

A2 – ECONOMICS (9708)

MICRO

CHAPTER 5

Labor Market

Topics

Topic 1: Perfectly Competitive Labor Market

Topic 2: Monopsony

Topic 3: Intervention: Trade Union

Topic 4: Intervention: Government

Topic 5: Wage Differentials

Topic 6: Labor Demand, Supply and Elasticity

Topic 7: Economic Rent and Transfer Earning

Lecture 1

TOPIC 1: PERFECTLY COMPETITIVE LABOR MARKET

Definition | Labor Market: This is the market where the factor of production labor is traded. When looking at the labor market there can be several structures which includes perfect and imperfect labor markets which include monopsony.

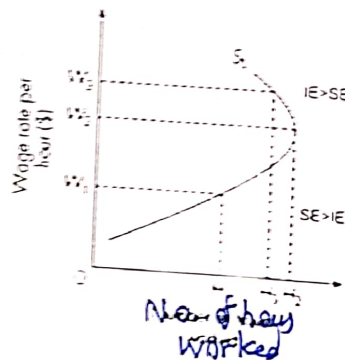
1. PERFECTLY COMPETITIVE LABOR MARKET

There are several features (assumptions) of a perfectly competitive labor market:

Feature	Description
1. Wage Taker	Neither employers nor employees have any economic power to affect the wage rates. This is because the firms will pay a standard wage which is going on in the market and since there is no trade union employees cannot push the wages up.
2. Freedom of Entry	No restrictions on the movement of labor. Example: Workers are free to move to alternative jobs or areas of the country where wage rates are higher.
3. Perfect Knowledge	Workers are fully aware of what jobs are available at what wage rates and with what conditions of employment. Likewise employers know what labor is available and how productive is that labor.
4. Homogenous Labor	In perfect markets workers of a given category are identical in terms of productivity. Example: All the chefs in a restaurant are equally skilled.
5. Law of diminishing Returns operate	This highlights that when a business successively employees labor its productivity first increases till a certain point however after a certain point every next unit of labor would add less to the output.
6. Perfect competition in both product and labor market	This highlights that wage rates and employment are determined by the interaction of demand and supply of labor.

1. Supply of Labor Curve | Individual Worker

Definition: A supply curve shows the quantity that will be supplied to the market at any given price. For an individual worker the quantity supplied is the number of hours worked over a time period such a year. The worker will decide how many hours to work and how many holidays to take. The price of labor is called the wage rate. This is because the worker will decide how many hours to work by relating to what it would buy. The individual supply of labor curve is backward bending supply curve for labor.



— As wage rate increase from W_1 to W_2 the number of hours worked increase from H_1 to H_2 [$SE > IE$]. This is because when the wage rate increases workers initially respond to it by working more. Maybe go from part-time to full-time workers.

— As wage increases from W_2 to W_3 the numbers of hours fall from H_2 to H_3 [$SE < IE$], because individuals now prefer more leisure over work. In other words the worker is choosing to buy leisure time by forgoing the wages he could otherwise have earned. This is the example of opportunity cost.

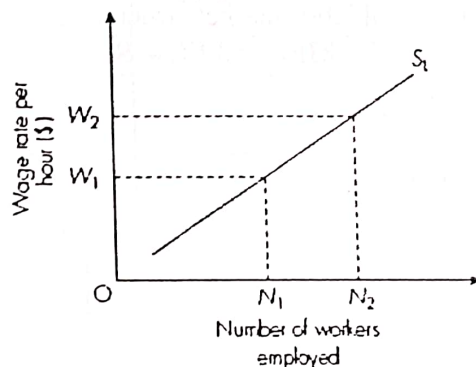
— Income and Substitution Effects

For an individual workers price of work is the cost he pays for doing work i.e. leisure he sacrifices. Similarly the price he pays for not working is the wage he could have earned by working. Any change in wage rate will have **TWO** effects for an individual worker:

Income effect (I.E.)	Substitution Effect (S.E.)
Income effect is defined as change willingness of a worker to work due to change in his real income i.e. the wage rate.	Substitution effect of a wage change may be defined as change in willingness of worker to work due to relative change in price of work and leisure. An increase in real wage rate means that reward for work increases.
However work is an inferior good. Hence higher the wage rate fewer the number of hours an individual wants to work. Example: When you have money there is no point if you can't spend it.	Example: Initially a worker used to make \$10 per hour, however now the wage is \$12 per hour. Therefore leisure is more expensive relatively, in other words work is now relatively cheaper therefore work will substitute work for leisure when wage rate goes up.
Income Effect → Negative	Substitutions Effect → Positive

2. Supply of Labor Curve | Market

Definition: The market supply curve of labor in a perfect market can be derived by the horizontal summation of all individuals supply of labor.

