

## OCR A2 Economics Module 3 Revision Notes – Labour Demand, Supply, and Wage Determination

### Derived Demand

- The demand for labour is a derived demand - labour is not wanted for its own sake, but for what can be produced with it
  - Therefore, the number of workers a firm wishes to employ depends principally on the revenue that can be earned from what is produced.
    - If demand rises or the price of the products made increases, a firm will usually seek to employ more workers.

### The Aggregate Demand for Labour

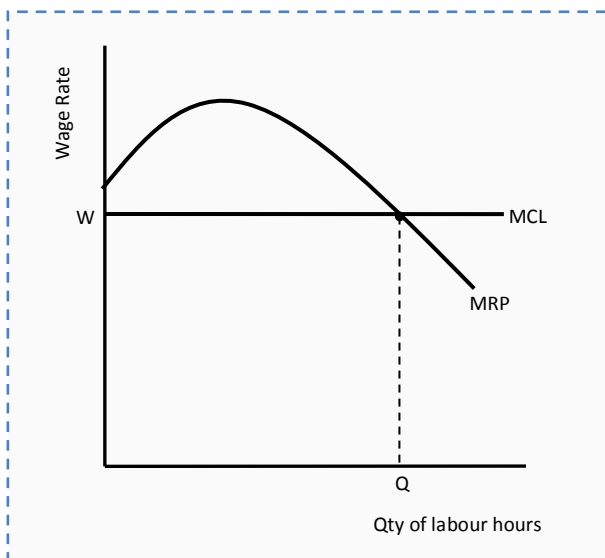
- The aggregate demand for labour is also a derived demand - It depends on the level of economic activity
  - If the economic is growing, and firms are optimistic, then employment will likely rise (due to an increase in aggregate demand)
  - The reverse is also true (employment will fall if economy is tanking)
- With the advances in technology and improvements in education and training, it may take fewer workers to satisfy the level of aggregate demand.

### A Firm's Demand for Labour

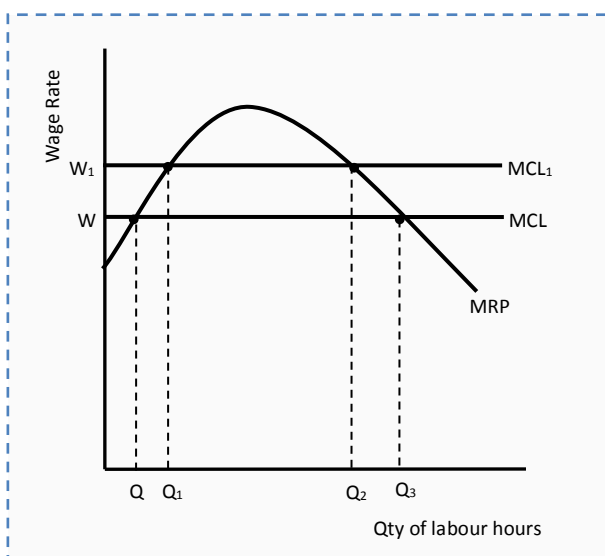
- How many workers or working hours a firm seeks to employ is influenced by a number of factors:
  - The demand and expected future demand for products produced, and the revenue that can be earned from the output
    - This is the key influence
  - Productivity
    - The higher the output per worker hour, the more attractive labour will be as a resource
  - Wage rate
    - A rise in the wage rate above any rise in labour productivity will raise unit labour costs and is likely to result in a contraction in demand
  - Complementary labour costs
    - Firms incur other costs when they employ labour, and if these increase, demand for labour will fall
    - E.g. if national insurance contributions rise, demand for labour is likely to fall
  - The price of other factors of production that can be substitutes for complements to labour
    - If capital in the form of machinery becomes cheaper, and is a direct substitute for labour, then firms may seek to replace some workers by machines.

