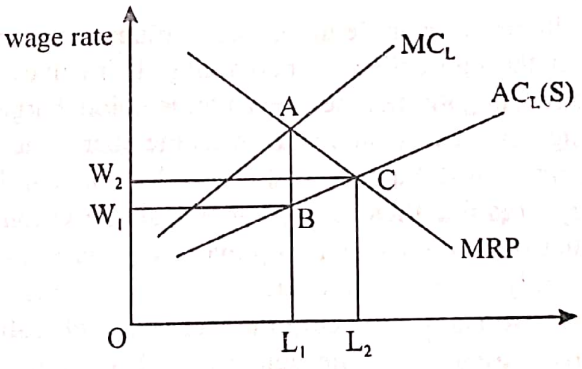
On the supply side of labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



The graph sums up wage determination and equilibrium for a profit maximising firm facing a perfectly competitive labour market. The left panel shows that the wage rate is determined in the market by demand and supply forces and the firm is a wage taker. On the right panel the downward sloping portion of the firm's MRP_L curve is its demand for labour. The firm faces a perfectly elastic supply curve of labour that also represents firm's MC_L & AC_L. It implies that additional labour can be hired at the same wage rate, therefore $W = MC_L = AC_L$. So, according to the MRP theory the firm will find it profitable to hire ON workers where its MRP_L equals MC_L. The firm would not employ more than On workers because each additional worker would add less to the revenue than its costs thus leading to a fall in its profit. Similarly, On1 workers employed indicates that the firm can increase its profit by employing more because each additional worker hired up to On would add more to the firm's revenue than its costs.

It, therefore, follows that a profit maximizing firm hires workers up to the point where $MRP_L = MC_L$ and not necessarily where the MRP_L is at its maximum.

(b) Although economic theory of wage determination assumes a perfectly competitive market, however, the theory could be extended to allow various real world market imperfections. There may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer represented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:

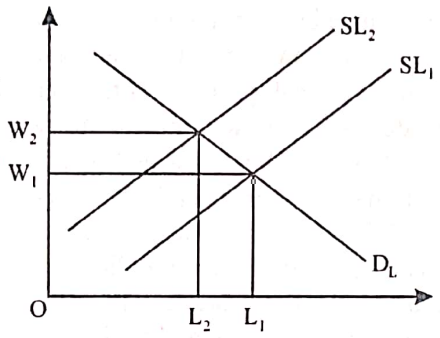


The higher MC_L than AC_L can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

Similar to the perfect market a monopsonist, being a profit maximiser, will employ where its MC_L equals MRP_L, indicated by point A in the graph,

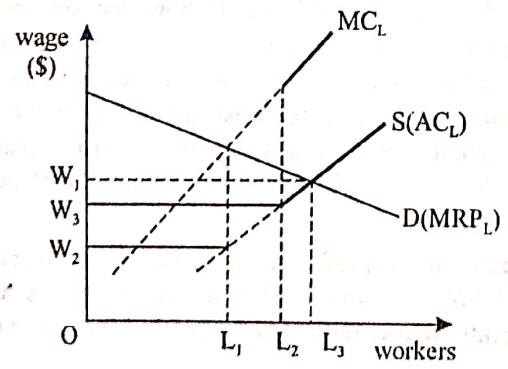
hence L_1 workers will be employed. The wage rate W_1, however, is given by the S curve (AC_L). In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market. However, this comparative lower wage rate and employment can be corrected by incorporating trade unions.

A trade union could seek to resist the wage decrease of their members by either restricting the supply of labour or by direct negotiation. They can restrict the supply of labour through the use of a closed shop or by lengthening the time it takes to complete an apprenticeship. Over a period of time this could reduce the supply of labour to an industry, shifting the supply curve from SL_1 to SL_2 shown in the figure below.



The result would be an increase in the wage rate from W_1 to W_2, but with a reduced number employed, i.e. L_2 instead of L_1.

Alternatively, trade unions can influence the market through collective bargaining. It involves the direct negotia-tion between a trade union, bargaining collectively on behalf of its members, and the employer(s). Suppose that the workers in an industry organize themselves under a single union so that the monopsonist employer now faces a monopoly union — a bilateral monopoly. In this case the two sides will settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side as shown in the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The successful resistance from the trade union sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall.

Thus the theory of wage determination can be modified to analyse various labour market imperfections such as the trade unions setting up the wage level or influencing the market through various other measures.

Question 13

(a) Some top executives and some sports people are paid very high salaries. It is argued that this is inevitable as people are paid the market rate for the job. Use economic analysis to support this opinion. [12]

(b) It is argued that the wage determination in imperfect markets leads to exploitation. It is therefore necessary and beneficial if the government intervenes in the determination of wage rates. Discuss whether there is any truth in this argument. [13]

[J14/P4/Q4]

Essay

(a) Wages or the price of labour, like other prices, are determined by economic factors. However, social and political factors also play a part in wage determination, as labour is a unique factor, being the human factor.

The main factor which determines the level of wages in a particular occupation is the interaction of demand for labour and supply of labour involved in that occupation. If demand is high for a category of labour then it is likely that wages will rise and vice versa, If supply of a certain category of labour is limited then, again, it is likely that wages will rise and vice versa. If labour was a

homogeneous factor and was sold ina perfectly competitive labour markets, every person would earn the income in equilibrium. Disequilibrium differentials in wages would arise, but workers move from lower income to higher income jobs until the differentials had disappeared. In the real world, however, some workers scrape out a bare living, others earn modest but adequate incomes, while yet others earn enough to afford many of life's luxuries.

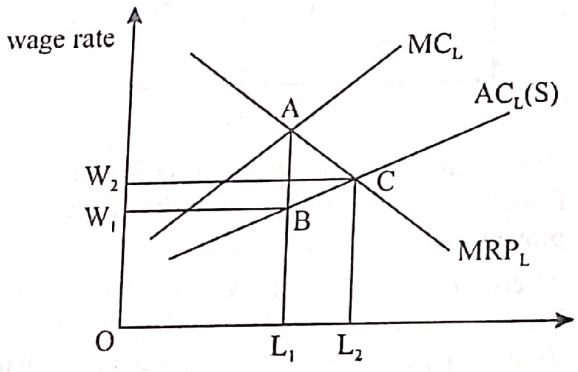
If a unit of labour produces a certain physical amount of a good which sells at a particular price (marginal revenue product) then the employer cannot afford to pay the worker a wage greater than the MR.P. The MRP (which is a derived demand) is obtained from the product of MPP of labour and price of the product. Hence an improvement in the productivity of labour would increase the demand for labour; likewise, an increase in the price of the product will increase the demand for labour. Thus the demand for labour is greatly affected by the value of its MRP. The higher the MRP of labour the greater the demand for labour and the higher will be wages going to labour.

In the context of this question it can be said that MRP of sports people and top executive is high because people place a higher value to their services and therefore their output commands higher market price and in return they earn higher wages. Take the case of a footballer. He is valued because of the talent that he displays on the pitch, and because of his ability to bring in the crowds who want to see him play. This makes him a good revenue earner for his club, and reflects his marginal productivity. In addition his skills are rare-some would say unique. Also the demand for his services is inelastic because his services cannot be substituted with other factors. At the same time supply of footballers is extremely limited. This is because the level of skills required to be a professional footballer is relatively rare and it requires strenuous training to become one. The combination of higher marginal productivity combined with inelastic demand and limited supply leads to a high equilibrium wage.

In case of top executives again the supply is relatively inelastic, at least in the short run. The education and training required to become an executive is long and demanding and is certainly essential for entry into an occupation. Furthermore not everyone is cut out to become an executive as this is the field that requires certain abilities and talents. This implies that the supply of executives is limited and does not vary a great deal with the wage rate. In this case their earnings are largely made up of economic rent.

Thus we conclude that it is the high demand and relatively limited supply of footballers and top executives that leads to relatively high equilibrium wage rate in the market.

(b) Although economic theory of wage determination assumes a perfectly competitive market, however, the theory could be extended to allow various real world market imperfections. There may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer represented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:



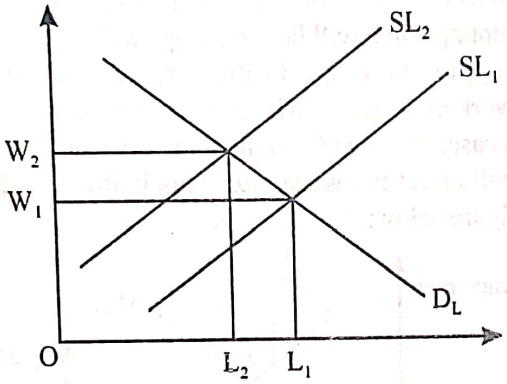
The higher MC_L than AC_L can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

Similar to the perfect market a monopsonist, being a profit maximiser, will employ where its MC_L equals MRP_L, indicated by point A in the graph, hence L_1 workers will be employed. The wage rate W_1, however, is given by the S curve (AC_L). In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market. Thus it is believed

Topic 2.3 ⇨ page 27

that imperfect markets leads to exploitation. However, this comparative lower wage rate and employment can be corrected by incorporating government intervention.

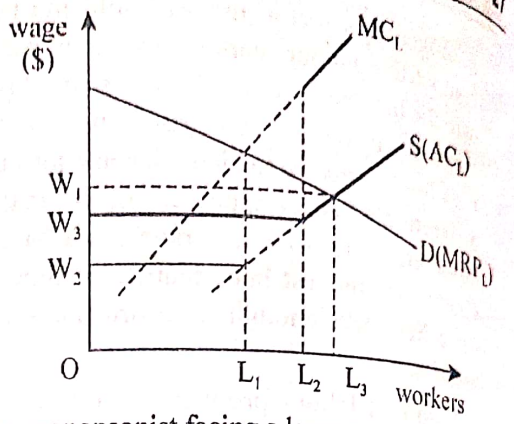
However, this comparative lower wage rate and employment can be corrected without government intervention simply by incorporating trade unions. A trade union could seek to resist the wage decrease of their members by either restricting the supply of labour or by direct negotiation. They can restrict the supply of labour through the use of a closed shop or by lengthening the time it takes to complete an apprenticeship. Over a period of time this could reduce the supply of labour to an industry, shifting the supply curve from SL_1 to SL_2 shown in the figure below.