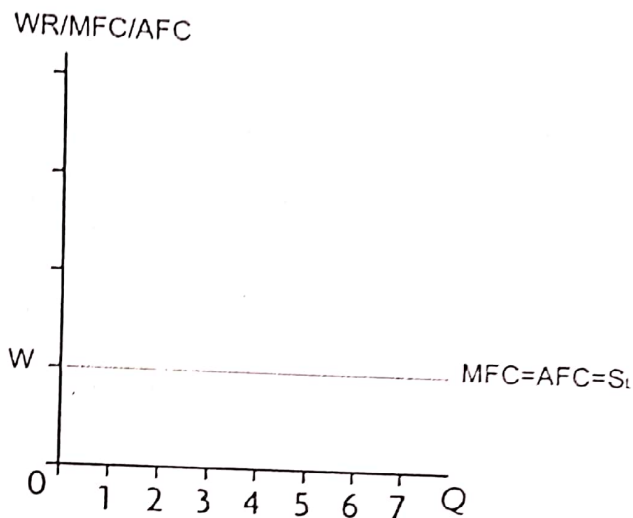


Note: An individual exhibits the backward-bending pattern however this is different for the market supply. In the short-run the market supply of skilled labor might be similar to individual however in the long run it would be an upward sloping curve because young people might be attracted by the high wages and older people might not quite their jobs.

3. Supply of Labor | Firm

In a perfectly competitive labor market there are many firms (buyers of labor) so that a single firm purchases only a small portion of total labor and is unable to influence the market wage rate. Firms in perfectly competitive labor market are **wage-takers** and can employ as many units of labor as it needs at given wage rate. Therefore the supply of labor to perfectly competitive firm is **perfectly elastic**.

Units of Labor (L)	Wage Rate (W)	Total Factor Cost (TFC)	Marginal Factor Cost (MFC)	Average Factor Cost (AFC)
1	\$5	\$5	\$5	\$5
2	\$5	\$10	\$5	\$5
3	\$5	\$15	\$5	\$5
4	\$5	\$20	\$5	\$5



MFC = Marginal Factor Cost: This is the cost of employing an extra unit of labor.

AFC = Average Factor Cost: The cost of labor to firm per unit of labor employed. Which also acts as **the supply curve for labor** for an individual firms.

TFC = The total cost of given units of labor employed.

Note: The $W=AFC$ is always true for all labor market structures.

$$W = MFC = AFC = S$$

2. Demand for Labor in Perfectly Competitive Labor Market

Definition: The demand for labor is derived from the marginal revenue product of labor. It is a derived demand.

— Marginal Revenue Product Theory

There are several assumption of the theory:

1. All factors are homogenous
2. They can be substituted for each other
3. Perfect mobility of factors as between different places and employments
4. Perfect competition in the factor and commodity market
5. Full employment of factors and resources
6. The businesses are motivated by profit maximization
7. It is applicable in the long-run
8. It is based on the Law of Diminishing Returns

1. Measurement of MRP

Marginal Revenue of Labor: The marginal revenue that the firms gains from employing one more worker is called the marginal revenue product of labor (MRP). The MRP is found by multiplying two elements the marginal physical product of labor (MPP) and the marginal revenue gained by selling one more units of output (MR).

$$MRP = MPP \times MR$$

The MPP is the extra output produced by the last worker. Thus if the last worker produces 100 (MPP) output and if the firm earns an extra \$2 for each additional output (MR) then the workers MRP = \$200. This extra worker is adding \$200 to the firms revenue

According to the basic assumption of MRP theory, firms are operating in perfect competition in both labor and product market therefore. $MR = P = AR$ so $[MRP = P \times MPP]$.

2. MRP Curve

In the short-run at all factors are fixed except labor. The law of diminishing returns states that marginal output will increase initially but will start to decline if more and more units of labor are used.

Labor Input	Total Output	MPP	Price of Product	MRP [MPP x P]
1	8	8	\$10	80
2	17	9	\$10	90
3	25	8	\$10	80
4	32	7	\$10	70
5	38	6	\$10	60



Lecture 1

Lecture 2

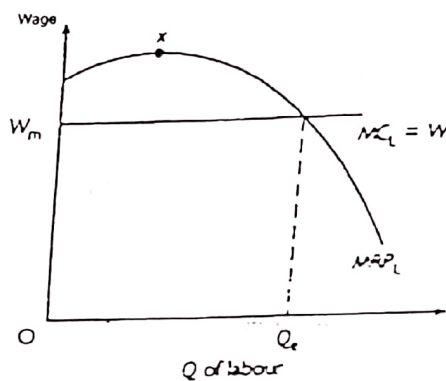
3. Profit-Maximizing level of employment for a firm

The firm will employ labor by weighting up the costs of employing extra labor against the benefits. It will use the same principles of the goods market to decide that output.

In the goods market the firm will maximize profits where the marginal cost of producing an extra unit of good equals the marginal revenue from selling it. $[MC = MR]$

In the labor market the firm will maximize profits where the marginal cost of employing an extra worker equals the marginal revenue that the workers output earns for the firm. $[MC \text{ of Labor} = MR \text{ of Labor}]$.

