BLOCK 5

DISTRIBUTION OF INCOME

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In Block 4 you learnt about the equilibrium concept and the determination of price under perfect, monopoly, monopolistic competition and oligopoly. Another important aspect of economic theory relates to the distribution of income. In this block which consists of 4 units, you will learn about various approaches to the distribution of income, the theories of distribution and the concepts of wages, interest, rent, profits and inequality of income.

Unit 17 explains about factor Markets and its types, demand for factors, supply for factor demand, Backward bending supply curve and also the concept of brined demand.

Unit 18 explains various approaches to the distribution of income, the classical theory of distribution and the marginal productivity theory.

Unit 19 deals with the significance of collective bargaining in the determination of wages and various approaches to the determination of rate of interest.

Unit 20 explains various theories of rent, the concepts of economic rent, transfer earnings and quasi rent, and also the concept of profit and the various sources of profit.

UNIT 17 FACTOR MARKETS

Structure

17.0 OBJECTIVES

After studying this unit, you should be able to:

- Determine a factor market.
- Describe the anatomy of the markets for labor, capital and land.
- Define the concept of derived demand
- Explain the concept of backward supply curve.
- Explain how the value of marginal product determines the demand for a factor of production.
- Explain how factor prices are determined.
- Explains the types and operations of Factor Market.

17.1 INTRODUCTION

If we look around, we find people engaged in various activities, viz., agriculture, trade, business, industry, etc. The motive behind these activities is to earn money for the satisfaction of the wants. The activities performed for the money sake are called economic activities. Economic activities form the subject matter of economics. The form of economic activity is production. Production is the process by which inputs are transformed into 'output'. There are various inputs like land, labor, capital both physical & human and organization. The concept of production function plays a significant role in

the theory of production. It brings outrelationship between inputs used and the resulting output.

Based on the economic activities of economy we can define that a factor market is a market where factors of production are bought and sold. Factor market allocates factors of production, including land, labour and capital, and distribute income to the owners of productive resources, such as wages, rents, etc.

We should be able to differentiate between production function and factor markets.

In the words of Prof. Evans Douglas, Production Function is a technical specification of the relationship that exists between the input and the output in the production process.

A production function relates the maximum quantity of output that can be produced from given amounts of various inputs for a given technology.

Thus, Production Function involves:

- Maximum output that can be produced.
- Given amounts of various inputs, such as labour, land and capital etc.
- A given technology.

Factors of production in production function may be stated in an equation form, graph or schedule. If there is any change in technology, such as automation equipment, use of new and sophisticated machinery, use of skilled labour in place of unskilled labour, etc. there will be change in a production function and a new production function with change in factors of production takes place.

Production is an important economic activity, which directly or indirectly satisfies the wants and needs of the people. Their standard of living depends on the volume and variety of goods produced. Its level of production judges richness or poverty of the nation and performance of the economy. Those nations, which produce commodities and commodities and services in large quantities, are considered rich and others, which produce less, are considered poor.

17.2 DETERMINATION OF A FACTOR

In factor markets, sale & purchase of factors of production like land, labour, capital takes place. These factors of production along with entrepreneur, interact to produce goods and services in an economy. A firm is an organization transform inputs, known as factors of production into output. The inputs or the factors of production can be classified into two broad categories: -

- Human resources:- Labour, human capital including entrepreneurship are human resources

- Capital resources: - Land, machinery man-made capital, forests, rivers, etc. are the capital resources.

Conventionally in the process of production there are four major factors of production i.eland, labour, capital (man-made) and entrepreneurs (organization). Generally households own or control these factors of production and sell them to firms. Households earn by selling these factors of production in the factors markets and thus contribute positively to the production process.

Land

Land is a primary factor of production. In economics, includes all those things which are found under and on the surface of the earth. Land is a free gift of nature. It is neither produced nor is man-made resource. Unlike other factors of production, land cannot be easily destroyed. It is permanent or fixed in existence. The remuneration paid for land is rent.

Labour

Labour is an important factor of production. In ordinary sense, labour means people at work for monetary gain. The remuneration paid for labour is wages.

Capital

The third factor of production is capital or physical capital. Physical capital refers to the cash or assets that are used in further production of goods and services such as plant/ machinery, tools, raw materials, etc. These goods are not significantly consumed, though they may depreciate in the production process. The remuneration paid for capital is interest.

Organization

This factor of production may refer as organization, entrepreneurship, human capital. The entrepreneur uses his /her intellect and knowledge to combine all the three factors of production- land, labour and capital in an optimum manner so as to earn maximum profit.

Any firm hires land, labour, capital and organization for production and simultaneously, there is payment to factors of payment in the form of wages, rent, interest (capital rental) and profit, respectively. This process is explained in Figure1.This process is also known as factor income, wage for labour, rent for land, interest for capital and profit to organization. The function of the firm, thus, is to purchase resources or inputs of labour services, capital and raw materials in order to convert them into goods and services for sale. The process can be shown in Figure1.

Household sector supplies land, labor, capital, and organization to the firm and in return the firm makes payment in the form of rent, wages, interest and profit to the household and household spends this income in buying goods and services from firm.

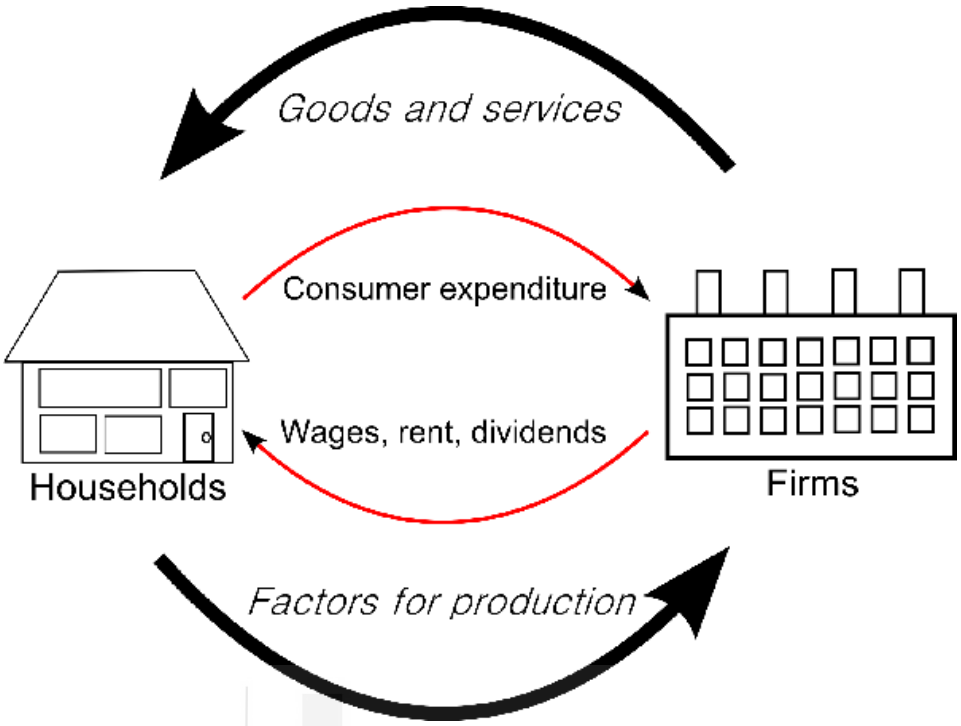

Figure 17.1:Factor Payment

17.3 DEMANDS FOR FACTORS

The factor demand curve is determined based on the quantity of a factor demanded at factor prices by firm. All factors of production are scarce resources therefore labor, capital, land, and entrepreneurship, have factor demand curves.