The result would be an increase in the wage rate from W_1 to W_2, but with a reduced number employed, i.e. L_2 instead of L_1.

Alternatively, trade unions can influence the market through collective bargaining. It involves the direct negotia-tion between a trade union, bargaining collectively on behalf of its members, and the employer(s). Suppose that the workers in an industry organize themselves under a single union so that the monopsonist employer now faces a monopoly union — a bilateral monopoly. In this case the two sides will settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side.

When government intervenes in a labour market it fixes the minimum wage above the market wage rate. The minimum wage is a pay floor. Employers are not allowed to pay their employees a rate below the minimum wage. The outcome of minimum wage is illustrated on the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The government then sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a minimum wage fixed by the government, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the minimum wage is fixed above W_C that employment starts to fall.

Thus government intervention is not the only solution to deal with the exploitation of workers in an imperfectly competitive labour market. It can also be addressed by increasing the powers of trade unions to fix the wage rate at a higher level.

Question 14

A huge company with a turnover of $99.3 billion paid its chief executive $10.9 million in 2011. At the same time it was reported that the company did not pay what was regarded as a living wage to all its employees.

(a) Use economic analysis to help explain why there can be wide differences in wage rates. [12]

(b) Discuss how this analysis could be adapted if a trade union intervened in the process of wage determination. [13]

[N14/P4/Q4]

Essay

(a) Wages or the price of labour, like other prices, is determined by economic factors. However, social and political factors also play a part in wage determination, as labour is a unique factor, being the human factor.

The main factor which determines the level of wages in a particular occupation is the interaction of demand for labour and supply of labour involved in that occupation. If demand is high for a category of labour then it is likely that wages will rise and vice versa, If supply of a certain category of labour is limited then, again, it is likely that wages will rise and vice versa. If labour was a homogeneous factor and was sold ina perfectly competitive labour markets, every person would earn the income in equilibrium. Disequilibrium differentials in wages would arise, but workers move from lower income to higher income jobs until the differentials had disappeared. In the real world, however, some workers scrape out a bare living, others earn modest but adequate incomes, while yet others earn enough to afford many of life's luxuries.

If a unit of labour produces a certain physical amount of a good which sells at a particular price (marginal revenue product) then the employer cannot afford to pay the worker a wage greater than the MR.P. The MRP (which is a derived demand) is obtained from the product of MPP of labour and price of the product. Hence an improvement in the productivity of labour would increase the demand for labour; likewise, an increase in the price of the product will increase the demand for labour. Thus the demand for labour is greatly affected by the value of its MRP. The higher the MRP of labour the greater the demand for labour and the higher will be wages going to labour.

Thus some wage differentials arise because basic human characteristics cause the supply of some types of labour to remain low relative to the demand for it, even in the long run. For instance, pop stars or footballers where relatively rare ability is required. Similarly if a job requires specific qualifications training then supply of labour will be reduced and wages higher; For instance, barristers and doctors need good qualifications and a long period training which limits the number of people who are able to do these job.

However a wide difference in wages between different occupations could also result from some other factors.. If trade unions and professional bodies, for instance, can limit entry into certain occupations by apprenticeships and the need to pass exams then supply will be limited and wage higher. Thus industries with a strong trade union are likely to pay more than those with a weak trade union.

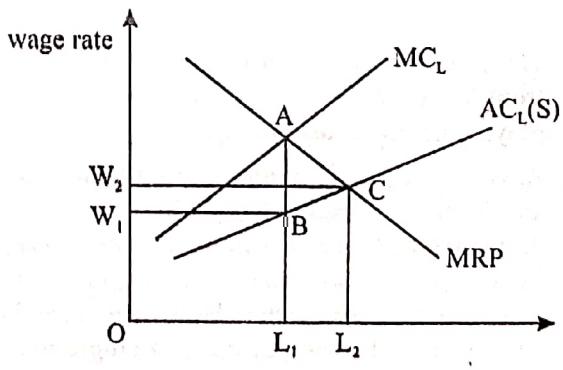
Likewise some forms of social factors such as discrimination makes it difficult, or impossible, for certain groups to take certain jobs, even if they are equipped by skill and education for these jobs. Thus due to the discriminatory practices the supply in certain occupations remains low and hence results in higher wages compared to the occupation not really affected by social discrimination.

Sometimes the supply of labour to a particular occupation may be limited because the job is dangerous or dirty. Such occupations may command higher wages, as for miners. Other jobs, such as teaching or the "civil service" have pleasant working conditions, job security and good pension schemes. Consequently, such jobs may earn lower wages. Similarly some jobs may have a great many perks and fringe benefits and the money wages may be lower because of these advantage.

Many wage inequalities result from several types of market im-perfections which impede workers from moving from their current jobs to take higher-paying jobs. For instance workers may simply not be aware of job opportunities and wage rates in other geographic areas and in other jobs for which they qualify. Consequently, the flow of qualified labor from lower-paying to higher-paying jobs — and thus the adjustments in labor supply — may not be sufficient to equalize wages within occupations.

Thus we conclude that the economic analysis can explain a wide difference in the wage rate between occupations.

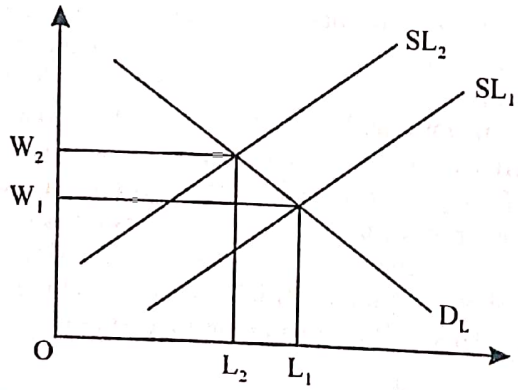
(b) Although economic theory of wage determination assumes a perfectly competitive market, however, the theory could be extended to allow various real world market imperfections. There may be, for instance, a single buyer of labour—a 'monopsonist'—where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer represented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:



The higher MC_L than AC_L can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

Similar to the perfect market a monopsonist, being a profit maximiser, will employ where its MC_L equals MRP_L, indicated by point A in the graph, hence L_1 workers will be employed. The wage rate W_1, however, is given by the S curve (AC_L). In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market. Thus it is believed that imperfect markets leads to exploitation.

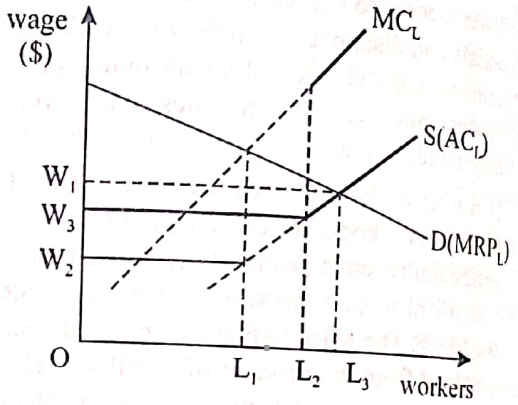
However, this comparative lower wage rate and employment can be corrected without government intervention simply by incorporating trade unions. A trade union could seek to resist the wage decrease of their members by either restricting the supply of labour or by direct negotiation. They can restrict the supply of labour through the use of a closed shop or by lengthening the time it takes to complete an apprenticeship. Over a period of time this could reduce the supply of labour to an industry, shifting the supply curve from SL_1 to SL_2 shown in the figure below.



The result would be an increase in the wage rate from W_1 to W_2, but with a reduced number employed, i.e. L_2 instead of L_1.

Alternatively, trade unions can influence the market through collective bargaining. It involves the direct negotiation between a trade union, bargaining collectively on behalf of its members, and the employer(s). Suppose that the workers in an industry organize themselves under a single union so that the monopsonist employer now faces a monopoly union—a bilateral monopoly. In this case the two sides will settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side.

When government intervenes in a labour market it fixes the minimum wage above the market wage rate. The minimum wage is a pay floor. Employers are not allowed to pay their employees a rate below the minimum wage. The outcome of minimum wage is illustrated on the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The government then sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a minimum wage fixed by the government, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the minimum wage is fixed above W_C that employment starts to fall.

Thus government intervention is not the only solution to deal with the exploitation of workers in an imperfectly competitive labour market. It can also be addressed by increasing the powers of trade unions so that they can bargain for a higher wage rate.

Question 15

'Wage determination in the factor market is just like price determination in the product market. It is entirely dependent on the forces of supply and demand.'

Do you agree with this statement? [25]

[J15/P4/Q4]

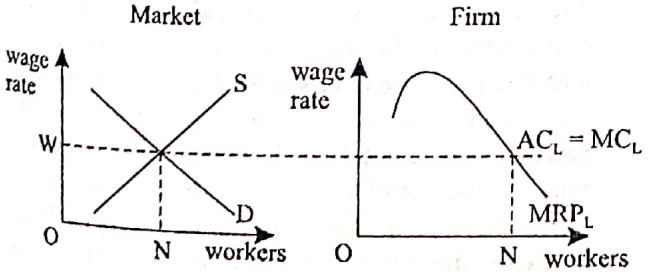
Essay

According to the theory of firm, price of a product is determined by the market forces of demand and supply only when a market can be classified as perfectly competitive. However, when various market imperfections such as varying number of firms, entry exit barriers, differentiated product, and imperfect information exist it is not the case. In fact the theory of firm does provide room to analyze how price in such conditions is determined. Similarly the theory of labour explains wage determination through the forces of demand and supply only where it can be classified as perfectly competitive labour market.