$[MRP = MFC]$



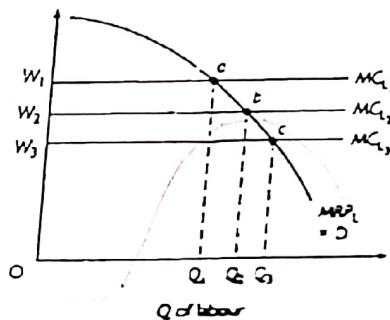
— **Before the Equilibrium:** The extra worker adds more to the firm's revenue than its cost, the firm's profits will increase. It will be worth employing that worker.

— **At the Equilibrium:** As more workers are employed the diminishing returns of labor will set in. Each extra worker of labor will produce less than the previous one. The firm will produce till the equilibrium as at this point the profits are maximum.

— **After Equilibrium:** Beyond the equilibrium point if the firm tries to employ more labor it will just decrease its profits because the cost of employing labor is higher than the benefit and hence the firm will employ less labor.

Derivation of the firm's demand for labor

No matter what the wage rate, the quantity demanded will be found from the intersection of $W = MRP$.



At wage rate W_1 , Q_1 labor is employed. As the wage rate decrease the quantity of labor increases. Thus the MRP curve shows the quantity of labor employed at each wage rate. But this is just what the demand curve for labor shows. Thus the MRP curve is the demand for labor curve.

Limitation of the MRP theory

Limitations	Description
1. All units of factors are not homogeneous	This is because efficiency of labor differs from worker to worker. This also highlights that labor is non-substitutable as a textile worker cannot replace a coal miner.
2. Factors are not perfectly mobile	There is no automatic movement of factor units from one industry or place to another. This is because of geographical and occupational mobility variables.
3. There is no perfect competition	Perfect competition is not possible in the real world. In real life scenarios we encounter monopolies or monopolist competition.
4. Factors are not fully employed	In real world there is unemployment. Therefore labor might offer their services at prices lower than their marginal product.
5. Production is not the result of one factor alone	Since production is taking place by the use of multiple factors it is therefore not possible to calculate the marginal productivity of each factor unit separately.
6. Profit is not always the motive	Businesses can have several other motives like sales maximization, growth maximization etc. which makes this theory not valid.
7. Neglect technical progress	When technological change occurs it requires cooperation. This concept is missing in MRP theory.

TOPIC 2: MONOPSONY

Definition | Monopsony: This is when a firm is the only employer of a particular type of labor. Another way to look at them is that they function like a monopoly but in the labor market.

Features of a monopsony include:

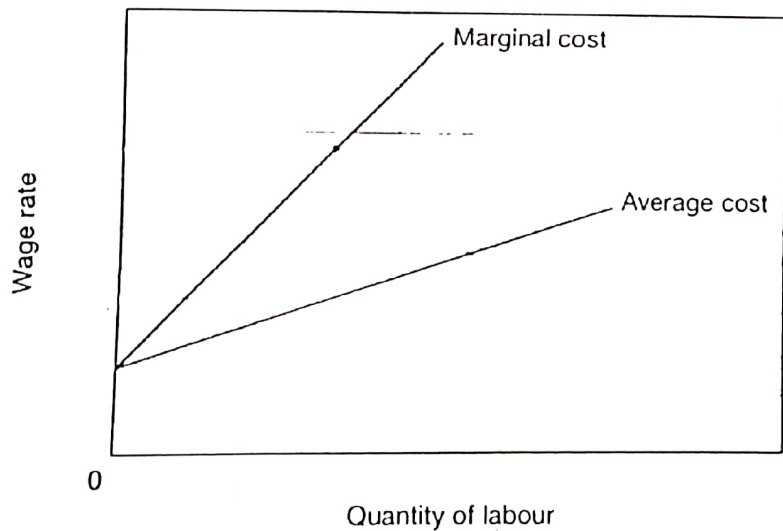
1. Major buyer
2. Wage maker
3. Upward sloping supply curves. As they need to increase wages to attract more workers. They must increase the wage for the last worker and all the ones before, this means **MC of labor is higher than the average cost (Average Wage)**

1. Supply of Labor in monopsony

— Since the firm is the market for the factor in this case the supply of factor service to the monopsonist is identical to its supply to the market. This the supply curve to the firm (AFC) is positively sloping from left to right upwards.

— The firm can employ more units of factor service by offering a higher price per unit. The MFC curve to this AFC will also be upward and will be above the AFC curve through its length. The reason is that the wage rate has to be raised to attract extra workers. The MFC will thus be the new higher wage paid to the new employee plus the small rise in the total wage bill for existing employees as they would be paid the higher wage too.

Units of Labor (L)	Wage Rate (W)	Total Factor Cost (TFC)	Marginal Factor Cost (MFC)	Average Factor Cost (AFC)
1	\$10	\$10	-	\$10
2	\$11	\$22	\$12	\$11
3	\$12	\$36	\$14	\$12
4	\$13	\$52	\$16	\$13



2. Demand for labor in monopsony

Demand for labor of a monopsonist depends over the behavior of monopsony in product market.