Along with demand of these factors of production by a firm, there is supply of these factors of production by households and based on their demand and supply their prices of these factors are determined. Like other demand curves, the factor demand curve is generally negatively sloped. The inverse relationship between demand and factor prices are associated with smaller quantities demanded and lower factor prices go with larger quantities demanded.

An important distinction between demand for goods and demand for factors is with regards to utility. While on one hand, consumers demand goods as they derive utility from its consumption, on the other hand, firms do not demand factors of production operations using the four factors of production. The purpose is to maximize revenue and gains from production using factors of production

In a perfectly competitive market, factor demand curve is also known as the marginal revenue product curve. Monopsony and other imperfectly competitive firms with some degree of market control over the factor market do not have a clear-cut factor demand curve. In other words, factor price and quantity demanded may or may not be inversely related.

The Figure 2below shows a negatively sloped demand curve. The number of workers is measured on the horizontal axis and the wage paid per worker is

measured on the vertical axis. This factor demand curve indicates that firm is willing to hire moreworkersat lower wages and if wage rate is higher than lesser workers are hired. This establishes negatively sloped and inverse relationship of demand curve.

The wage declines with an increase in the number of workersemployed, because extra workers contribute less and less and less to total production and to total revenue. Therefore it is also known as marginal revenue product curve. The primary reason for this inverse relation between wage and quantity demanded is the productivity of the workers and the law of diminishing marginal returns**.**

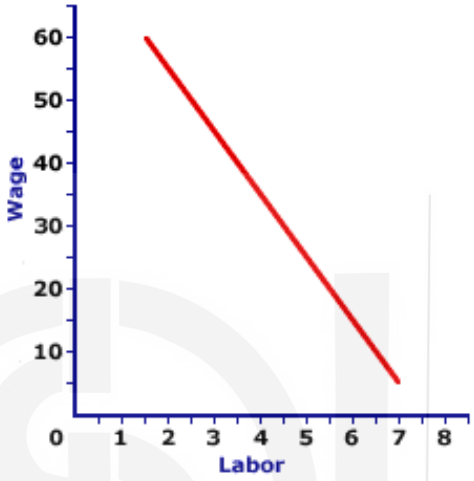

Figure 17.2 Negatively Demand Curve

As firm employs more workers, marginal product declines, each additional worker contributes less to total product as the law of diminishing marginal returns kicks in. However, with less production to sell, firm generates less revenue. In other words, the law of diminishing marginal returns causes a decline in marginal physical product, and consequently a decline in marginal revenue product. But if workers generate less revenue, then firm is willing and able to pay a lower wage.

Because the factor demand curve, like other curves, is constructed to reflect the relationship between two variables, factor price and factor quantity demanded, changes in other variables cause the curve to shift. The three most noted curve-shifting factor demand determinants are product price, factor productivity, and prices of other factors.

Calculating the value of Marginal Physical Product (MPP), Value of Marginal Product and Marginal Revenue Product

Based downward sloping demand curve as shown in Figure 2, we can define the marginal physical product (MPP) of a factor of production (like labour) is the additional output produced when an extra unit of that factor of production (worker) is added. Other factors of production remaining constant. In brief we can also say that:-

MPP= Changes in Total Product/ Change in number of units of factors of production

We can also say that the concept of Value of Marginal Product (VMP) also known as Marginal Value Product. We can find the value of output by using information on market prices. Thus, when prices of a product are multiplied with the marginal physical product of a factor of production, one can derive value of marginal product.

VMP= Price of output x Marginal Physical Product of a factor

We know that marginal revenue product is the additional revenue due to hiring of an additional worker. We can therefore calculate:-

MRP = Change in Total revenue/ Change in number of units of a factor of production

MRP = Marginal Revenue x Marginal Physical Product

We can also explain by examplesto understand the concept better. The first two columns of the table below are the firm's total product schedule. To calculate marginal product, find the change in total product as the quantity of labor increases by 1 worker.

Table 17.1

	Quantity of Labour (Workers)	Total Product (car washes per hour)
A	0	0
B	1	5
C	2	9
D	3	12
E	4	14
F	5	15

To calculate the value of marginal product, multiply the marginal product numbers by the price of a car wash, which in this example is Rs. 3.

Table 17.2

	Quantity of Labour (Workers)	Total Product (car washes per hour)	Marginal Product (washes per worker)
A	0	0	
B	1	5	} -5
C	2	9	} -4
D	3	12	} -3
E	4	14	} -2
F	5	15	} -1

We see the marginal product (washes per worker) reducing from 5 to 4 to 3 to 2 to 1 as the quantity of workers increase from 0 to 5.

Table 17.3

	Quantity of Labour (Workers)	Total Product (car washes per hour)	Marginal Product (washes per worker)	Value of marginal product (rupees per worker)
A	**0**	**0**		
B	**1**	**5**	**} -5**	**15**
C	**2**	**9**	**} -4**	**12**
D	**3**	**12**	**} -3**	**9**
E	**4**	**14**	**} -2**	**6**
F	**5**	**15**	**} -1**	**3**

Similarly, the value of marginal product (rupee per worker will also reduce from 15 to 12 to 9 to 6 to 3). This is due to law of diminishing returns shown in Figure17.3.

	Quantity of Labour	Value of marginal product (Rupee per additional worker
A	**1**	**15**
B	**2**	**12**
C	**3**	**9**
D	**4**	**6**
E	**5**	**3**

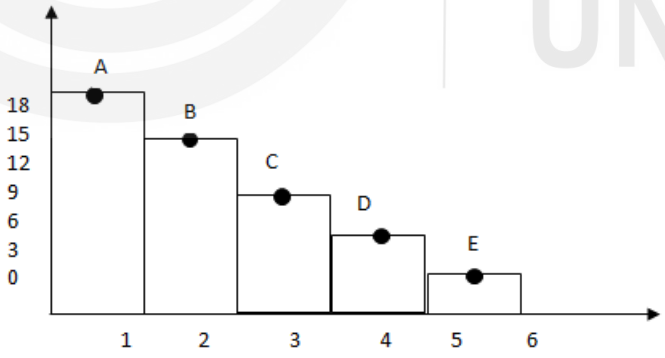

Figure 17.3: Quantity of hour and value of Marginal Product

The blue bars show the value of the marginal product of the labor that and number of hired based on their marginal productivity numbers in the table3 and shown in Figure 17.4.

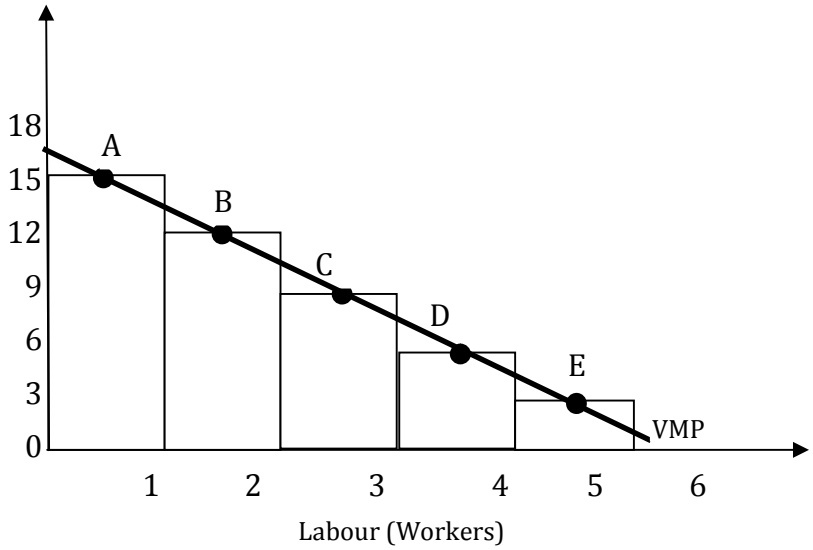

Figure 17.4 : Marginal Product of labour and their marginal productivity

The orange line is the firm's value of the marginal product of labor curve. A firm hires labor up to the point at which the value of marginal product equals the wage rate. If the value of marginal product of labor exceeds the wage rate, a firm can increase its profit by employing one more worker. If the wage rate exceeds the value of marginal product of labor, a firm can increase its profit by employing one fewer worker. A firm's demand for labor curve is also its value of marginal product curve. If the wage rate falls, a firm hires more workers.