In a perfectly competitive labour market, so the economic theory goes, many firms compete with one another in hiring a specific type of labour. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue resulting from employing an additional worker. MRP_L is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e. $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



In the figure above, both the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as shown in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its MRP_L is equal to marginal cost of labour (MC_L) as given in the right part of the graph. MC_L is the cost of hiring an additional worker and it remains the same because an individual firm can employ each additional worker at the same wage rate without affecting the market wage rate in any way. So, a profit maximizing firm will not hire any worker whose MRP_L is less than his MC_L simply because it will reduce the firm's profit.

The equilibrium wage rate remains there so long as demand and supply conditions do not change. If, however, either market demand or supply or both change the equilibrium wage rate can also change. When most of the firms, for instance, introduce a new training program with the view to improve productivity of their workers or else they provide improved equipments to their workers, then the result could be a higher MRP_L leading to an increase in demand for labour and hence the wage rate. That is not all in fact a change in the market price of the product that labour produces will affect their MRP_L and hence their demand and the wage rate. Similarly a decrease in wage rate in other similar industries may increase supply of labour in the other and therefore results in excess supply of labour leading to a fall in the wage rate. Also, if number of individuals who qualify to work in an occupation declines, say due to migration abroad, then supply of labour decreases and the resulting shortage drives the wage rate up.

So, the equilibrium wage rate may rise or fall in response to a change in demand and supply under the conditions of perfectly competitive labour market. In the real world, however, conditions of a perfectly competitive labour market cannot hold in many cases just like conditions of perfectly competitive product market rarely exist. The theory of wage determination then provides room to analyze how wage rate will be determined just like theory of firm explains how price determination is not entirely dependent on the market forces of demand and supply in imperfect market. So, now we extend our analysis to allow various market imperfections, such as monopsony, trade unions and government intervention.

In the contrary to perfect market there may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, the monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher

Question 15

'Wage determination in the factor market is just like price determination in the product market. It is entirely dependent on the forces of supply and demand.'

Do you agree with this statement? [25]

[J15/P4/Q4]

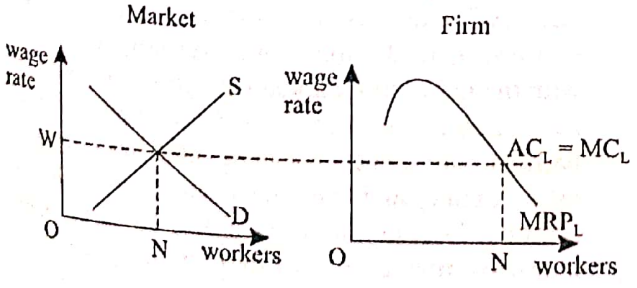
Essay

According to the theory of firm, price of a product is determined by the market forces of demand and supply only when a market can be classified as perfectly competitive. However, when various market imperfections such as varying number of firms, entry exit barriers, differentiated product, and imperfect information exist it is not the case. In fact the theory of firm does provide room to analyze how price in such conditions is determined. Similarly the theory of labour explains wage determination through the forces of demand and supply only where it can be classified as perfectly competitive labour market.

In a perfectly competitive labour market, so the economic theory goes, many firms compete with one another in hiring a specific type of labour. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

The total, or market, labor demand curve is found by summing horizontally the labor demand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue resulting from employing an additional worker. MRP_L is determined by the MPP_L (marginal physical product of labour) multiplied by the MR i.e. $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.



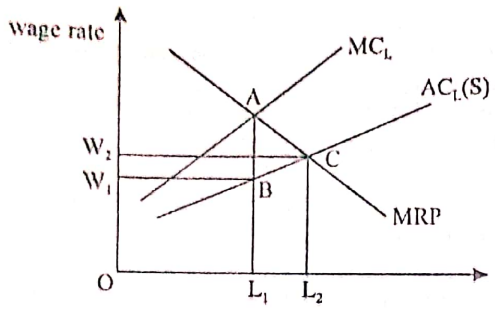
In the figure above, both the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as shown in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its MRP_L is equal to marginal cost of labour (MC_L) as given in the right part of the graph. MC_L is the cost of hiring an additional worker and it remains the same because an individual firm can employ each additional worker at the same wage rate without affecting the market wage rate in any way. So, a profit maximizing firm will not hire any worker whose MRP_L is less than his MC_L simply because it will reduce the firm's profit.

The equilibrium wage rate remains there so long as demand and supply conditions do not change. If, however, either market demand or supply or both change the equilibrium wage rate can also change. When most of the firms, for instance, introduce a new training program with the view to improve productivity of their workers or else they provide improved equipments to their workers, then the result could be a higher MRP_L leading to an increase in demand for labour and hence the wage rate. That is not all in fact a change in the market price of the product that labour produces will affect their MRP_L and hence their demand and the wage rate. Similarly a decrease in wage rate in other similar industries may increase supply of labour in the other and therefore results in excess supply of labour leading to a fall in the wage rate. Also, if number of individuals who qualify to work in an occupation declines, say due to migration abroad, then supply of labour decreases and the resulting shortage drives the wage rate up.

So, the equilibrium wage rate may rise or fall in response to a change in demand and supply under the conditions of perfectly competitive labour market. In the real world, however, conditions of a perfectly competitive labour market cannot hold in many cases just like conditions of perfectly competitive product market rarely exist. The theory of wage determination then provides room to analyze how wage rate will be determined just like theory of firm explains how price determination is not entirely dependent on the market forces of demand and supply in imperfect market. So, now we extend our analysis to allow various market imperfections, such as monopsony, trade unions and government intervention.

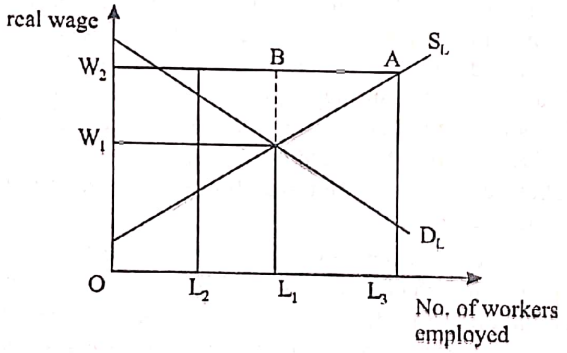
In the contrary to perfect market there may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, the monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher

wage rate that causes MC_L to be higher than the wage rate. This is illustrated in the figure below:



The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRP_L, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve $S(AC_L)$ and this will be W_1. The point to consider is that wage rate is not entirely determined by the demand and supply forces, the theory, however, can be extended to analyze a situation such as this.

Trade unions also influence the market wage through collective bargaining. It involves the direct negotiation between a trade union and the employers. Successful collective bargaining in a perfectly competitive labour market could raise the wage rate from W_1 to W_2, as shown in the figure below.



In this case it's the trade union and the management deciding the wage rate with certain negotiations rather than the forces of demand and supply. There may be individuals who are willing to work for a wage below W_2 but they would be prevented from doing so by the union agreement.

Similar to this a government, considering the equilibrium wage rate w_1 too low, may decide to fix w_2 as the minimum wage and then makes it illegal to pay a wage below this. The government in this case also overpowers the market forces and determines the wage rate that it thinks is fair.

So, it follows that wage determination in labour market just like price determination in a product market is entirely dependent on perfect market conditions. However, when either of the two markets is subject to imperfections we can change our analysis to accommodate other factors that over power the market forces of demand and supply.

Question 16

(a) Distinguish between supernormal profit and economic rent and consider the circumstances when each occurs. [12]

(b) Discuss whether you agree with the opinion that a trade union might be able to achieve higher wages for its members but only by causing some unemployment. [13]

[N15/P4/Q7]

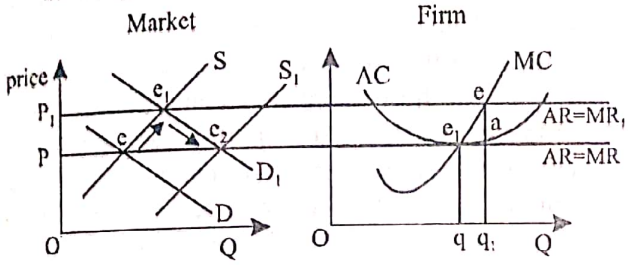
Essay

(a) Supernormal profit refers to a firm's earnings over and above what is needed keep its resources in their present use. Now the minimum that a firm must earn in order to remain in the present business is known as normal profit. This in effect refers to the opportunity cost of all its resources being used at present. On the other hand economic rent is the excess that an input earns over the minimum amount needed to keep it in its present use. In effect it is the opportunity cost of its present job that is known as transfer earnings. This is similar to supernormal profit in that it refers to the surplus over the opportunity cost. It is different, however, from supernormal profit as it refers to the surplus over the opportunity cost of a resource while supernormal profit is the surplus over the opportunity of doing a business.

In their pursuit of maximizing profit all firms, regardless the type of market, produce an output where they equate marginal revenue (MR) with their marginal cost (MC). At that point the level of profit, however, may range from supernormal to normal and sub normal, depending on the degree of competition that may exist in different markets. Firms earn normal profit when their average cost (AC) just equals average revenue (AR). Thus AR > AC, indicates supernormal profit. Supernormal profit, in the long run, is usually associated with the industries marked with entry and exit barriers such as monopolies and oligopolies. These barriers may range from high capital cost, economies of scale, sunk cost and various marketing and legal barriers. In a perfect market, however, firms may earn supernormal profit in the short run while

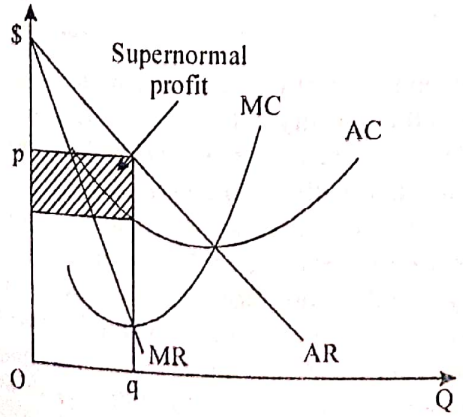
this possibility is ruled out in the long run due to the absence of entry barriers.