— If the monopsonist face perfect competition in product market and price taker then

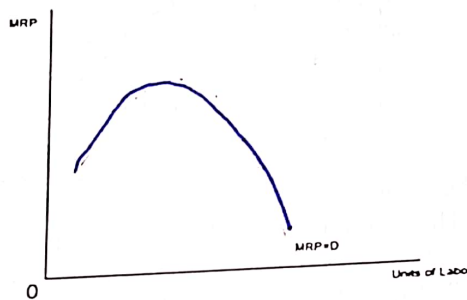
$$\text{Demand for Labor} = \text{MPR} = P \times \text{MPP}$$

MRP for a firm facing perfect competition in product market will be downward sloping just because of law of diminishing return.

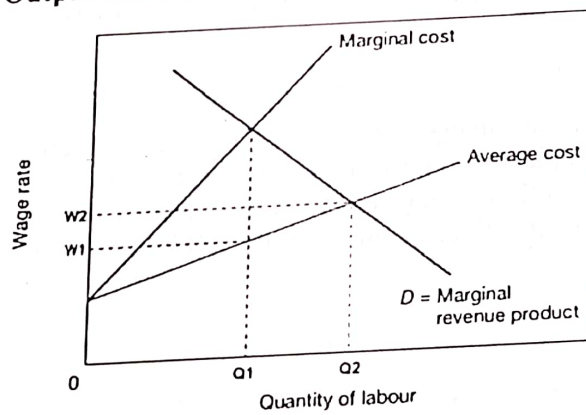
— If the monopsonist is facing imperfect competition in product market (i.e. either monopolistic competition, oligopoly or monopoly) his MRP curve will slope downward because to TWO reasons:

1. Law of diminishing returns
2. Falling MR with the increase in output

Note: In both case the MRP falls with the increase in units of labor employed.



3. Profit Maximizing Output under Monopsony



The profit maximizing employment of labor would be at Q_1 , where $MFC = MRP$. The wage found from AFC curve would thus be W_1 .

Note: If this has had been a perfectly competitive labor market employment would have been at the higher level Q_2 , with the wage rate at the higher level W_2 , where $W = MRP$. What in effect the monopolist is doing therefore is forcing the wage rate down by restricting the number of workers employed.

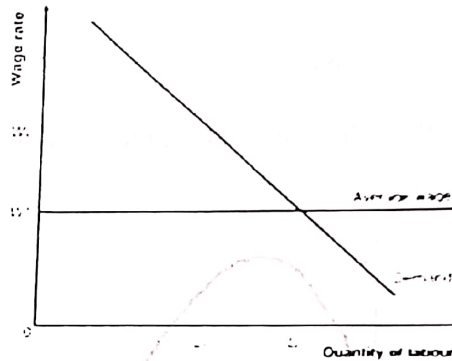
TOPIC 3: INTERVENTION: TRADE UNIONS

Lecture 3

Definition: A trade union is an organization of workers who combine together to further their own interest and the interest of their members. These organizations have three main objectives, wage bargaining, improvement of working conditions and security of employment for their members. These unions act as a monopoly supplier of labor. These unions can influence the market in TWO ways: (1) Restricting the Labor Supply and (2) Negotiating Wages.

1. INTERVENTION: PERFECTLY COMPETITIVE LABOR MARKET

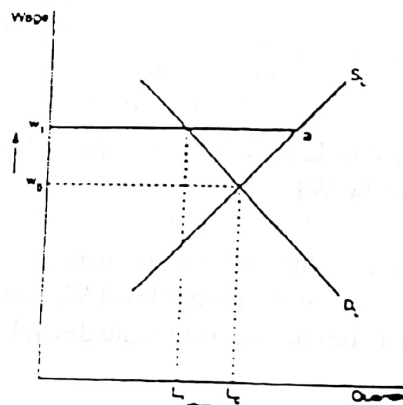
1. Restricting the Labor Supply



If the trade union limits the amount of labor available to just L_1 , then the union will be able to push the wage up to W_1 . This might happen where there is a **closed shop** (a situation where the firm can employ only those workers who are members of the trade union). This way the union controls how many members they want to keep and hence controlling the labor supply. The advantage of this decision is that workers who have jobs are enjoying a higher wage rate however the ones who don't have jobs are entirely unemployed or have to look for work somewhere else.

2. Negotiating Wages

If the employers are producing under perfect or monopolistic competition unions can raise wage rates at the expense of employment. Firms are only earning normal profit. Thus if unions force up the wage rate, the marginal firms will go bankrupt and leave the industry, fewer workers will be employed. The fall in output will lead to higher prices. This will enable the remaining firms to pay a higher wage rate.



The union is in a doubly weak position. Not only will jobs be lost as a result of forcing up the wage rate, but also there is a danger that these unemployed people will undercut the union wage, unless the union can prevent firms from employing non-unionized labor.