Figure 17.5

At a wage rate of Rs.10.50 an hour, firm makes a profit on the first 2 workers but would incur a loss on the third worker.

So at this point quantity of labor demanded is 2 workers.

We have observed that here demand for labor curve is the same as the value of marginal product curve and the demand for labor curveslopes downward because the value of the marginal product of labor diminishes as the quantity of labor employed increases.

The demand for labor depends on several factors. Some important factors are given below:-

- **The price of the firm's output: -** If the price of a firm's output is higher accordingly the demand for labour would also be higher and if output prices in market is lower accordingly demand for labour will also lesser.
- **The prices of substitutes factor of production:** - If the price of using capital decreases relative to the wage rate. In this case substitution effect will come into operation. A firm likes to substitutes capital for labor and increases the quantity of capital it uses. Usually, the demand for labor will decrease when the price of using capital falls.
- **Technology:** - Digitization and new technologies are also important to impact the demand for labour. New Technologies decrease the demand for some types of labor and increase the demand for other types.

17.4 SUPPLY FOR A FACTOR DEMAND

The supply of labour is defined as the amount of labour, measured in person-hours, offered for hire during a given time-period with given population.

A supply curve is a relationship between two, and only two, variables: quantity on the horizontal axis and price on the vertical axis.

A typical supply curve shows an increase in supply as wages rise. It slopes from left to right. However, in labour markets, we can often witness a backward bending supply curve. This means after a certain point, higher wages can lead to a decline in labour supply. This occurs when higher wages encourage workers to work less and enjoy more leisure time.

The Supply of Labor

People supply labor to earn an income. Many factors influence the quantity of labor that a person plans to provide, but the wage rate is a key factor. But decision about how much labour to supply is choice between consumption and leisure. Consumption is essential for survival and for availing consumption income to be earned but how much income is required to support consumption, this is an individual decision. Leisure implies the time available to a person when not working. By giving up leisure, a person receives additional income and this enables him/her to increase consumption. On the other hand, by working less, and giving up some consumption, a person enjoys more leisure. In economic terms, deciding whether to work at any given wage depends on the cost-benefit principle. The willingness to supply labour is greater when the wage rate is higher. This results into upward slope of supply curve up to a point and bends backward supply curve. This relationship is depicted in Figure 17.6 with the support of table.

Table 17.4

	Wage rate (Rupees per hour)	Quantity of labour (Hours per week)
A	**40.00**	**30**
B	**35.00**	**35**
C	**30.00**	**38**
D	**25.00**	**40**
E	**20.00**	**38**
F	**15.00**	**35**
G	**10.50**	**30**
H	**5.00**	**0**

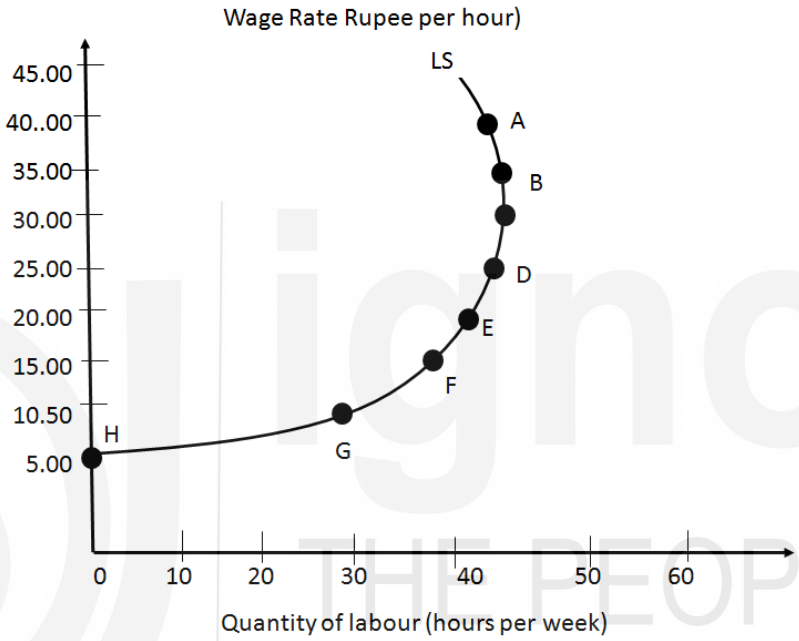

Figure 17.6: An individual's labor supply curve

At a wage rate of Rs.10.50 an hour, An individualsupplies 30 hours of labor a week. As the wage rate rises, quantity of labor supplied increases, reaches a maximum, then decreases. Therefore we can say that labor supply curve eventually bends backward.

Market Supply Curve

A market supply curve shows the quantity of labor supplied by all household sector in a particular job. It is found by adding together the quantities of labor supplied by all households at each wage rate.

The supply of labor is not affected by the fact that firms have monopolistic power. Market supply of labour is the summation of the supply curves of individual firm faces is however perfectly elastic and that of the market is positively sloped at a given wage rate **Figure 17.7(a)**

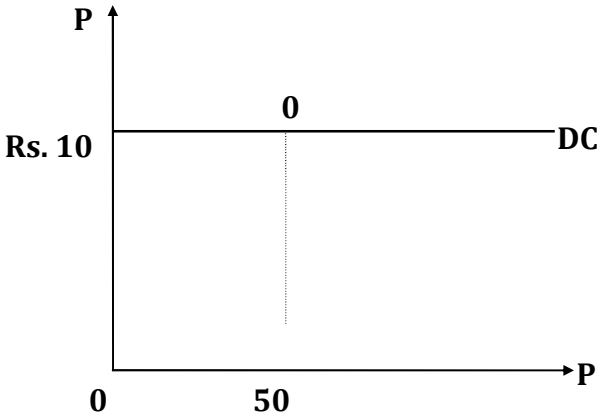

Figure 17.7(a)

The Figure -7(b) below shows the supply of car wash workers. In a market for a specific type of labor, the quantity supplied increases as the wage rate increases, other things remainingthe same.

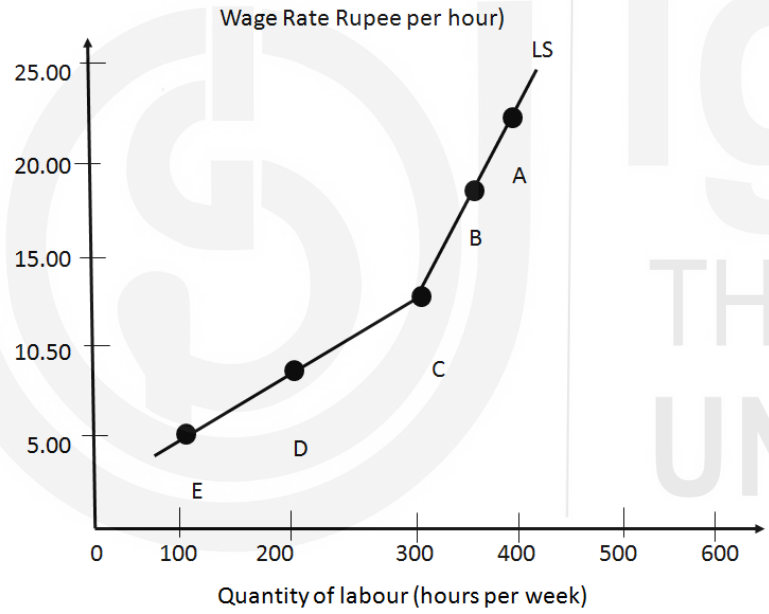

Figure 17.7(b)

Influences on the Supply of Labor

However adult population, preferences and time in school and training have impact on supply of labor. Any increase in population specifically adult population will increase the supply of labour. More people are engaged in education & training will affect the supply of low skilled workers

Labor Market Equilibrium

Labor market equilibrium determines the wage rate and employment.The Figure 8below illustrates equilibrium in the market for car wash workers.