Conditions in a perfectly competitive market lead to all firms being "price takers" with a perfectly elastic demand curve for their product. So, each individual firm maximizes profit by adjusting its output to the point where its marginal revenue equals marginal cost. In such conditions profit may range from abnormal, normal and subnormal in the short run. However, due to the absence of entry barriers, profit is maintained at the normal level in the long run. The graph below illustrates this;



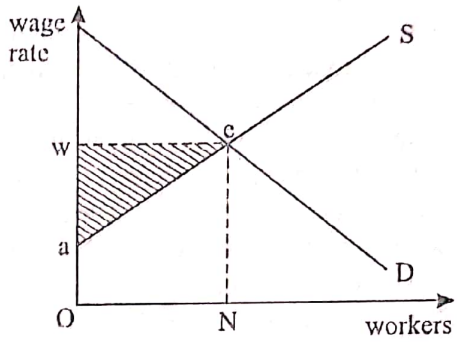
In the short run, the interaction between demand and supply determines the "market-clearing" price OP. Let's now assume that an increase in the market demand to D_1 raises the price to P_1 and thus creates an opportunity to earn supernormal profit. The industry offering supernormal profits encourages the entry of new firms into the industry. This causes an outward shift in market supply that forces the price down until price = long run average cost. At this point, each firm in the industry is just making normal profit. So, firms in a perfectly competitive market do earn supernormal profit for a short while, the entry of new firms, however, erodes this in the long run.

In cases of monopolies and oligopolies firms may earn supernormal profit both in the short and long run. A monopolist, knowing that entry of new firms is restricted by effective entry barriers; continue to charge a high price that yields supernormal profit. This can be shown on the graph below.



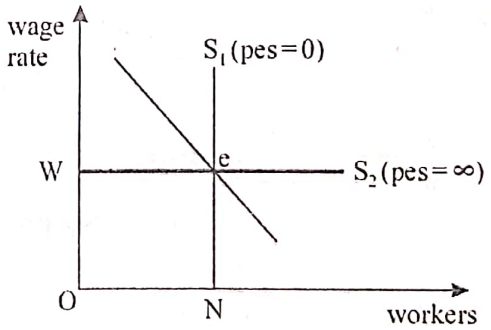
At the profit maximizing output Oq, the shaded rectangle measured by the vertical difference between monopolists' AR and AC is marked as supernormal profit that can occur both in the short and long run.

In order to analyze economic rent we use market demand and supply of an input, say labour. The graph below illustrates economic rent earned by the workers in a labour market.



At the equilibrium wage Ow the industry employs ON workers. The supply curve indicates the number of workers available at each and every wage rate. It, therefore, represents the minimum that each of them must earn in order to remain in the same occupation. So, out of the total earnings OweN, the triangular area eaw, which is above the supply curve and below the wage rate, represents the surplus over what is needed to keep all these workers in their present jobs. The area OaeN, therefore represents their opportunity cost or transfer earnings.

The amount of economic rent, however depends on the elasticity of supply of a factor. In order to analyze this consider the graphs below:

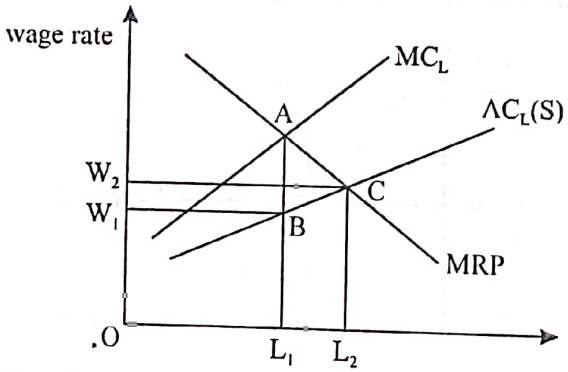


The two supply curves S_1 and S_2 represent different elasticity conditions where wage rate is same in both cases. It can be noted that when the supply curve is vertical the entire area represents economic rent because a decrease in wage rate would not lead to any worker to move elsewhere. This is the case where workers possibly do not have alternative job availability anywhere. When the supply curve is horizontal the entire area O we N represents transfer earnings and therefore economic rent is zero. In this case a fraction decrease in wage rate would lead all the workers to move elsewhere as earnings from alternative jobs are the same as

earnings from their present jobs. Thus it follows that economic rent changes due to a change in the elasticity of supply. The higher the PES the lower is the economic rent and vice versa.

(b) Wage is the price paid for labour. In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. The theory, however, could be extended to allow various real world market imperfections. There may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, then the monopsonist will be facing upward sloping market supply curve of labour. It, therefore, suggests that in order to recruit additional workers it has to offer a higher wage rate. In such a case, the monopsonist's demand for labour will affect the wage rate.

Monopsonist's demand for labor curve is found by measuring marginal revenue product of each additional worker (MRP_L). The marginal revenue product (MRP_L) is the increase in revenue that results from employing one more worker and it is obtained by multiplying marginal physical product of labour (MPP_L) with the firm's marginal revenue (MR). Thus $MRP_L = MPP_L \times MR$. MPP_L is the increase in total output when one more worker is employed and is subject to the law of diminishing returns while MR is determined by the price of the finished product. This is illustrated in the figure below:

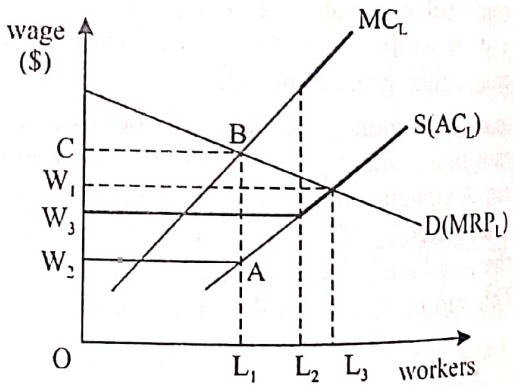


The higher MC_L than AC_L can be explained by the use of a simple example. At a wage rate of £ 100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £ 101, the increase being paid to all workers. The average cost is now £ 101 but the marginal cost is £ 151, comprising of £ 101 paid to the 51st worker plus £ 1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where its MC_L equals MRP_L, indicated by point A in the graph, hence L_1 workers will be employed. The wage rate W_1, however, is given by the S curve (AC_L). In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market. However, this comparative lower wage rate and employment can be corrected by incorporating trade unions.

Trade unions are made up of groups of workers who have a common inter-est. This could be a common skill, a similar job or working in the same industry. The aims of a trade union can range from improving the working environment to taking up the case of those members the union sees as being unfairly dismissed. An important function is to increase the wage rate of its members and trade unions, more often than not, seek to achieve that objective through collective bargaining.

Collective bargaining involves the direct negotiation between a trade union, on behalf of its members, and the employer(s). Suppose that the workers in an industry organize themselves under a single union so that the monopsonist employer now faces a monopoly union — a bilateral monopoly. In this case the two sides will settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side as shown in the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. Under these circumstances the income represented by the area W_2 ABC reflects worker's exploitation and therefore it becomes a zone of bargaining between employer and union. Now let's assume that a successful resistance from the trade union sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

At W_3 wage rate the monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers. Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall.

Thus it follows that a trade union might be able to achieve higher wages and more employment for its members. It, however, depends on and how large is the bargaining zone and where the wage rate has been fixed.

Question 17

(a) 'In perfect competition in the short run, wage rates in some occupations will be higher than in others.' Explain the economic analysis underlying this. [12]

(b) Do you agree that in an imperfect labour market any activity by trades unions designed to increase wage rates would inevitably lead to unemployment in that market? [13]

[J16/P4/Q4]

Essay

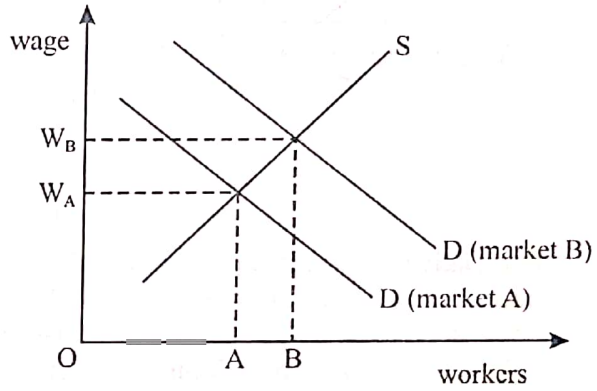
(a) In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. Many firms competing with one another in hiring a specific type of labour characterizes this type of market. There are numerous qualified workers with identical skills independently supply labour and there exist perfect knowledge, perfect mobility and freedom of entry and exit.

The market demand for labour curve is found by summing horizontally the labor demand curves (marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.

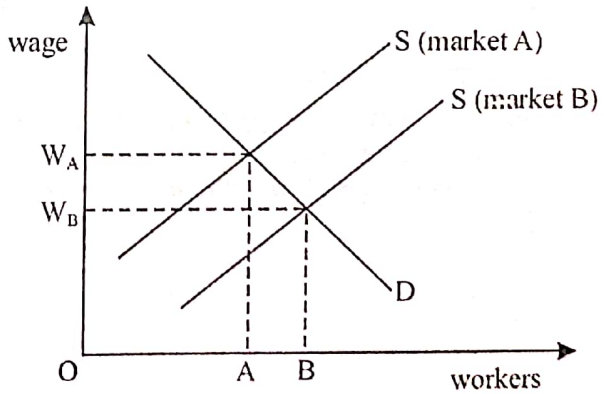
Both the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply. The theory further assumes that changes in the market forces of demand and supply will eventually restore a stable equilibrium at a new wage level.

In the short run wage differential in perfect competition between occupations is associated with different conditions of demand and supply. If a unit of labour produces a certain physical amount of a good which sells at a particular price (marginal revenue product) then the employer cannot afford to pay the worker a wage greater than the MRP. Hence an improvement in the productivity of labour would increase the demand for labour; likewise, an increase in the price of the product will increase the demand for labour. Thus the higher the MRP of labour the greater is the demand for labour and the higher the wages going to labour. Consider the graph below;



Given the same supply condition, a higher wage in occupation B is the result of higher demand for labour.