## Marginal Revenue Product

- Marginal productivity theory suggests that the demand for a product depends on its marginal revenue productivity (MRP)
- According to this theory, the quantity of any factor of production employed will be determined where  $MC = MRP$  of that factor
- The MRP of labour is the change in a firm's revenue resulting from employing one more worker
  - It is found by multiplying Marginal Product (MP) by MR
- The marginal product of labour (MPL) is the change in total output that results from employing one more worker
  - As more workers are employed, it is expected that MPL may increase
  - However, MPL may fall when a certain level of employment is reached, as diminishing returns sets in
- A firm will employ workers up to the point where the marginal cost of labour (MCL) = MRP

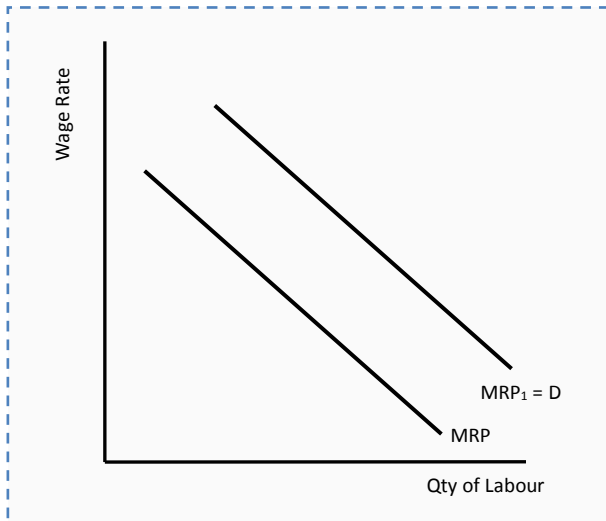


- MRP curve and MCL curve based on a constant wage rate ( $W$ )
- MRP is downward sloping, as if  $MRP = MCL$  at two points, the higher output is chosen
- This is for a firm, not the whole industry



- A firm will employ  $Q_3$  amount of labour at wage rate  $W$ , and  $Q_2$  at wage rate  $W_1$
- The MRP and demand curve for labour will shift to the right if the MPL and/or MR increase
- This if for a firm, not the whole industry

- In practise, it can be difficult to measure MRP
  - This is because it's difficult to isolate and quantitatively assess the contribution one worker makes to output, as workers often work in teams, or their work depends on others.
- It is also difficult to measure the marginal product of workers in the tertiary sector
  - For example, is one doctor who performs 10 operations on varicose veins in a day more productive than a doctor who does one brain surgery?



- An Increase in MRP for the whole industry of electricians

### The Elasticity of Demand for Labour

- While a change in MP or MR will move the demand curve, a change in wage rate will cause a movement along the demand curve
  - The extent to which demand changes as a result of the change in wage rate is measured by the elasticity of demand for labour
- Elasticity of demand for labour = (%change in qty of labour demanded)/(%change in wage rate)
- Factors that influence the elasticity of demand for labour are:
  - The price elasticity of demand for the product produced
    - If demand for the product is inelastic, the demand for the labour that produces it is also likely to be inelastic
    - This is because the rise in the price of product that results from the rise in the wage rate won't effect output much, so employment will not fall much
  - The proportion of wage costs in total costs
    - If wages take up a high proportion of total costs, then labour will be elastic, as a change in wage costs will have a large impact on total costs.
  - The ease at which labour can be substituted by other factors
    - If it's easy to substitute labour with capital, then demand for labour will be elastic
  - The elasticity of supply of other factors
    - If it is easy to obtain more of the factors that are used alongside labour, demand for labour will be elastic
  - The time period

- Demand for labour is more elastic in the long run, when there is time for firms to reorganise their production methods.