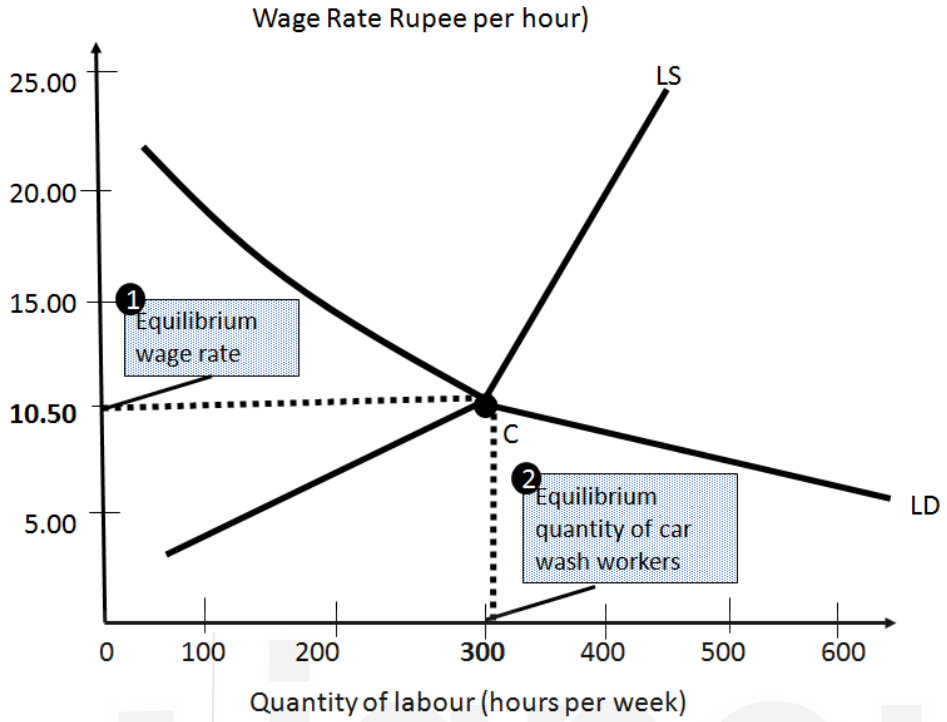

Figure 17.8 Labour Market Equilibrium

The equilibrium wage rate is Rs. 10.50 an hour and the equilibrium quantity of labor is 300 workers.

If the wage rate exceeds Rs.10.50 an hour, the quantity demanded is less than the quantity supplied and the wage rate falls.If the wage rate is below Rs.10.50 an hour, the quantity demanded exceeds the quantitysupplied and the wage raterises.

17.5 BACKWARD BENDING SUPPLY CURVE

As explained in the unit above the shape of a labour supply curve can be regarded as a Backward Bending Supply Curve. A backward-bending labour supply curve, is a graphical device showing a situation in which as real wages increase beyond a certain level. This is shown in Figure 17.9. The increase in real wages will lead to both income and substitution effect. We are aware that the income effect states that a higher wage means workers can achieve a target income by working fewer hours. Therefore, if wages increase, it becomes easier to get enough income through working fewer hours. They like to substitute further increase in income by substituting with leisure. We are aware that the substitution effect states that a higher wage makes work more attractive than leisure. Therefore, in response to higher wages, supply increases because work gives greater remuneration.

Higher wages will substitute leisure for paid worktime. This will lead to a decrease in the labour supply and so less labour-time being offered for sale. The "labour-leisure" trade-off is faced by wage-earning human beings between the amount of time spent engaged in wage-paying work and satisfaction-generating unpaid time, which allows participation in "leisure"

activities and the use of time to do necessary self-maintenance, such as entertainment and sleep. This implies a positively sloped labour supply curve. But the backward-bending labour supply curve occurs when an even higher wage actually entices people to work less and consume more leisure or unpaid time.

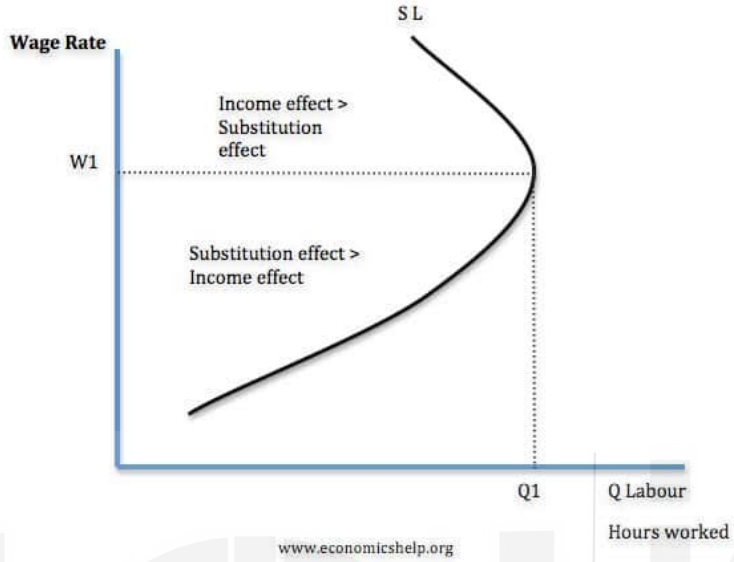

Figure 17.9: Backward bending supply curve

There are two effects related to determining supply of labour.

When does the labour curve begin to slope backwards?

It will depend on an individual. For example, if an individual has modest demands of goods and services and also keen to spend time in leisure pursuits. His goal may be to gain Rs. 30,000 a year and then after that maximize leisure time. In this case, after wages increase above Rs. 30,000, the income effect dominates, and with higher wages, he can afford to have more time off work. Similarly, due to substitution effect an individual will do large in satisfying his demand of goods and services and little interest in leisure pursuits. If wages increase, it gives an increased incentive to work longer hours as he can gain increased income and buy more goods.

17.6 CONCEPT OF DERIVED DEMAND

The concept of derived demand is an important concept to decide the demand for each of the factors of production. This emphasize the fact that the relationship between the factors price and the quantity of the factor demanded by the firms employing it in production is directly dependent on the consumer's demand for the final product the factor is used to produce. The concept was developed by Alfred Marshall with two assumptions:*First, production conditions, the demand curve for the final good, and the supply curves for all other factors of production are held constant. Second, competitive markets for the final good and all other factors of production are always in equilibrium.*

"Derived demand refers to the demand for any goods or services, which is derived from any related goods, services, or intermediate goods or services. In the case of derived demand, a market can exist for both intermediate and related goods or services"

The derived demand curve answers the question what quantity, x, of the selected factor of production would be demanded at an arbitrary price, y, under the above conditions. The inverse of the relationship, y = f (x), is the graphical representation of Marshall's derived demand curve for the selected factor of production. Its equilibrium price and quantity are determined by the intersection of this demand curve with the supply curve of the factor of production.