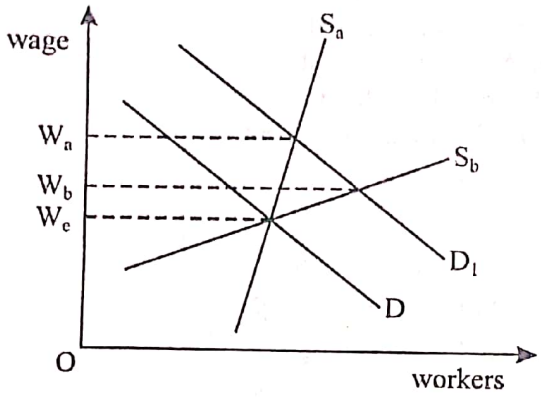
Similarly with same level of demand but different levels of market supply can also result in wage differences in different occupations. This is shown in the graph below:



In market B the level of supply of labour is higher than in market A. This difference in supply of labour leads to differences in equilibrium wage rate

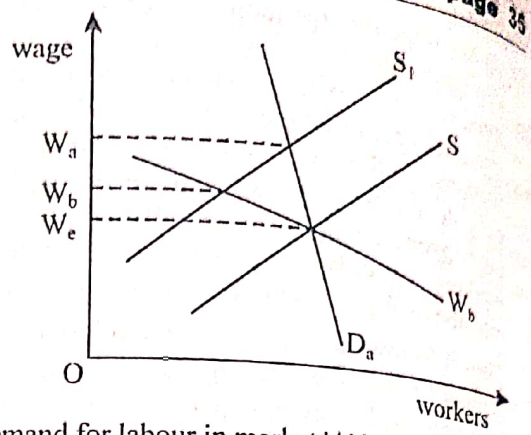
in two occupations. Different levels of supply can be attributed to the differences in the number of people in the economy available to work in the given industry. This could result due to the situation in other similar industries. If, in relative terms, the wage rate becomes less attractive in a similar industry, or the working conditions deteriorate, then the industry in question will experience an increase in the number of workers offering their labour services. This will shift the supply of labour curve to the right resulting in a lower wage rate.

In addition to this different elasticity conditions of demand and supply of labour in different occupations could also result in wages to be different. Following graph explains this;



S_a is relatively inelastic supply of labour and represents occupation 'a' while S_b is relatively elastic supply and refers to another occupation labeled as 'b'. Initially, We is the equilibrium wage rate in both occupations. Now let's assume that demand for labour in both these occupations increases from D to D_1. The new wage rate is Wa in occupation where supply of labour is relatively inelastic and it is higher than the wage rate in occupation 'b' where supply of labour is relatively inelastic. Over all supply may be relatively inelastic in market 'b' because it could require talent and a relatively longer training to qualify to work. Thus the workers in market 'b' can command high wages due to a higher MRP and restricted supply.

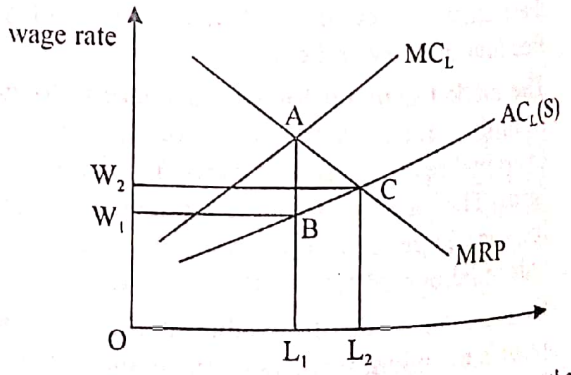
Similarly if demand for; particular type of labour is inelastic then the likelihood is that labour will receive higher wages. The following graph explains this;



Demand for labour in market 'A' is relatively inelastic while in market b it is relatively elastic. A fall in supply of labour in both markets will cause new equilibrium wage rate to be higher in market 'a' than in market 'B'. Demand for labour will be inelastic 'when other factors cannot easily be substituted for it, when the demand for the good it produces is inelastic and if labour forms only a small percentage of the entrepreneur's total costs.

It therefore follows that in perfect market wage differentials in the short run could exist due to the differences in demand and supply conditions.

(b) Although economic theory of wage determination assumes a perfectly competitive market, however, the theory could be extended to allow various real world market imperfections. There may be, for instance, a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate. This is illustrated in the figure below:

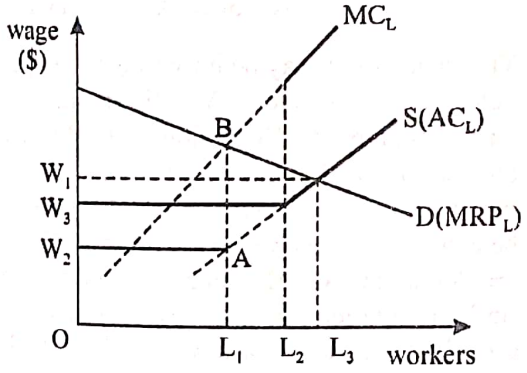


The higher MC_L than AC_L can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he is forced to offer £101, the increase being paid to all

workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

Similar to the perfect market a monopsonist, being a profit maximiser, will employ where its MC_L equals MRP_L, indicated by point A in the graph, hence L_1 workers will be employed. The wage rate W1, however, is given by the S curve (AC_L). In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market. However, this comparative lower wage rate and employment can be corrected by incorporating trade unions.

Trade unions can influence the market through collective bargaining. It involves the direct negotiation between a trade union, bargaining collectively on behalf of its members, and the employer(s). Suppose that the workers in an industry organize themselves under a single union so that the monopsonist employer now faces a monopoly union — a bilateral monopoly. In this case the two sides will settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side as shown in the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The successful resistance from the trade union sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_1 that employment starts to fall.

It, therefore, follows that in an imperfect labour market any activity by trades unions designed to increase wage rates would inevitably lead to unemployment only if the union forced wage rate is fixed above the perfectly competitive wage rate.

Question 18

(a) Some occupations that do not have pleasant working conditions, such as rubbish collection, receive low pay, while those with pleasant conditions, such as senior managers, receive high pay.

How far does economic analysis explain this situation? [12]

(b) Discuss what influence a trades union and a government can have in determining wage rates. [13]

[N16/P4/Q6]

Essay

(a) In a perfectly competitive labour market, so the economic theory goes, wage rate is determined by the market forces of demand and supply of labour. Many firms competing with one another in hiring a specific type of labour characterizes this type of market. There are numerous qualified workers with identical skills independently supply labour and there exist perfect knowledge, perfect mobility and freedom of entry and exit.

The market demand for labour curve is found by summing horizontally the labor demand curves (marginal revenue product curves) of the individual firms. The marginal revenue product, MRP_L, is the increase in revenue due to employing one more unit of labour. $MRP_L = MPP_L \times MR$.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries.

Both the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply. The theory further assumes that changes in the market forces of demand and supply will eventually restore a stable equilibrium at a new wage level.

In the short run wage differentials between occupations is associated with different conditions of demand and supply. If a unit of labour produces a certain physical amount of a good which sells at a particular price (marginal revenue product) then the employer cannot afford to pay the worker a wage greater than the MRP. Hence an improvement in the productivity of labour would increase the demand for labour; likewise, an increase in the price of the product will increase the demand for labour. Thus the higher the MRP of labour the greater is the demand for labour and the higher the wages going to labour.

Referring to the question the theory better explains the market for rubbish collectors than senior managers. In case of public rubbish collectors, low wage rate can be explained by the monoposony model where government is the biggest, if not the sole employer of workers, and relatively high elasticity of supply of workers. The market demand for such workers would be low and relatively elastic. It is low because the society places relatively lower value on their services therefore their MRP_L and wage rate is relatively is lower. It is elastic because their services are not particularly considered essential. On the other hand supply of workers would be large and relatively elastic. The supply would be abundant because of low entry requirements short training period and low cost.

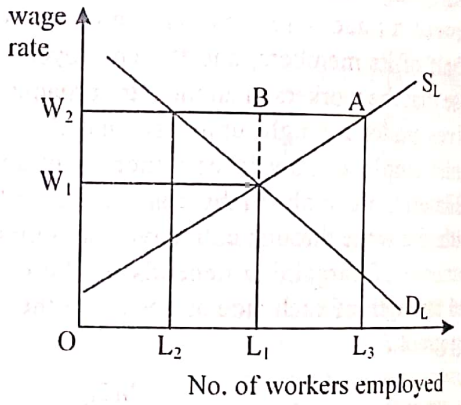
In addition the lower wages of rubbish collectors are more likely to result from the weaker bargaining strength of trade union due to the low and elastic demand and abundant supply. Also the government might have exercised its monopsony powers to maintain the wage rate at a lower level.

In the case of senior managers the economic theory does not explain high wage rate adequately. None of the assumption of the theory fits in this market well. There is no situation, for instance, of many buyers and many workers because there are few employers and few workers. This could be an oligopoly; where a few large firms dominate the industry. There are not many professional workers available and they are not homogeneous thus making it difficult to plot a market demand and supply curve rather each worker has his own demand and supply. Workers are not mobile at least in the short run. Over all supply is relatively inelastic because it requires talent and a long training period to become an accomplished manager. Thus the senior managers can command high wages due to a higher MRP and restricted supply. Their demand is inelastic because their role cannot be substituted with other inputs and it is high because people place a high value for their services. Supply on the other hand is restricted due to the particular natural talent and management experience is required.

Thus economic theory explains wage differentials between two occupations on the basis of differences in demand and supply conditions.