Wage rates can be increased without a reduction in the level of employment only if, as part of the bargain, the productivity of labor is increased. This is called a productivity deal. The MRP curve and hence the D curve shifts to the right.

In a competitive market then the union is faced with the choice between wages and jobs. Its actions will thus depend in its objectives.

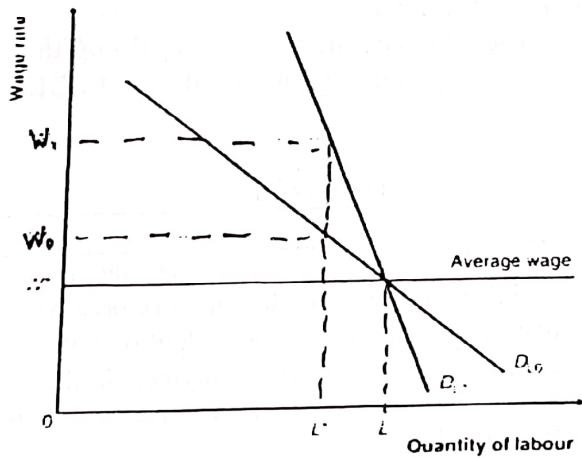
— If it wants to maximize employment it will have to content itself with a wage of W_1 unless a productivity deal is negotiated. At W_1 , Q_1 workers will be employed. Above W_1 , fewer than Q_1 workers will be demanded. Below Q_1 fewer than Q_1 workers will be supplied.

— If the union is concerned with securing a higher wage rate it may be prepared to push for a wage rate above W_1 and accept some redundancy. This would be beneficial if the employees leaving the company are voluntary redundancy, leaving for another job or they retire.

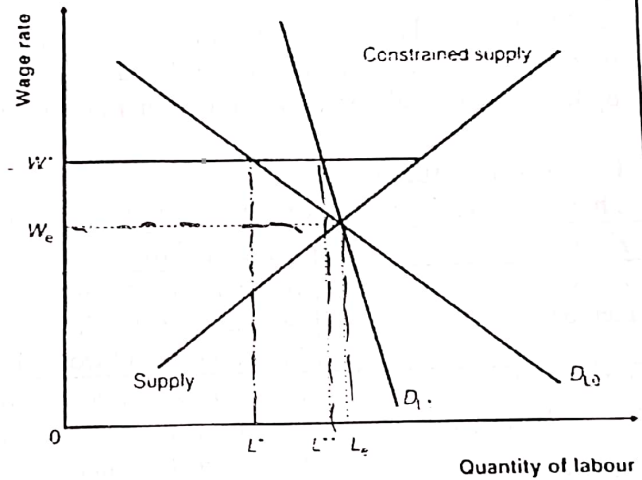
Evaluation of Trade Unions

The extent of the trade-off depends crucially on the elasticity of demand for labor. The more inelastic the demand the greater the power to negotiate for the union.

1. The more inelastic the labor demand the greater the wage increase and lesser the unemployment.
2. The more elastic the labor demand the smaller the wage increase and greater the unemployment. This is because firm might not be able to substitute labor for capital, or it is a smaller part of the production process or the demand for the product is inelastic.