Derived demand influences the market price of the derived goods. Derived demand for any goods or services also creates demand for related or incidental goods. Hence, derived demand is dependent on the demand for an intermediate good or service. Derived demand can also be for one of the factors of production, such as raw materials, land, labour, capital. For example, the demand for raw material is directly related to the demand for the final product. The derived demand for a product or service can be strategically used to anticipate the demand for related goods. The products or services may be from two different sectors where one sector's output is the input for the other sector. An increase in demand or business activity in one sector would spur business activity in another sector. A couple of examples to understand 'Derived demand' is the 'pick-and-shovel-strategy', where investment is made in the technology required to produce certain goods and services. One can assess the demand for 'engineering services' based on the demand for precision instruments and the business activity in the precision engineering industry.

Similarly, the demand for computer and in the area of computer peripherals, such as a mouse, keyboard, monitors, motherboards, batteries, graphic cards, and supporting materials would be based on the demand for computers and an increasing trend towards adoption of technology. In these two examples, the demand for the accessories or supporting goods enables estimation of demand for the end product and service.

If for some reason say, for example a spontaneous shift in consumer tastes the demand for cars increases (shifts to the right) so that more cars than before can be sold at any given price, then the derived demand for iron-ore used in making cars will also increase (shift to the right) so that more iron ore will be demanded at any given prices. We would also expect car demand for the labor of car makersand for specialized car making machinery to shift to the right in a similar fashion in response to the public's greater demands for cars.

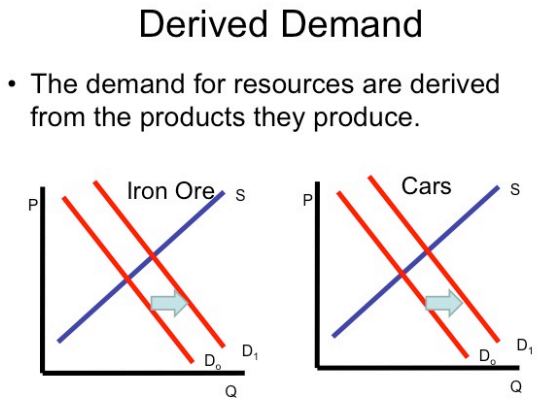

Figure 17.10: Derived Demand

What is the mechanism by which a shift in demand for the final product is translated into a shift in demand for the factors of production used in its manufacture? The key is the change in the price of the final product brought by the shift indemand for it. If the demand curve for hats shifts to the right and the upwardly sloping supply curve remains unchanged, then the equilibrium price and the quantity in the hat market will now involve both a somewhathigher price for hats and a somewhat larger quantity of hats being produced. But producing more hats will require more of the relevant factors of production than before which they will want to purchase from their suppliers shifting the demand curve for each of the factors to the right.This increase in demand for the factors in turn will tend to raise the factor prices somewhat and to increase the quantity of them sold, which then affects the factor producers demand for their own necessary inputs and brings about further price and quantity adjustments throughout the economy in an ever-widening ripple effect.This is shown in Figure 17.10.

17.7 ELASTICITY OF FACTOR DEMAND

We know that the firm demands factor services not for direct consumption for firm but as a means of productionby which firm make a profit. By hiring these factors of production firm can produce something the consumers are willing to buy and are ready to pay for.

Since it is the consumer's wish to buy products that causes firm to buy factors of production, the firm demand for input is said to be a derived demand (derived from the consumer's demand for the product). The input-price elasticity of the producer's demand for factors may, therefore, be referred to as the elasticity of derived demand.

17.8 MARKET EQUILIBRIUM AND FACTOR PRICE DETERMINATION

According to the modern theory, the price of a factor of production is determined at a point where the demand and supply curves of

the factor intersect each other. This point is known as equilibrium point, where the demand of a factor is equal to its supply.

The production function of a firm is a relationship between inputs used and output produced by the firm. For various quantities of inputs used, it gives the maximum quantity of output that can be produced.

Production is the transformation of inputs into the output of a commodity or several commodities (in case of point production) in a specific period of time at the given state of technology

Production enhances the utility of product by using factors of production. Distribution through transportation increases the usefulness of the product by bringing it to the location where the consumer needs it. The question of how much can be produced by using factors of production is largely an engineering and managerial problem. The question of how much should be produced is an economic issue. The producer is confronted with a choice about resource utilization. The behavioral choice will be influenced by profit-and-loss calculations. The end results will be a supply decision, that is, an expressed ability and willingness to produce a good at various a good at various prices. Therefore Supply is the ability and willingness to sell (produce) specific quantities of a good at alternative price in a given time period, ceteris paribus.

Production - Function - A production function tells us the maximum amount of output attainable from alternative combinations of factor inputs. This particular function tells us how many pairs of jeans we can produce in a day with a given factory and varying quantities of capital and labour. With one sewing machine, and one operator, we can produce a maximum of 15 pairs of jeans per day. To produce more jeans, we need more labour or more capital. The output of any factor of production depends on the amount of other resources available to it. Mathematically, the production function can also be shown as:

$Q= f (X_1, X2.....X_K)$

Where Q= Output

$X_1..... X_K$ =Input used.

For the purposes of analysis, the equation can be reduced to two inputs X and Y. Restating,

Q=f (X,Y)

Where Q= f (X, Y)

Where Q= Output

X= Labor

Y= Capital

Law of Variable Proportion

As more and more of the factor input is employed, all other input quantities constant, a point will eventually be reached where additional quantities of varying input will yield diminishing marginal contributions to total product.

"The Law of Variable Proportion states that as the quantity of a factor is increased while keeping other factors constant, the Total Product (TP) first rises at an incremental rate, then at a decremental rate and lastly the total production begins to fall."

In this example, the land is the fixed factor and labour is the variable factor. The table shows the different amounts of output when you apply different units of labour to one acre of land which needs fixing.

Table 5

Fixed Factor : Land (Acres)	Variable Factor: Land (Units)	TPP (Total Physical Product) (Quantity)	MPP (Marginal Physical Product) (Quantity)	
1	0	0	-	
1	1	2	2	Stage I
1	2	6	4	
1	3	12	6	
1	4	16	4	Stage II
1	5	18	2	
1	6	18	0	
1	7	14	-4	Stage III
1	8	8	-6	

The following diagram explains the law of variable proportions. In order to make a simple presentation, we draw a Total Physical Product (TPP) curve and a Marginal Physical Product (MPP) curve as smooth curves against the variable input (labour).

Three Stages of the Law

Stage I – The TPP increases at an increasing rate and the MPP increases too. The MPP increases with an increase in the units of the variable factor. Therefore, it is also called the stage of increasing returns. In this example, the Stage I of the law runs up to three units of labour (between the points O and L).

Stage II – The TPP continues to increase but at a diminishing rate. However, the increase is positive. Further, the MPP decreases with an increase in the number of units of the variable factor. Hence, it is called the stage of diminishing returns. In this example, Stage II runs between four to six units of labour (between the points L and M). This stage reaches a point where TPP is maximum (18 in the above example) and MPP becomes zero (point R).

Stage III – Now, the TPP starts declining, MPP decreases and becomes negative. Therefore, it is called the stage of negative returns. In this example,

Stage III runs between seven to eight units of labour (from the point M onwards).

It can be shown in a Table-5& Figure 17.11 as done below.