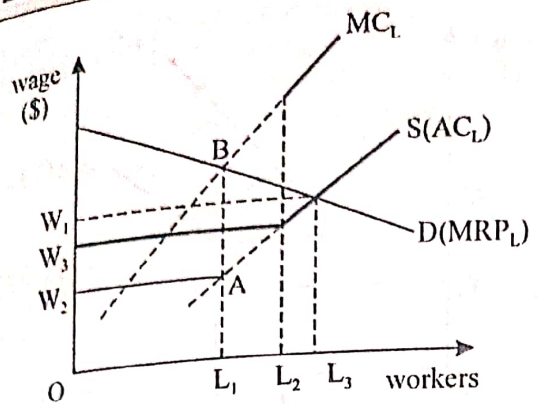
(b) Trade unions are made up of groups of workers who have a common interest. Their objectives can range from improving the working environment to taking up the cases of those members the unions see as being unfairly dismissed. Their most important function is to increase the wage rate of its members.

Trade unions influence the market through collective bargaining. It involves the direct negotiation between a trade union and the employers. Successful collective bargaining in a perfectly competitive labour market could raise the wage rate from W_1 to W_2, as illustrated in figure below.



The trade union may be unwilling to supply labour below the wage rate of W_2; therefore, the supply curve becomes W_2AS_L, being perfectly elastic over the section W_2A. At the equilibrium wage of Wj, with no trade union involvement, Lj workers would be employed. However, with a wage of W_2, only L_2 are demanded and therefore $L_3 - L_2$ are unable to find employment. There may be individuals who are willing to work for a wage below W_2 but they would be prevented from doing so by the union agreement.

Government fixing a minimum wage to protect largely non-unionised labour from being exploited by employers will produce the similar outcome. However in a modern mixed economy the government acts as a monopsonist, paying wages below the market equilibrium levels. This brings trade union and government into conflict. This can be explained on the graph below:



The government facing a large number of employees in the industry will force the wage rates down to OW_1 and restrict employment L_1. The entry of a trade union to the industry, which sets a minimum wage of W_2, will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour. The government, acting as a monopsonist, has an incentive to hire extra workers so long as the MRP_L is higher than the MC_L. Hence, it will employ L_2 workers

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above WC that employment starts to fall.

However, successful wage negotiation depends on a number of factors. Firstly, a trade union enjoys better bargaining position when it is not easy for employer to substitute labour with capital. Secondly the elasticity of demand for the product that the firm produces is relatively low. Thirdly, the proportion of labour costs out of the total costs is low and majority of the workers belong to the union. Lastly, the suitable political and economic climate will add to their bargaining strength.

To sum up, both trade unions and government can influence the wage rate by forcing the employer to pay a wage rate different from what is determined by the market forces.

Question 19

In 2016 the Trade Unions called a strike of bus and train drivers after a demand for higher wages was rejected.

Use the economic theory of wages to discuss whether a demand for higher wages is likely to be successful.

[13]

[J17/P4/Q4(b)]

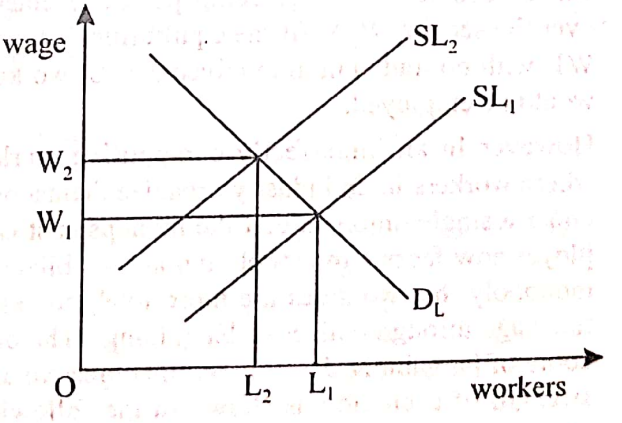
Essay

Trade unions are made up of groups of workers who share the same interest. Their aims can range from increasing the wage rate as high as possible and improving the working conditions or taking up the case of those who they see as being unfairly treated.

In a perfectly competitive market, so the theory goes, wage rate is determined by the market forces of demand and supply of labour. The market demand for labor curve is found by summing horizontally the labor demand curves (MRP_L curves) of the individual firms. The marginal revenue product (MRP_L) is the increase in revenue that results from employing one more worker. MRP_L is obtained by multiplying marginal physical product of labour (MPP_L) and the firm's marginal revenue (MR). Thus $MRP_L = MPP_L \times MR$. MPP_L is the increase in total output when one more worker is employed and is subject to the law of diminishing returns while MR is determined by the price of the finished product.

On the supply side of labor market, workers compete individually for available jobs. The supply curve for each type of labour slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries. So, according to the wage theory under these conditions each firm will find it profitable to hire workers where its MRP_L equals MC_L.

Under these market conditions a trade union seeking higher wage rate could either restrict the supply of labour or negotiate directly with the firms. They can restrict the supply of labour through the use of a closed shop or by lengthening the time it takes to complete an apprenticeship. Over a period of time this could reduce the supply of labour to an industry, shifting the supply curve from SL_1 to SL_2 as given in the following figure.

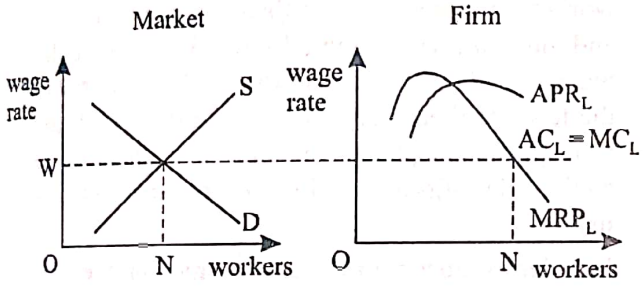


The result would be an increase in the wage rate from W_1 to W_2, but with a reduced number em-

market. Also, there are numerous qualified workers with identical skills independently supply labour. There exist perfect knowledge, perfect mobility and freedom of entry and exit. Consequently, both firms and individual workers are wage takers.

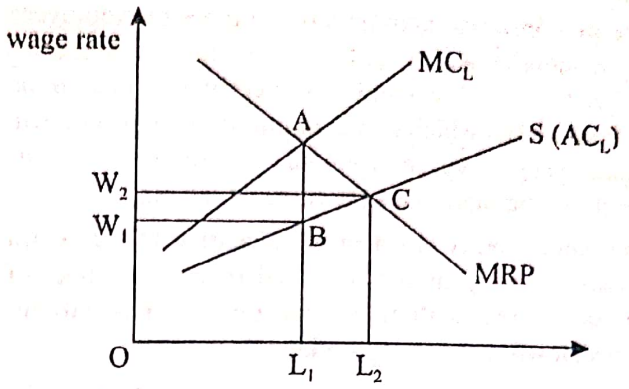
The total, or mar-ket, labor demand curve is found by summing horizontally the labor de-mand curves (the marginal revenue product curves) of the individual firms. The marginal revenue product, MRPL, is the increase in revenue due to employing one more unit of labour. MRPL is determined by the MPPL(marginal physical product of labour) multiplied by the MR i.e..MRPL = MPPL × MR.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of la-bor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these work-ers away from other industries.



In the figure above both equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as depicted in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its marginal revenue product (MRPL)is equal to marginal cost of labour (MC_L) shown in the right part of the graph.

Although economic theory of wage determination is primarily concerned with a perfectly competitive market, however, the theory could be extended to allow various market imperfections, which exist in real world. For instance, there may be a single buyer of labour — a 'monopsonist' — where a large factory is the main source of employment in a locality. If this is the case, then the wage rate, (AC_L) is no longer reperesented by a horizontal straight line. Instead the wage rate increases as more labour is employed. Hence, monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate. In such a case, the size of an employer's demand for labour will affect the wage rate This is illustrated in the figure below:

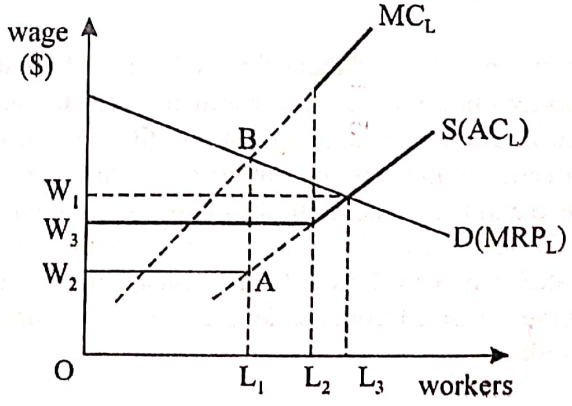


The marginal cost curve for labour (MC_L) being above the average cost curve for labour (AC_L) can be explained by the use of a simple example. At a wage rate of £100, 50 workers may be employed. If, however, the monopsonist wishes to employ one more worker he or is forced to offer £101, the increase being paid to all workers. The average cost is now £101 but the marginal cost is £151, comprising of £101 paid to the 51st worker plus £1 paid to each of the 50 original workers.

The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRPL, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve S(AC_L) and this will be W_1. The overall wage bill to the monopsonist will, therefore, be OW_1BL_1,. In a perfectly competitive non-monopsony market the wage and numbers being employed would have been W_2 and L_2 respectively. Thus monopsony power in a labour market will result in a lower level of employment and lower wages than would exist in a competitive labour market.

However, this comparative lower wage rate and employment can be corrected by incorporating trade unions or government.

Trade unions seek to increase the wage rate of their members by either restricting the supply of labour (explained in part a) or by direct negotiation. Collective bargaining involves wage negotiation between trade unions, acting on behalf of their members, and the employers. Successful bargaining could raise the wage rate, for instance, from W_1 to W_3, as shown in the figure below:



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. The entry of a trade union to the industry, which sets a minimum wage of W_3, will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers.

Following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers. It is only when the union forces the wage rate above W_C that employment starts to fall. Minimum wage fixed by the government will also produce the same result.

Thus we conclude that the question statement is partly true. In a perfectly competitive labour market wage rate paid to the workers equal their MRP and the level of employment is where all those who are willing to work at the current wage rate are employed. There is therefore little or no room for actions either by trade union or government. One area where they are still relevant is improvement in working conditions. In an imperfect market however workers are paid less than their MRP, hence trade union or government fixing the wage rate may improve efficiency in labour market.