### **Degrees of Elasticity of Demand for Labour**

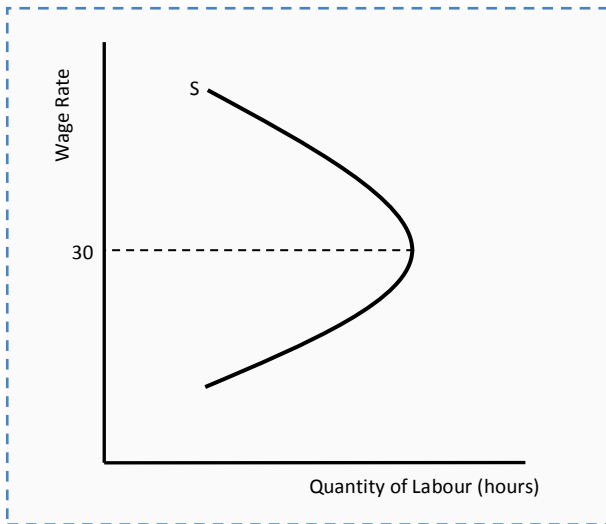
- The more flexible a country's labour market is, the more elastic demand for labour will be
  - In the USA, firms have met 2/3rds of the fall in employment by reducing their output, and 1/3<sup>rd</sup> by substituting labour with capital.
- In capital-intensive industries, such as the chemical industry, demand for labour tends to be inelastic, as labour forms a small part of the industry's total cost.
- To contrast, in labour-intensive industries, such as building, labour takes up a high proportion of total costs, so demand is elastic – an increase in wage-rate will lead to a greater decrease in quantity demanded.
- For younger and unskilled workers, elasticity of demand for labour tends to be higher, as if the wage rate decreases, firms will be willing to hire younger, unskilled workers, but if the wage-rate rises, they'd want more skilled and experienced workers (possibly due to a higher MRP)
- The demand for low-skilled workers isn't always elastic.
  - This is because some jobs cannot be replaced by capital or filled by unemployed workers
  - E.g., if there is full employment, demand for catering staff may be relatively inelastic

### **The Significance of Elasticity of Demand for Labour**

- Elasticity of demand for labour influences a union's bargaining strength, the more inelastic the labour force is, the more power the union has.
- The government, when considering raising the minimum wage or providing employment subsidies will take into account elasticity of demand
  - Altering a minimum wage will affect unskilled workers
    - if demand for such workers is elastic, increasing the minimum wage will have a negative effect on employment
  - Conversely, employment subsidies could be paid to business who employ unskilled workers
    - This time, elastic demand for such labour will have a positive effect on employment

### **The Short-run Supply Curve of Labour**

- In the short-run, there's insufficient time for workers to change occupation
  - Therefore, the key influence in the short-run is the wage-rate.
- At low wages, a rise in the wage rate will cause a worker to work more hours (extension on the supply of labour)
- However, at a certain point, the offer of higher wages will cause a worker to work less hours (contraction in the supply of labour)
  - This is because the worker thinks that their current income level meets their financial needs, and may be keen to have more hours for leisure.



- For example, a worker may currently work 40 hours at £30 per hour. A rise in the wage rate to £40 would enable the worker to earn the same amount by working 30 hours, giving the worker more leisure time
  - This is called the backward-sloping labour supply curve
    - This is the supply curve showing the substitution effect dominating at low wages and the income effect dominating at high wages

- The income effect is to reduce the number of hours people work
- The substitution effect increases the number of hours worked, as a higher wage rate increases the return on working, and so increases the opportunity cost of leisure, so the worker chooses to work.
- It is the income and substitution effects that the number of hours the worker wishes to work depends on the number of hours on offer and the relative importance that the worker attaches to income and leisure.
- Many workers, however, are not able to change how many hours they work, but as the labour market becomes more flexible, this choice is available to more workers

### **The Long-run Supply Curve of Labour**

- In the long-run, there is time for people to change their occupation
- In this time period, the supply of labour to a given firm or occupation is influenced by the net advantages of the job
  - These include both the pecuniary (financial) and non-pecuniary (non-financial) features of the job

#### **Pecuniary Factors**

- Wage rate
  - The higher the wage rate, the more people are likely to want to do the job
- The opportunity to work overtime and bonuses
  - People who are keen to raise their incomes by working extra hours, or people who are highly productive will be attracted to occupations that offer overtime work and bonuses.

#### **Non-Pecuniary Factors**

- These are the non-pecuniary advantages and disadvantages of jobs that impact on the supply of labour, and they are:
  - The convenience and flexibility of hours
  - Status
  - Promotion chances
  - Flexibility of location

- Qualifications and skills
  - Highly skilled workforce required = less demand
- Job security
  - More secure job = more demand
- Pleasantness of the job
- Holidays
- Perks and fringe benefits
- The quantity and quality of training
- Location
  - Close location to a worker will increase demand
- The recent performance of the firm