Table 5: The Three Stages of Production

Total Physical Product	Marginal Physical Product	Average Physical Product
Stage I		
Increases at an increasing rate	Increases and reaches its maximum	Increases (but slower than MPP)
Stage II		
Increases at a diminishing rate and becomes maximum	Starts diminishing and becomes equal to zero	Starts diminishing
Stage III		
Reaches its maximum, becomes constant and then starts declining	Keep on declining and becomes negative	Continues to diminishing but always be greater than zero

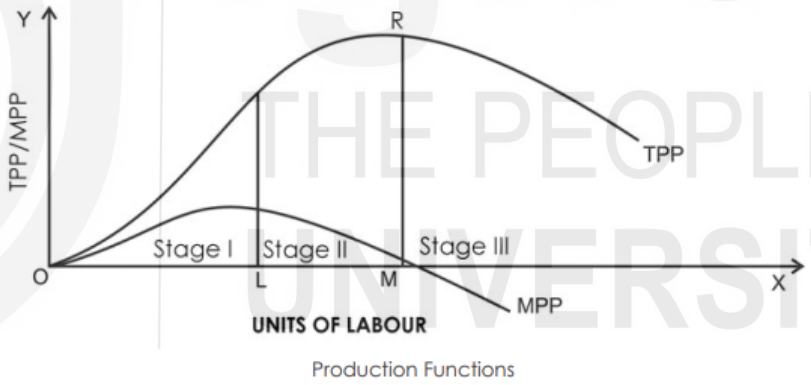

Figure 17.11: Law of Variable proportion

It is important for the firm to decide how much labour it should use in order to maximize profits. The firm should employ an additional unit of labour as the extra revenue generated from the sale of the output produced exceeds the extra cost of hiring the unit of labour, i.e.,Until the extra revenue equals the extra cost.

The extra revenue generated by the use of an additional unit of labour is called the marginal revenue product of labour (MRP^L). This equals the Marginal Product of Labour (MP^L) times the Marginal Revenue (MR) from the sale of the extra output produced.

Thus,

$(MRP^L) = (MP^L)(MR)$

Assumptions of the Law:

The law of variable proportions or diminishing returns, as stated above, holds good under the following conditions:

1. First, the state of technology is assumed to be given and unchanged. If there is improvement in the technology, then marginal and average products may rise instead of diminishing.

2. Secondly, there must be some inputs whose quantity is kept fixed. This is one of the ways by which we can alter the factor proportions and know its effect on output. This law does not apply in case all factors are proportionately varied. Behaviour of output as a result of the variation in all inputs is discussed under "returns to scale".

3. Thirdly the law is based upon the possibility of varying the proportions in which the various factors can be combined to produce a product. The law does not apply to those cases where the factors must be used in fixed proportions to yield a product.

Check your Progress A

1. Answer the correct option from the following:
   a. The law of variable comes into existence when:
      1. There are only two variable factors
      2. There is a fixed and a variable factor
      3. All factors are variable
      4. Variable factor yields less
   b. Labour supply curve is backward bending because:
      1. Labour prefer more income to leisure
      2. Labour prefer more leisure to income
      3. Substitution effect of increase in wage rate.
      4. Labour prefers more from small number of working hours.
   c. The marginal physical product of capital is the addition to
      1. Total revenue generated by adding a unit of loanable funds to production
      2. Total physical product generated by adding a unit of capital to production
      3. Total revenue generated by adding a unit of capital to production
      4. Total physical product divided by a unit of capital
2. Explain the assumptions to the law of variable proportion.

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17.9 FACTOR MARKET AND ITS TYPES

The major factors are: labor, capital, land and entrepreneurship. The first three factors listed are traded in the factor market where the equilibrium quantity of the factor and the factor price are determined. The entrepreneurship factor creates firms and hires the other factors. There are markets for labor, capital, or land.

Labor Markets

The labor market can be referred job market in modern terminology. In job market, there is collection of people and firms who are trading labor services. It also refers to the supply of and demand for labor, in which employees provide the supply and employers provide the demand.

Financial Markets

The term "financial markets" is often used to refer solely to the markets that are used to raise finance: for long-term finance, capital markets are used; for short-term finance (maturity up to one year), money markets are used.

Money Market

This include operation of financial capital for short period of time. In financial markets firms uses funds to buy and operate physical capital. Firm buy the tools, instruments, machines, and other constructions that have been produced in the past. Businessesalso use physical capital toproduce final goods and services for household. In money market, there is collection of people and firms who are lending and borrowing to finance the purchase of physical capital.

Capital Market

These are long-term and their maturity is greater than 1 year. For example, corporate bonds, treasury bonds (finance national debt), municipal bonds (finances substantial and long-term capital projects), stocks, mortgage loans, consumer loans & business loans. Buying and selling of bonds also happens in capital market because their maturity is greater than 1 year. Bonds issued by firms or government are also part of money market because in bonds there is a promise to pay specified sums of money on specified dates. Bonds are issued by firms or government are traded in financial market. Stock market is a market in which the shares in the stocks of companies. For examples, the New York Stock Exchange, NASDAQ, National Stock Exchange (NSE) and Bombay Stock Exchange (BSE)

The Demand for Financial Capital

A firm's demand for financial capital stems from its demand for physical capital to produce goods andservices. The quantity of physical capital that a firm plans to use depends on the price of financial capital which is the interest rate. There are two factors that change the demand for capital are population growth and technological change.

The Supply of Financial Capital

The quantity of financial capital supplied results from people's saving decisions. The higher the interest rate, the greater is the quantity of saving supplied. The main factors that influences the supply of saving are population, average income and expected future income.

Financial Market Equilibrium and the Interest Rate

In financial market interest rate is determined and equilibrium occurs when the interest rate has adjusted to make the quantity of capitaldemanded equal the quantity of capital supplied. The Figure 17.12 belowshowsthe financial marketequilibrium. The demand for financial capital is *KD*, and the supply of financial capital is KS. The equilibrium interest rate is 6 percent a year. The equilibrium quantity of financial capital is $200 billion.

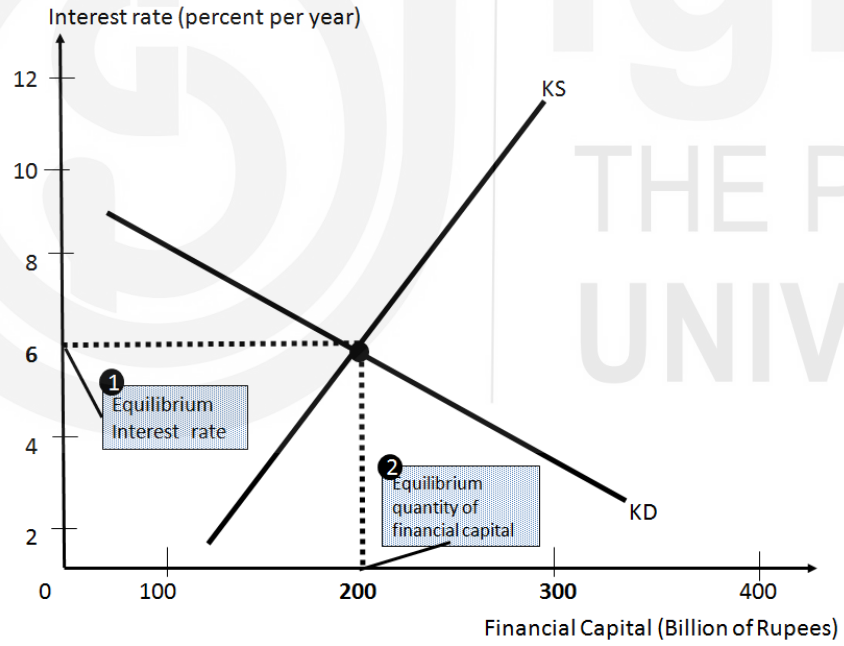

Figure 17.12 Financial market equilibrium and interest rate

Land and Natural Resources Markets

Land consists of all the gifts of nature. The markets for raw materials are called commodity markets.