Restricting Labor Supply



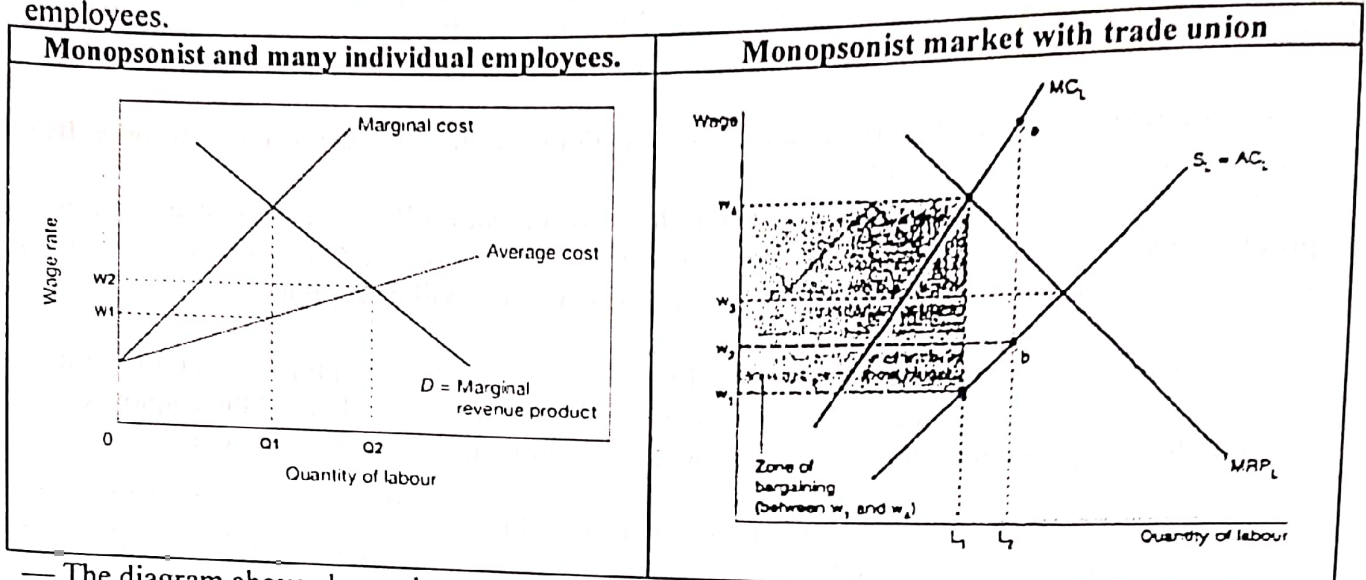
Negotiating Wage

Insider-Outsider Phenomenon

Definition: This is where existing workers can protect their position against new comers because they have inside information about how the firm operates.

2. INTERVENTION: MONOPOSONY

Definition: This occurs when a monopoly buyer of labor faces a monopoly seller. Example: Monopsonist vs. a Union. The outcome here depends on the bargaining strength of each side. Economic theory suggests that a trade union will increase both wages and employment compared to a factor market where a monopsony employers negotiates with a large number of individual employees.



— The diagram above shows the entry of a trade union to the industry. Assume that the trade union forces the wage rate to W2. This produces a kinked supply curve. The monopsonist cannot pay a wage rate lower than W2 because of its union agreement. However it is free to pay higher wage rates if it wishes to employ more than L2 workers. This produces a kink in the marginal cost of labor to the firm. Up to L2 the marginal cost of labor is the same as the union negotiated wage rate. If it employs more than L2 the wage rate will rise resulting in a jump in the marginal cost at L2.

— The firm will hire up to the point where $MRP = MCL$ i.e. workers at W2. The union has increase employment from L1 to L2 and wages from W1 to W2. The union can keep doing this up to W3. After W3 up to W4 it can increase wages but employment begins to fall back to L1.

Power of the union

There are a variety of factors which make trade unions more or less powerful

Factor	Description
1. The number of members	More the number of members in a union the more powerful they get. This is because if they call for an industrial action large number of workforce won't be available and would be more costly to the firm due to lack of output.
2. Demand curve for labor relatively inelastic	A rise in wage rate would have far less impact on the employment in the industry if the demand for labor is relatively inelastic. Hence there would be far less cost of unemployment to the unions.
3. Profitability of the employer	The more profitable the firm stronger the union as they can force the firm to pay more in those time periods as strikes would could result in losses for the firm.
4. Labor cost as a percentage of total cost	If labor cost is a small the unions will have more power since any increase in the wage won't affect the total cost of the firm by a large proportion.