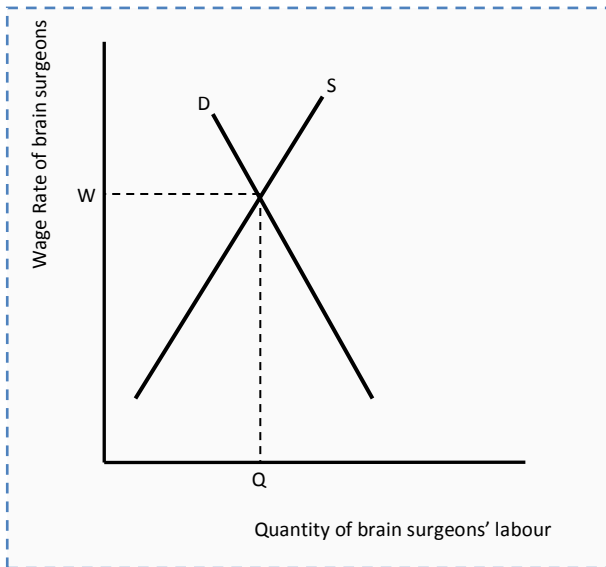
### **The Elasticity of Supply of Labour**

- The extent to which the supply of labour changes as a result of a change in the wage rate is measured by the elasticity of supply of labour:
  - $\text{Elasticity of Supply of labour} = \frac{\% \text{change in the quantity of labour supplied}}{\% \text{change in wage rate}}$
- The factors that influence elasticity of supply of labour are:
  - The qualifications and skills required
    - The supply of skilled workers is more inelastic than unskilled
  - The length of training
    - The longer training takes, the more inelastic supply will be.
  - The immobility of labour
    - The easier that workers find it to move from one area to another, the more elastic supply will be.
  - The time period
    - Supply will be more elastic with the longer the time period involved
    - E.g. a rise in the wage rate of barristers won't have much of an impact in the short-run, but in the long-run, it will adjust, as students will want to study law, and do the necessary training.

### **Wage Determination**

- In a competitive labour market, the demand for and the supply of labour play the key roles in determining wages.
- Wages are likely to be high when demand is high and inelastic, and supply is low and inelastic
- Conversely, wages are likely to be low where supply is high relative to demand and both demand and supply are elastic
  - E.g. brain surgeons are paid more than waiters, as the supply of brain surgeons is low relative to demand, and due to the high qualifications and long period of training required, supply is also highly inelastic
  - Demand is also inelastic in the short-run, as a rise in the wage rate won't attract many new brain surgeons.

- Also, brain surgeons have a very high MRP, and there is no substitute for brain surgeons in an operating team.
- To contrast, the supply of waiters is high and elastic, as no qualifications are needed, and so there's a large number of people capable of doing the job
- Due to this, a rise in the wage rate will attract an extension in supply
- MRP of waiters is low, so demand is low.



### **Other Influences on Wage Determination**

- Demand and supply aren't the only influences on the wage of many workers
  - Other influences include the relative bargaining power of employers and workers, government policy, and public opinion
- Wages are likely to be higher when workers have strong bargaining power relative to their employers
  - E.g. most brain surgeons are members of the BMA, and if this takes industrial action, then the industry would face significant consequences, as brain surgeons cannot be replaced easily by capital
  - To contrast, waiters have low bargaining power, as few belong to a trade union, and they can be replaced easily
- Government policy affects wages too
  - The government is a major employer, and passes legislation that affects the bargaining power of workers and employers (trade union reform), and directly affects wage rates (national minimum wage)
- Public opinion has an influences on wages also
  - It values 'sacrifice' –undergoing long periods of training and study. The more respected a job is, the more wages are influenced by the amount workers ask for and employers offer.

## **Wage Differentials**

- Wage differentials are differences in wages such as that between brain surgeons and waiters
  - They occur between occupations, industries, firms, regions, and within these categories
- Wage differentials can be explained by supply and demand, bargaining power, the impact of government policy and public opinion
- Over time, wage differentials between groups can change
  - E.g. the gap in wages between premier league players and division 2 players has widened over the last 2 decades, as the premier league's revenue has increased greatly.