All natural resources are called land, and they fall intotwo categories: Renewable and nonrenewable.

Renewable natural resources

Natural resources that can be used repeatedly also known as a flow resource. These are natural resource which will replenish to replace the portion depleted by usage and consumption, either through natural reproduction or other recurring processes in a finite amount of time in a human time. Solar energy, windenergy, hydro energy, tidal energy. geothermal energy and biomass energy are popular renewable resources

Nonrenewable natural resources

Natural resources that can be used only once and thatcannot be replaced once they have been used. It is a finite resource. Fossil fuels such as oil, natural gas, and coal are examples of non -renewable resources.

The Market for Land (Renewable Natural Resources)

The lower the rent, the greater is the quantity of land demanded. The supply of land is fixed therefore the supply of a particular block of land is perfectly inelastic. TheFigure 17.13 belowshows equilibrium of land market by taking into consideration demand and supply for land. The demand curve for a 10-acre block of land is *D*, and the supply curve is *S*. Equilibrium occurs at a rent ofRs.1,000 an acre per day.

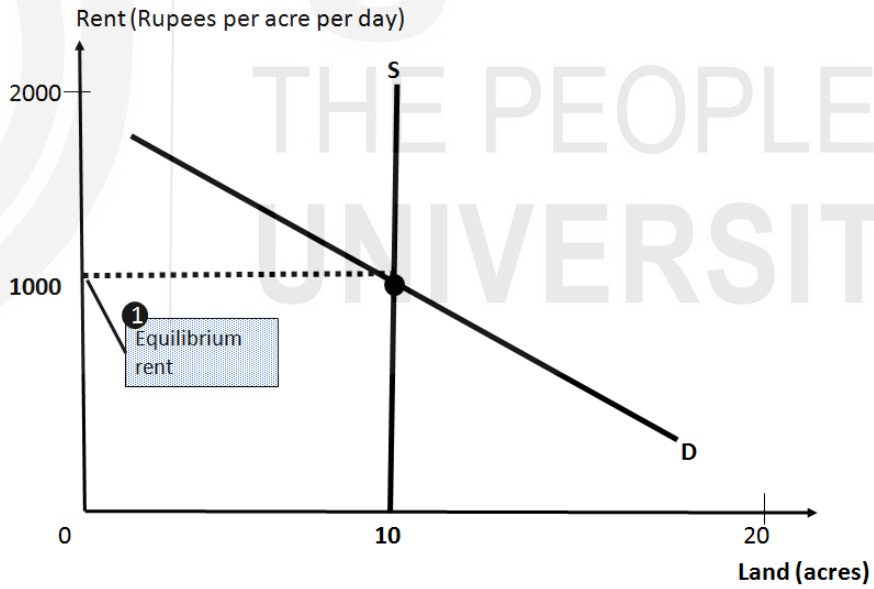

Figure 17.13: Equilibrium Rent

The Supply of a Nonrenewable Resource

Over time, the quantity of a nonrenewable resource decreases as it is used up.But the known quantity of a natural resource increases because advances in technology enable ever less accessible sources of the resource to be discovered. Using a natural resource decreases its supply, which causes price to rise.

New discoveries increase supply, which cause prices to fall.

17.10 LET US SUM UP

Production is an important economic activity, which directly or indirectly satisfies the wants and needs of the people. Their standard of living depends on the volume and variety of goods produced. Its level of production judges' richness or poverty of the nation and performance of the economy. Those nations, which produce commodities and commodities and services in large quantities, are considered rich and others, which produce less, are considered poor. The production function involves maximum output that can be produced, given amounts of various inputs, such as labour, land and capital and a given technology.

The inputs or the factors of production can be classified into two broad categories: Human resources: - Labour, human capital including entrepreneurship are human resources and Capital resources: - Land, machinery man-made capital, forests, rivers, etc. are the capital resources.

The factor demand curve is determined based on the quantity of a factor demanded at factor prices by firm. All factors of production are scarce resources therefore labor, capital, land, and entrepreneurship, have factor demand curves.

The supply of labour is defined as the amount of labour, measured in person-hours, offered for hire during a given time-period. Taking population as given. A supply curve is a relationship between two, and only two, variables: quantity on the horizontal axis and price on the vertical axis. A typical supply curve shows an increase in supply as wages rise. It slopes from left to right. However, in labour markets, we can often witness a backward bending supply curve. This means after a certain point, higher wages can lead to a decline in labour supply. This occurs when higher wages encourage workers to work less and enjoy more leisure time.

A market supply curve shows the quantity of labor supplied by all households in a particular job. It is found by adding together the quantities of labor supplied by all households at each wage rate.

The shape of a labour supply curve can be regarded as a Backward Bending Supply Curve. A backward-bending labour supply curve, is a graphical device showing a situation in which as real wages increase beyond a certain level.

Derived demand refers to the demand for any goods or services, which is derived from any related goods, services, or intermediate goods or services. In the case of derived demand, a market can exist for both intermediate and related goods or services.

According to the modern theory, the price of a factor of production is determined at a point where the demand and supply curves of the factor intersect each other. This point is known as equilibrium point, where the demand of a factor is equal to its supply.

The Law of Variable Proportion states that as the quantity of a factor is increased while keeping other factors constant, the Total Product (TP) first

rises at an incremental rate, then at a decremental rate and lastly the total production begins to fall.

Land consists of all the gifts of nature. The markets for raw materials are called commodity markets. All natural resources are called land, and they fall into two categories: Renewable and non-renewable

17.11 KEYWORDS

Production: Producing means to manufacturing or creating a product or good from raw materials.

Law of Variable Proportion: The Law of Variable Proportion states that as the quantity of a factor is increased while keeping other factors constant, the Total Product (TP) first rises at an incremental rate, then at a decremental rate and lastly the total production begins to fall

Labor Market Equilibrium: Labor market equilibrium "balances out" the conflicting desires of workers and firms and determines the wage and employment observed in the labor market.

Backward bending of supply curve of labour: A backward-bending supply curve of labour, or backward-bending labour supply curve, is a graphical device showing a situation in which as real (inflation-corrected) wages increase beyond a certain level, people will substitute leisure (non-paid time) for paid worktime and so higher wages lead to a decrease in the labour supply and so less labour-time being offered for sale.

17.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress A

1. a.2, b.3, c.2

17.13 TERMINAL QUESTIONS

1) Describe the anatomy of the markets for labor, capital, and land.
2) Explain how the value of marginal product determines the demand for a factor of production.
3) Explain how wage rates and employment are determined.
4) Explain how interest rates, borrowing, and lending are determined.
5) Explain how rents and natural resource prices are determined.
6) What is backward bending supply curve? Explain with an example.

Note: These questions will help you to understand the unit better. Try to write answers for them. But do not send your answers to the University. These are for your practice only.

UNIT 18 FUNCTIONAL DISTRIBUTION OF INCOME

Structure

18.0 OBJECTIVES

After studying this unit, you should be able to:

- describe various approaches to distribution of income
- discuss the classical theory of distribution
- explain the marginal productivity theory.