Question 21

(a) Explain how a firm derives its demand curve for labour and consider how the structure of the product market in which the firm operates affects the firm's demand curve for labour. [12]

(b) Discuss whether it is possible for a trade union to negotiate higher wages and more employment. [13]

[J18/P4/Q4]

Essay

(a) Firms need to hire labour for production of goods services that they expect to sell in order to earn profit. Therefore the higher the profit they expect to earn the more is the output they want to produce and hence the more they demand for labour. Economists use marginal productivity theory in order to explain how a firm's demand for labour curve is derived from the demand for the product it produces.

According to the theory a profit maximizing firm weighs up the costs of employing each extra worker against its benefits. The firm will, therefore maximise profits where the marginal cost of employing an extra worker equals the revenue that the worker's output earns for the firm. Marginal cost of labour (MC_L) is the extra cost of employing one more worker while the revenue that the firm gains from employing one more worker is called the marginal revenue product of labour (MRP_L).

MRP_L is found by multiplying two elements - marginal physical product of labour (MPP_L) and the marginal revenue (MR) gained by selling one more unit of output. Thus $MRP_L = MPP_L \times MR$

MPP_L is the extra output produced by an additional worker employed. If this extra worker adds more to a firm's revenue than to its costs, the firm's profits will increase. It will be worth employing that worker. But as more workers are employed, diminishing returns to labour will set in. Each extra worker will produce less than the previous one, and thus earn less revenue for the firm. Eventually the marginal revenue from extra workers will fall to the level of their marginal cost. At that point, the firm will stop employing extra workers. There are no additional profits to be gained. Profits are at a maximum.

In order to illustrate this let's assume that the firm is operating in a perfectly competitive product market where large number of relatively small firms are selling identical product. There is perfect information and no entry exit barriers. Under these conditions all firms become price takers because price of the product is determined by the market forces of demand and supply and each individual firm can only choose the quantity it sells at the current market price. Since firms cannot change the market price therefore every next unit they sell will add the same to their total revenue. This implies that their marginal revenue from all different units will remain the same and it will be equal to the market price i.e. P = MR. Following graphs illustrate this.

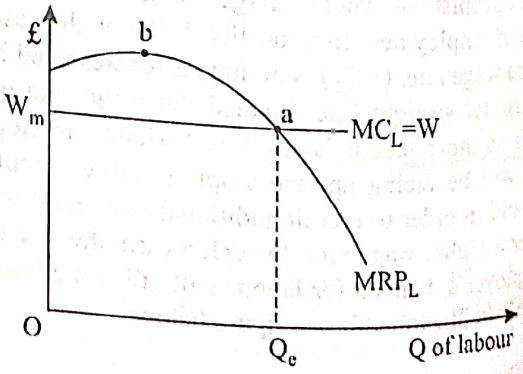


Fig. 1

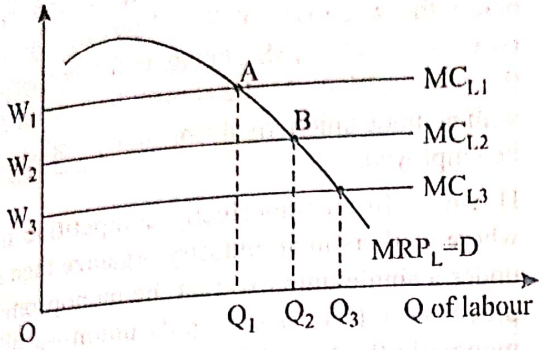


Fig. 2

In both figures $MC_L = W$ indicates that the firm can employ as many workers as it needs by paying the same wage rate for it is operating in a perfectly competitive labour market and hence becomes a wage taker. Fig 1 shows that as the firm starts employing more workers, there will come a point (b) when diminishing returns set in. The MRP_L curve thus slopes down after this point. The MRP_L curve will be a similar shape to the MPP_L curve, since it is merely being multiplied by a constant MR. Profits will be maximised at employment level of Q_e, where $MC_L = MRP_L$. At levels of employment below Q_e, MRP_L exceeds MC_L. The firm will increase profits by employing more labour. At levels of employment above Q_e, MC_L exceeds MRP_L. In this case, the firm will increase profits by reducing employment. Thus at wage rate W_m the firm demand for Q_e labour but this gives only one point on the firm's demand for labour curve. In order to generate further points we assume that the wage rate changes in the market as given in fig.2.

At a wage rate of W_1, Q_1 labour is demanded; at W_2, Q_2 is demanded; at W_3, Q_3 is demanded.

Thus the MRP_L curve shows the quantity of labour employed at each wage rate and this is just what the demand curve for labour shows. Thus the MRP_L curve is the demand curve for labour of a firm operating in a perfectly competitive product market.

We can also derive the demand for labour curve for a firm operating in an imperfectly competitive product market by determining its MRP_L with the same process. Any market that does not fulfill the conditions of a perfectly competitive market is classified as an imperfect market such as oligopoly with just a handful of firms or monopolistic competition with only differentiated product. Firms operating in any imperfectly competitive product markets face downward sloping demand curves though with varying degrees. Therefore they all face downward sloping MR curves when they choose to sell increasing quantities of their product.

Since $MRP_L = MPP_L \times MR$ and MPP_L eventually diminishes with an increase in firm's output while MR remains constant therefore MPP_L is the sole reason for a fall in MRP_L in a perfectly competitive product market. However MRP_L of a firm operating in an imperfectly competitive product market decreases due to a fall in its MPP_L that is reinforced by a fall in the firm's MR. Its MRP_L curve therefore is likely to fall at a higher rate than a firm operating in a perfectly competitive product market.

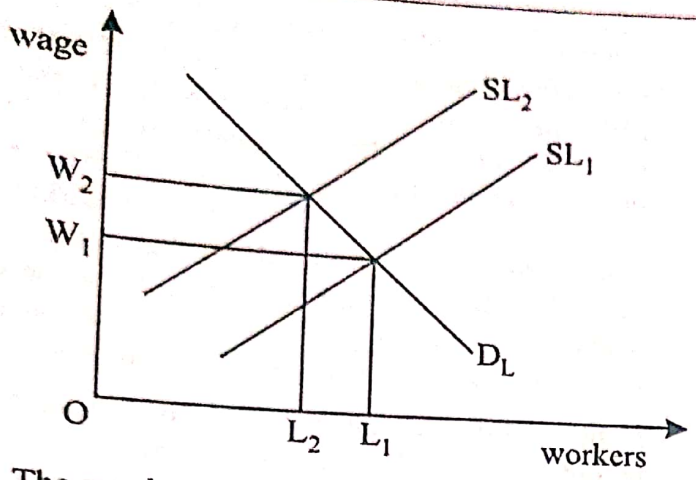
Hence it follows that a firm derives demand for labour curve by determining its MRP_L curve and the structure of the product market in which the firm operates only affects the rate of fall on a firm's demand curve for labour.

(b) Trade unions are made up of groups of workers who share the same interest. Their aims can range from increasing the wage rate as high as possible and improving the working conditions or taking up the case of those who they see as being unfairly treated.

It is the collective nature of the union that gives them their power. The larger the proportion of the workforce that is members, the more clout they will have with the employers. If an individual tries to negotiate for a higher wage with his employer on his own, he will have very little clout. The employer knows that he can just find another worker if one employee kicks up a fuss.

If a union with a large membership is refused a pay rise by the employer, the members of the union can vote on whether to go on strike. This will affect the employer where it hurts - his profit level! An employer will be much keener to keep a whole union happy rather than an individual employee acting on his own behalf.

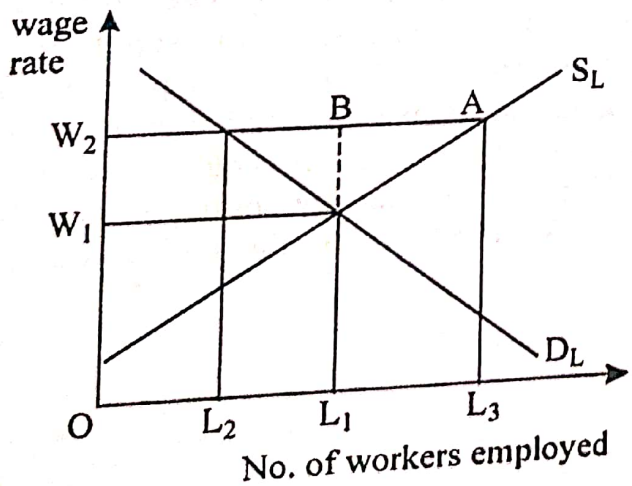
In a perfectly competitive labour market, a trade union seeking higher wage rate could either restrict the supply of labour or negotiate directly with the firms. They can restrict the supply of labour through the use of a closed shop or by lengthening the time it takes to complete an apprenticeship. Over a period of time this could reduce the supply of labour to an industry, shifting the supply curve from SL_1 to SL_2 as given in the following figure.



The result would be an increase in the wage rate from W_1 to W_2, but with a reduced number employed, i.e. L_2 instead of L_1.

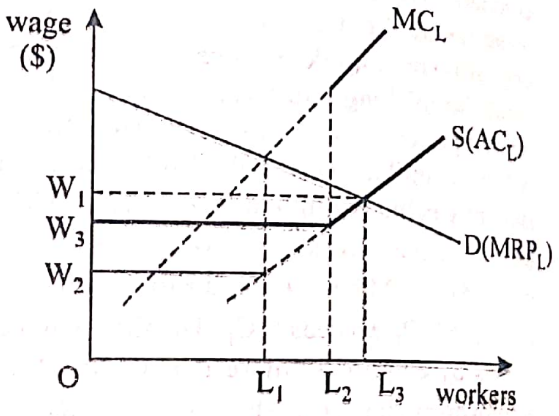
Alternatively, trade unions can influence the market through collective bargaining. It involves a direct negotiation between a trade union, bargaining collectively on behalf of its members, and the employer(s). The bargaining strength of trade unions when dealing with employers depends on a number of factors. For instance, a trade union enjoys better bargaining position when it is not easy for employer to substitute labour with capital or the elasticity of demand for the product that the firm produces is relatively low. Also, the low proportion of labour costs out of the total costs, majority of the workers belong to the union and most importantly suitable political and economic climate will add to their bargaining strength. On the other hand high price elasticity of demand for the product, possibility of labour substitution with capital, high proportion of labour costs to total cost, low profits and a period of high unemployment will weaken their power.