TOPIC 4: INTERVENTION : GOVERNMENT

Lecture 4

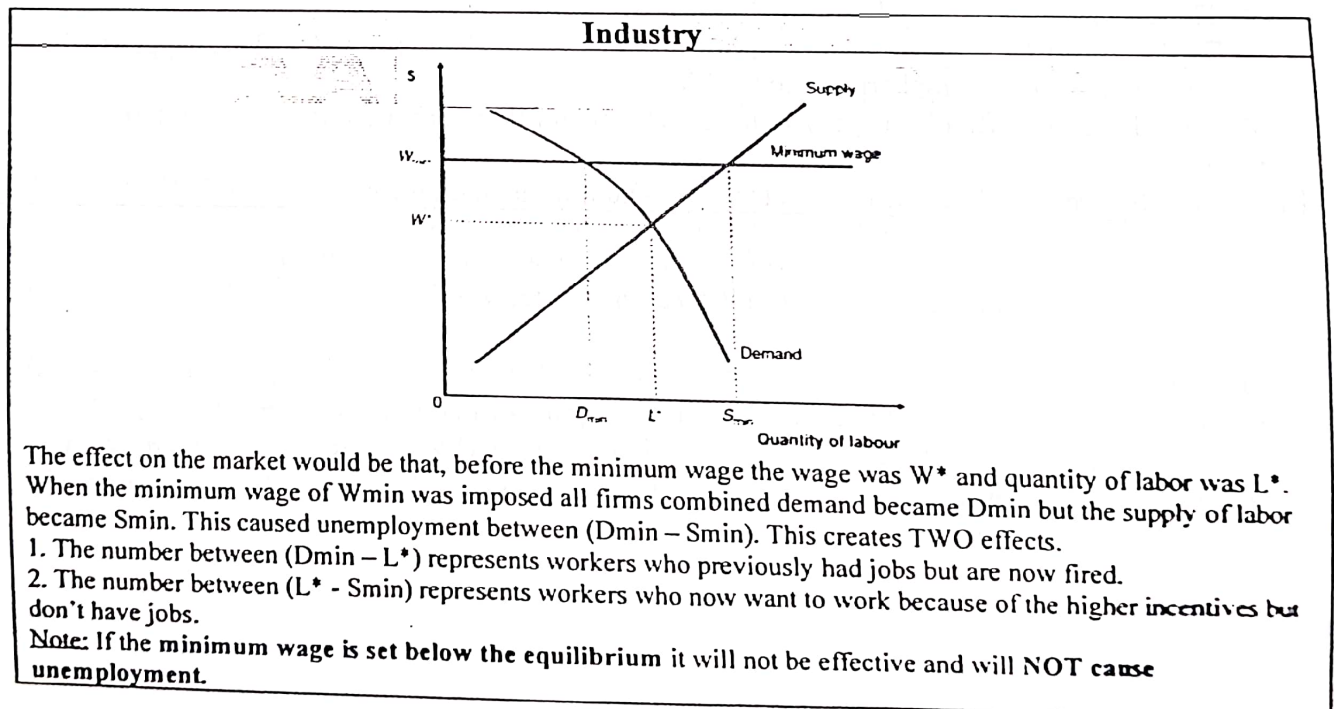
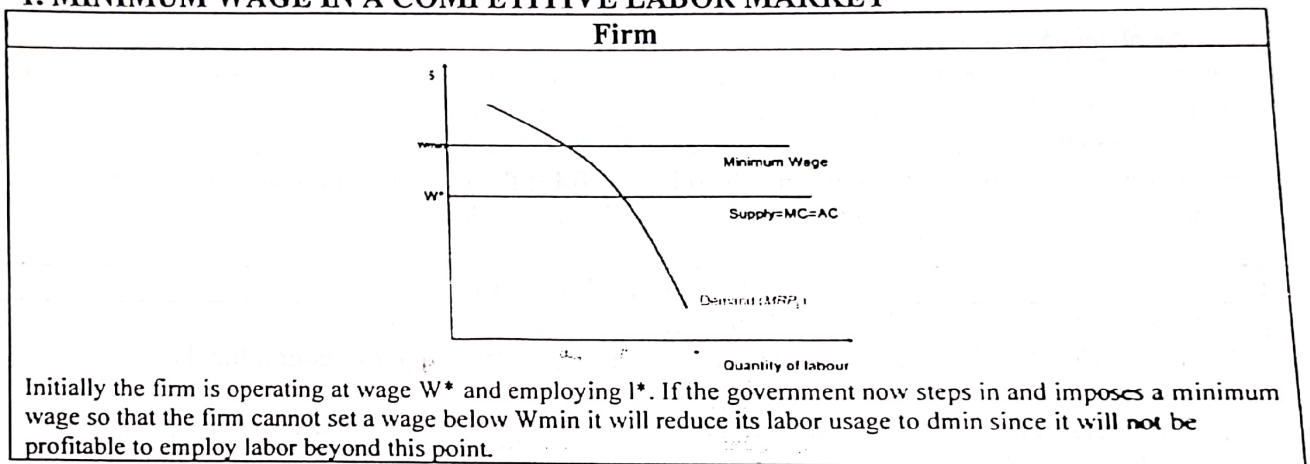
Definition | Minimum Wage: This is a policy adopted by the government according to which employers are not permitted to pay a wage below a level set by the legislation. Minimum wage performs three functions.

- (1) Protects workers against exploitation by bad employers
- (2) Improves incentives to work tackling the problem of voluntary unemployment
- (3) Alleviate poverty by raising the living standards of the poorest groups in society

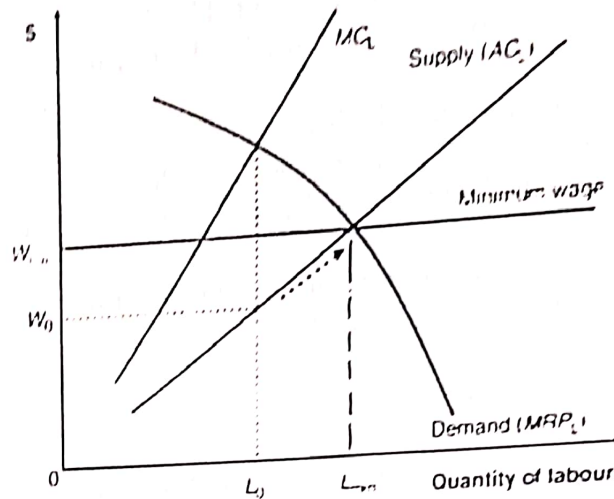
The govt. can intervene in the labor market using the minimum wage. The effects can be understood with keeping TWO models in mind:

1. Minimum Wage in a competitive Labor Market
2. Minimum Wage in a Monopsony market

1. MINIMUM WAGE IN A COMPETITIVE LABOR MARKET



2. MINIMUM WAGE IN A MONOPSONY MARKET



In the absence of a minimum wage the firm sets its wage at W_0 and employs L_0 . When a minimum wage is introduced at level W_{min} means that the firm now hires labor up to the point where the wage is equal to the marginal revenue product (MRP). This takes the market back to being competitive. This will not only increase employment but also the wages and reduces market power. However the govt. needs to be careful if the wage is set above the market competitive equilibrium level this will again lead to unemployment.