## **Wage Differentials Between Particular Groups**

### **Skilled and Unskilled Workers:**

- Skilled workers are paid more than unskilled workers, as demand for skilled workers is higher, and their supply is less
- MRP for skilled workers is high, as the skills possessed will often lead to higher output per worker
- It is more difficult to substitute skilled labour with capital and unemployed workers than it is for unskilled
- Skilled workers have a high level of human capital
  - Human capital is the skills, knowledge and experience that workers possess

### **Male and Female Workers:**

- Men are paid more than women, despite equal pay legislation
- This could be due to women working more part-time than men
- When hourly pay-rates are examined, men still earn more; but this gap is narrowing
- On average, the MRP of women is lower than that of men
  - One reason was because in the past, men were better educated than women. However, that is not the case anymore, with more women than men studying at university.
  - This could be due to the fact that women are disproportionately concentrated in low-paid occupations, like car work, or cleaning
- Also, some women lose out on promotions, due to leaving the labour market for things like raising children
- Discrimination does still occur to some extent, with some employers undervaluing the services of female workers.

### **Part-time and Full-time Workers:**

- Part-time workers on average receive lower hourly earnings than full-time
  - One reason for this could be due to the supply of people wanting to work part-time is high relative to demand, as part-time work is convenient for students, and people bringing up children.



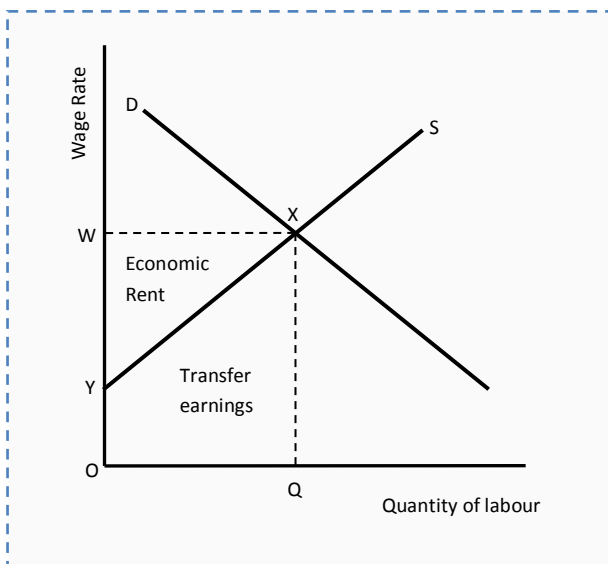
- The productivity of part-time workers tends to be lower, as they're less likely to receive training
- A smaller proportion of part-time workers belong to trade unions, and a higher proportion are women.

### Ethnic Minorities:

- People from ethnic minorities tend to be lower paid than white workers
- This could be due to the fact that they work in unskilled professions, such as catering or cleaning
- Also, discrimination takes a part, resulting in a contraction of demand
- (If the examiners ask you a question about this they're racist)

### Economic Rent and Transfer Earnings

- As well as receiving different wages, the nature of the wages that different groups of workers receive varies
- Transfer earnings are what a worker could earn in their best paid alternative employment – the opportunity cost of performing the current job
  - It is the minimum amount that has to be paid to ensure that the workers stays in their present job
- Economic rent is the surplus over transfer earnings, and so is: (total earnings – transfer earnings)
  - E.g. if a women earns £800 a week, and the best paid alternative job she is willing and able to do's wage rate is £620 a week, her economic rent is £180 and her transfer earnings are £620



- The total wage received by the workers is  $OWXQ$ 
  - $YWX$  is economic rent
  - $OYXQ$  is transfer earnings
- Economic rent is the area above the supply curve and below wage rate
- The amount of economic rent earned by workers will vary
  - The first worker to be employed –  $Y$  – would have worked for significantly less than the wage rate actually paid, so a relatively high proportion of his wage will be economic rent
  - The last worker employed ( $X$ ) will earn no economic rent, as they would only be prepared to work for the going wage rate.

- The proportion of earnings that constitute economic rent and transfer earnings depends on the elasticity of supply of labour

- When supply is inelastic (steep gradient), economic rent will form a large proportion of earnings
  - E.g. premiership footballers are said to have high economic rent, as they enjoy playing football, and would continue to play if their pay was cut.
- When supply is elastic (shallow gradient), a greater proportion of earnings is taken up by transfer earnings
  - E.g. a high number of bar staff may only just be prepared to work for the going wage rate – if it were to fall, then a lot of them would switch to other unskilled work
- However, if one were to take non-pecuniary factors into account, some people could be earning less than they could earn in another population
  - Effectively, these people receive negative economic rent.