So if they are operating in a perfectly competitive labour market a successful collective bargaining could raise the wage rate from W_1 to W_2, as illustrated in the figure below.



The trade union may be unwilling to supply labour below the wage rate of W_2; therefore, the supply curve becomes W_2AS_L, being perfectly elastic over the section W_2A. At the equilibrium wage of W_1, with no trade union involvement, L_1 workers would be employed.

However In an imperfectly competitive market where workers in an industry organize themselves under a single union so that the monopsonist employer now faces a monopoly union---a bilateral monopoly the two sides are more likely to settle the wage through collective bargaining. The outcome of bargaining depends on the objective and strength of each side as shown in the following graph.



The monopsonist facing a large number of employees in the industry will force the wage rates down to OW_2 and restrict employment L_1. However the trade union seeking higher wage sets a minimum wage of W_3, which will kink the supply curve of labour and produce a discontinuity in the marginal cost curve of labour.

The monopsonist has a profit incentive to hire extra workers so long as the marginal revenue product of labour is greater than the marginal cost of labour. Hence, it will employ L_2 workers. It is only when the union forces the wage rate above WC that employment starts to fall. So following a union forced wage rise, not only do the workers get a higher wage, but the monopsonist employer actually employs more workers.

It therefore follows that there are more chances of achieving a higher wage claim if the trade union is negotiating with employers in an imperfectly competitive labour market conditions, though it largely depends on the bargaining strength of trade unions.

Question 22

Consider whether wages are only determined by the market forces of supply and demand. [25]

[N18/P4/Q4]

Essay

Economic theory explains wage determination through the forces of demand and supply in a perfectly competitive labour market. In such a market, so the theory goes, many firms compete with one another for hiring a specific type of labour. Also, there are numerous qualified workers available with identical skills. Both firms and workers have access to all the relevant information and workers can move freely into and away from the market.

Economists use marginal productivity theory in order to explain how a firm's demand for labour curve is derived. According to the theory a profit maximizing firm employs workers up to the point where the marginal cost of employing an extra worker equals the revenue that the worker's output earns for the firm. Marginal cost of labour (MC_L) is the extra cost of employing one more worker while the revenue that the firm gains from employing one more worker is called the marginal revenue product of labour (MRP_L).

MRP_L is found by multiplying two elements - marginal physical product of labour (MPP_L) and the marginal revenue (MR) gained by selling one more unit of output. Thus $MRP_L = MPP_L \times MR$ where MPP_L is the extra output produced by an additional worker employed.

If this extra worker adds more to a firm's revenue than to its costs, the firm's profits will increase. It will be worth employing that worker. But as more workers are employed, diminishing returns to labour will set in. Each extra worker will produce less than the previous one, and thus earn less revenue for the firm. Eventually the marginal revenue from extra workers will fall to the level of their marginal cost. At that point, the firm will stop employing extra workers. There are no additional profits to be gained. Profits are at a maximum. Following graphs illustrate this.

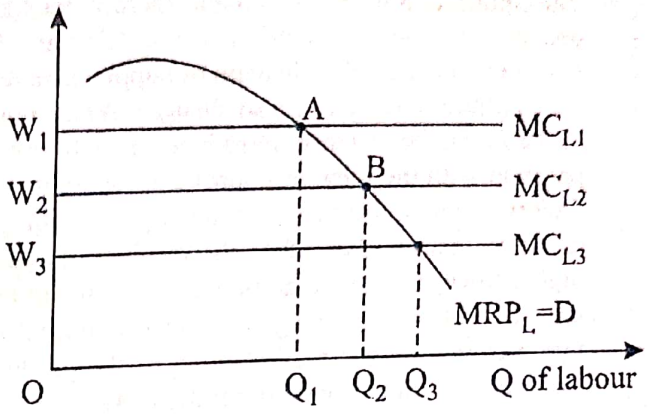
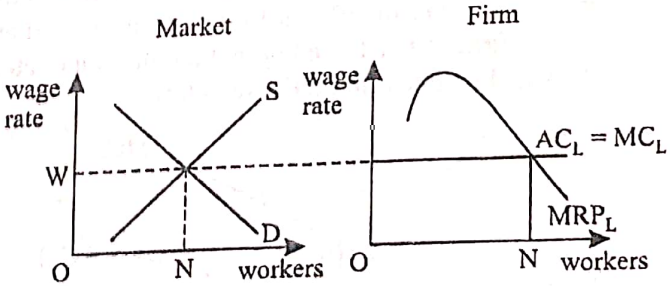


Fig. 2

$MC_L = W$ indicates that the firm can employ as many workers as it needs by paying the same wage rate for it is operating in a perfectly competitive labour market and hence becomes a wage taker. At a wage rate of W_1, Q_1 labour is demanded; at W_2, Q_2 is demanded; at W_3, Q_3 is demanded. Thus the MRP_L curve shows the quantity of labour employed at each wage rate and this is just what the demand curve for labour shows. Thus the MRP_L curve is the firm's demand for labour curve.

Market, demand for labor curve is found by summing horizontally the demand curves of all individual firms and it slopes downward from left to right simply showing an increasing number of workers demanded collectively by all the firms as wage rate decreases.

On the supply side of the labor market, we assume there is no union; workers compete individually for available jobs. The supply curve for each type of labor slopes upward, indicating that employers as a group must pay higher wage rates to obtain more workers. This is so because firms must bid these workers away from other industries. This is illustrated on the graphs below;



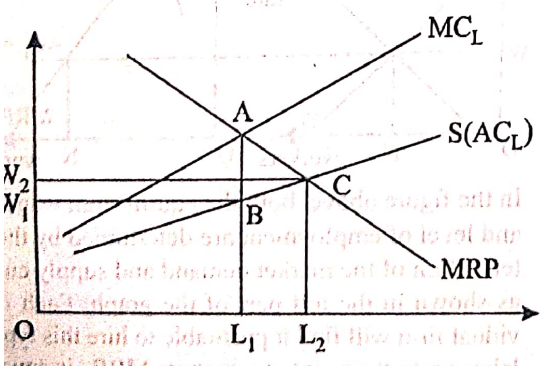
In the figure above, both the equilibrium wage rate and level of employment are determined by the intersection of the market demand and supply curves as shown in the left part of the graph. Each individual firm will find it profitable to hire this type of labor up to the point at which its MRP_L is equal to marginal cost of labour (MC_L) as given in the right part of the graph.

The equilibrium wage rate remains there so long as demand and supply conditions do not change. If, however, either market demand or supply changes the equilibrium wage rate also changes. When most of the firms, for instance, introduce a new training program with the view to improve productivity of their workers or else they provide improved equipments to their workers, then the result could be a higher MRP_L leading to an increase in demand for labour and hence the wage rate. That is not all in fact a change in the market price of the product that labour produces will affect their MRP_L.

Similarly a decrease in wage rate in other similar industries may increase supply of labour in the market leading to a fall in the wage rate. Also, if number of individuals who qualify to work in an occupation declines, say due to migration abroad, then supply of labour decreases and the resulting shortage drives the wage rate up. So, the equilibrium wage rate may rise or fall in response to a change in the market forces of demand and supply. However the extent to which wage rate changes depends on elasticity of demand and supply of labour.

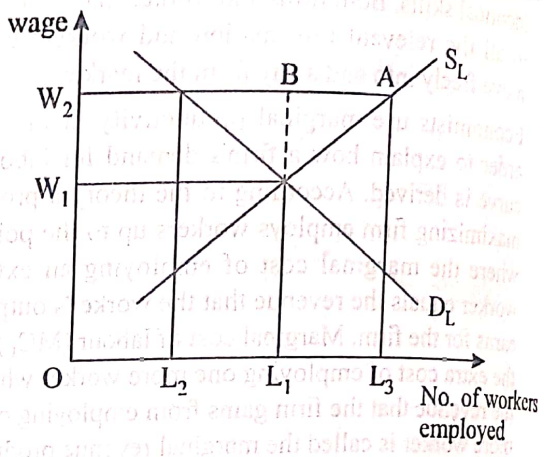
In the real world, however, conditions of a perfectly competitive labour market rarely exist. The theory of wage determination then provides room to analyze how wage rate will be determined in an imperfect labour market. So, now we extend our analysis to allow various market imperfections, such as monopsony, trade unions and government intervention.

Contrary to perfect market there may be, for instance, a single buyer of labour - a 'monopsonist'- where a large factory is the main source of employment in a locality. If this is the case, the monopsonist will be facing upward sloping market supply curve and in order to recruit additional workers it has to offer a higher wage rate that causes firm's MC_L to be higher than the wage rate. This is illustrated in the figure below:



The monopsonist, being a profit maximiser, will employ where the MC_L is equal to the MRP_L, i.e. point A, hence L_1 workers will be employed. The wage rate, however, is given by the average cost curve $S(AC_L)$ and this will be W_1. The point to consider is that wage rate is not entirely determined by the demand and supply forces as given by economic theory.

Trade unions also influence the market wage through collective bargaining. It involves the direct negotiation between a trade union and the employers. Successful collective bargaining in a perfectly competitive labour market could raise the wage rate from W_1 to W_2, as shown in the figure below.



In this case it's the trade union and the management deciding the wage rate with certain negotiations rather than the forces of demand and supply. There may be individuals who are willing to work for a wage below W_2 but they would be prevented from doing so by the union agreement.

Similarly when a government, considers the equilibrium wage rate W_1 too low, it may decide to fix W_2 as the minimum wage and then makes it illegal to pay a wage below this. The government in this case also overpowers the market forces and determines the wage rate that it thinks is fair.

So, it follows that wage determination in labour market is entirely dependent only in perfect market conditions. However, when the market is subject to imperfections there are factors that over power the market forces of demand and supply.