Evaluation of the essay

- (1) Imperfect knowledge: Workers do not know what jobs are available
- (2) Immobility: Workers cannot move from one job to another due to geographical or occupational immobility.
- (3) Employers may not be profit maximizers. They may pay more than they need to, employers may not be rational economic maximizers they might stay with the company out of loyalty.
- (4) There may be monopoly buyers (Monopsony) or sellers (unions)
- (5) Exploitation: This occurs when employees are paid less than their value. This happens when the employer is in a strong bargaining position.
- (6) MRP theory is difficult to apply to the service sector there productivity is difficult to measure.
- (7) In public sector the government sets wages and not the market forces.

Lecture 4

TOPIC 5: WAGE DIFFERENTIALS

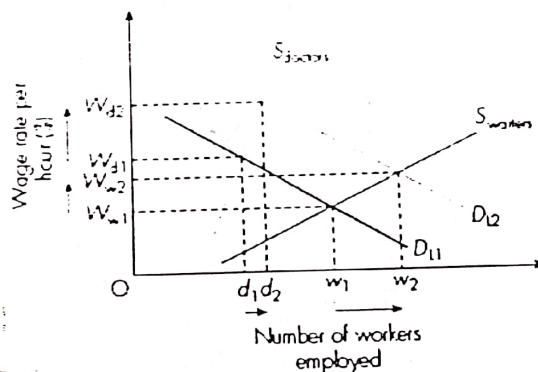
Lecture 5

Definition: These are reasons why differences in wage exist among different occupations, within the same occupation, between males and females etc. The following are the reasons for wage differentials:

1. Skilled vs unskilled workers
2. Male and Female workers
3. Private and Public sector
4. Industrial sector
5. Earnings of people with special talents or celebrity status
6. Price of the commodities which labor produces
7. Market Imperfections

1. Skilled vs unskilled workers

Skilled workers usually earn more than unskilled because the demand for skilled is high whereas the supply is relatively lower in comparison. Example: Unskilled workers like waiters vs skilled workers like doctors. As for working as a waiter there is no special skill required whereas a doctor needs a university degree and years of experience to acquire his license. Hence the demand for skilled is inelastic whereas demand for unskilled is elastic. The following can be shown with the diagram:



As we see from the diagram above the supply for waiters is elastic because if the demand for waiters increases from D_{L1} to D_{L2} the percentage change in quantity supplied increases from w_1 to w_2 which is greater than the increase in wage from W_{w1} to W_{w2} . This is because the job requires few skills and it is relatively easy to increase the supply of waiters in the short term.

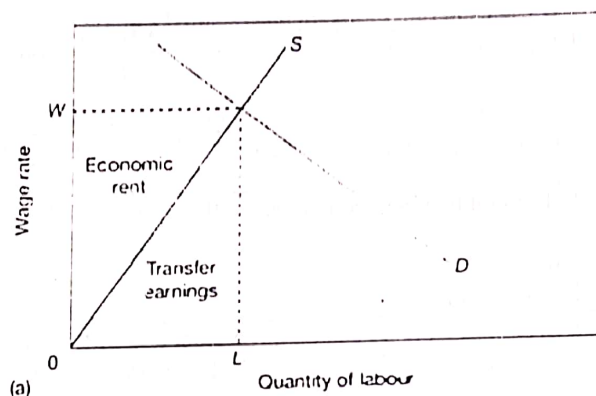
By contrast the supply for doctors is inelastic. If the demand for doctors increases from D_{L1} to D_{L2} the percentage change in quantity supplied would be d_1 to d_2 which would be less than the increase in wage rate which is W_{d1} to W_{d2} . This is because the level of qualifications and length of training required make it difficult to increase the supply of doctors in the short run. Which is why a large increase in wage is required to attract people and train them as doctors.

TOPIC 7: ECONOMIC RENT AND TRANSFER EARNING

Definition | Transfer Earning: This is the amount a factor of production must earn to keep it in its present usage. A worker may have a transfer earning of £150 a week. If he was paid less, he wouldn't want to work in that occupation. For example, a worker may feel he is better off claiming unemployment benefits that working for less than £150 a week.

Definition | Economic Rent: This is the amount paid to a factor production above that which is necessary to keep it in its current use. In other words it is the amount over and above the transfer earning. Suppose a football player would be willing to work for £200 a week. If the football player got paid £1,000 a week. His economic rent is £800 a week. Economic rent is the area between the supply curve and the wage rate. The supply curve indicates the minimum wage people are prepared to work at.

Note: The elasticity of demand and supply will determine the relative size of economic rent. If we take a footballer, demand is quite wage inelastic (not many alternatives to best players). Therefore, economic rent is relatively large.



Supply is Perfectly Inelastic	Supply is Perfectly Elastic
<p>(b)</p>	<p>(c)</p>
<p>It has no other option hence all of the earnings are economic rent.</p>	<p>All of the earnings are transfer earnings and no economic rent.</p>

Lecture 5