18.1 INTRODUCTION

Production is carried out by the collective efforts of land, labour, capital and enterprise. These factors of production are combined in different productive activities in different proportions. Therefore, their relative shares in the joint income are not the same in all areas of production. For example, land has a predominant role in agriculture. The other factor which contributes no less than land to agricultural output is labour. Therefore, remunerations to these

factors of production are larger than those of other factors of production in agriculture. In industries, on the contrary, much capital has to be employed and the entrepreneur performs a very useful function. In fact, his contribution to output of an industrial firm is generally quite substantial. While the role of land in industries is relatively secondary, labour's contribution to industrial output is always large. These facts explain why the shares of labour, capital and enterprise in the incomes of industrial units are large, whereas land's share is small. These differences in the relative shares of the various factors of production in different productive activities, however, do not affect the criteria on the basis of which they are rewarded. The principles according to which land, labour, capital and enterprise are remunerated are the same for all productive activities. In this Unit, you will learn various approaches to distribution of income. You will also learn classical theory of distribution and marginal productivity theory.

18.2 ALTERNATIVE APPROACHES TODISTRIBUTION OF INCOME

There are two main approaches to the problem of income distribution. One way to examine the income distribution is to study as to how the national income is distributed among the various members of the society. In this case, the sources from which people derive their incomes are not relevant; what is important is as to how much income different people have received. This is called 'Personal Income Distribution' The other way to examine the income distribution is to study as to how are different persons rewarded for their services, or the factors which they provide for the purpose of production rewarded. In this case, attention is given to the reward for the functions each factor performs in the processes of production.

18.2.1 Personal Distribution

Personal distribution of income means the distribution of national income among the various members of the society. These persons perform various kinds of activities and are paid for their services. For example, workers, teachers, clerks and other officers get salaries, and professionals like advocates, chartered accountants and physicians doing private practice charge fees for their services. Since these services do not require the same skill and are not uniformly productive, earnings of different persons engaged in these activities differ. But all persons do not work. Some persons own either land or capital or in some cases both. In the agricultural sector, a section of population owns land. These persons can either cultivate land or give it to others who pay rent. In the first case, that is, if land is tilled by the owner, the person's income is partly a reward for his labour and partly a reward for the services of land. The owner of capital earns interest. A person can lend his capital to others and earn interest, or he may invest it in his business where part of the income of the firm will be due to the services of the capital. Entrepreneurs bear risk and perform some organisational functions for which they are rewarded in the form of profit.

Incomes of a large number of people are not from one source only. Some people get salary for the work which they do in offices and also earn interest on their bank deposits and dividend on their investments in shares. Others earn income from agriculture and by working in informal sector when there is no work to be done on farms. These are some of the examples to underline the fact that a person can receive income in more than one form. In examining personal distribution, we are not concerned with the source or with the form of income. Our interest is confined only to the size distribution of income. Thus in this case, we analyze as to why income inequalities exist and is there something which can be done to make rich a little less rich and poor a little less poor.

18.2.2 Functional Distribution

Functional distribution refers to the mechanism whereby different factors are rewarded for the services they render to the productive process. We have stated earlier that wages are paid to labour, rent to owners of land, interest to owners of capital and profit to entrepreneurs. **In functional distribution, an attempt is made to examine how are wages, rent, interest and profit determined.** In this respect, it is necessary to state that there is no theory which could explain determination of the rewards of all the factors of production in an equally satisfactory manner. According to modern economists, rent, wages, interest and profit are the prices for the services rendered by land, labour, capital and enterprises respectively in the production process. They assert the problem of functional distribution in essence of the problem of factor pricing. The dichotomy between 'Commodity pricing' and 'Factor pricing' is, therefore, no longer recognized. It is now contended that the same principles which determine commodity prices go to determine prices of various factors of production. Having taken this position they consider pricing of factors of production as part of the price theory.

Check Your Progress A

1) Distinguish between the Personal distribution and the Functional distribution

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2) State whether the following statements are **True** or **False.**

   i) Production is carried out separately by land, labour, capital and enterprise.....

   ii) When one is primarily concerned with the size distribution of income, he is…….. examining personal distribution.

iii) Under functional distribution, the primary concern is with respect to determination of rewards for the services rendered by various factors of production.……..

iv) Profit is earned by the capitalists for the services of capital in the production process. ……..

v) Rent is paid to the entrepreneur for lending the money.

vi) Why do income inequalities exist is examined under personal distribution... ……..

vii) The same principles explain both pricing of commodities and pricing offactors of production.

3 Fill in the blanks:

i) Rent is earned by the landlord for the services of ……..

ii) ..... is paid to the capitalists for the services of capital.

iii) ..... earns profit for risk bearing.

iv) Workers earn ..... for the functions performed by them in production process.

v) In examining ……..we are concerned with size and distribution of income.

vi) In examining……..we are concerned with the form of distribution.

18.3 THE CLASSICAL THEORY OF DISTRIBUTION

The earliest systematic discussion on distribution of income is found in the writings of the classical economists. Adam Smith and Ricardo were the most prominent economists of the classical school. These economists attempted to explain the prices of products in terms of so-called "Natural rates" of reward for labour, land and capital. These natural rates of reward were explained by special theories. Interestingly, even the leading classical economists did not wholly agree among themselves in explaining rent, wages, interest and profit and in some cases their differences were on substantial points. We shall confine here only to what are considered the representative theories of the classical school. For explaining rent Ricardo's theory is considered most authentic. There are two theories to explain wages. Adam Smith and David Ricardo developed the Subsistence Wage Theory. Some other classical economists, including J.S. Mill advocated the Wages-Fund Theory for explaining wage rates. Interest has been explained in terms of demand for and the supply of savings. Although the classical economists used the concept of profit in their writings, they failed to develop a consistent theory of profit.

18.3.1 Rent

As stated above on rent, the most authentic theory in the classical framework has been provided by David Ricardo who is considered one of the foremost

economists of the classical school. According to Ricardo, **Rent is that portion of the produce of earth which is paid to the landlord for the original and indestructible powers of the soil.** In his opinion, rent is not earned by the landlord by making certain improvements on land. It is a surplus left after the costs of cultivation as represented by payments to labour and capital have been met.

In developing his theory of rent, Ricardo relied on deductive reasoning. In his opinion, man must have cultivated the superior most quality land first, and until such a land was available rent could not arise. But in any country the best quality land cannot be available in unlimited quantity. Its supply exhausts with the increase in population. As population grows and the demand for food grains increases, people are compelled to bring the second best quality land under cultivation. Obviously, the production on this land which is now marginal land willnot be as much as on the best quality land. According to Ricardo, on the marginal land there cannot be any rent. Since the supply of this land is still abundant, the question of paying rent on this land does not arise. However, rent emerges due to the excess production on the best quality of land as compared to the marginal land. It will be equal to the surplus production on superior lands over and above the production on marginal land. In this sense Ricardo viewed, **Rent as a differential surplus that some plots of land earn over and above the least fertile land under cultivation.** You will learn more about this theory of rent in forthcoming Unit.

18.3.2 Wages

As mentioned earlier, the classical economists had developed two different theories of wage determination. Adam Smith and David Ricardo are considered the chief exponents of the Subsistence Wage Theory. T.R. Malthus and J.S. Mill propounded the Wages Fund Theory. Let us discuss them briefly.

The Subsistence Wage theory determination assumes that labour is purchased and sold in the market like any other commodity and its value is determined like the values of other commodities. Since the classical economists argue that in the long run the value of any commodity is equal to its production cost, therefore the value of labour should also be equal to the cost of producing it, which in essence is the amount required for maintaining the worker and his dependents at the subsistence level. The Subsistence Wage theory asserts that workers in the long run earn only the subsistence wage irrespective of their productivity levels. In the short run, however, actual wage rate can be at variance from the subsistence wage, but in the long run through adjustments in the supply of labour the actual wage rate will tend to be equal to the subsistence wage. Ricardo was of the view that the subsistence level of wages will be rigidly fixed for all times.

J.S. Mill had propounded the Wages Fund theory in most cogent form. According to him, **Wage rate depends on ratio of workforce to the amount of working capital which is meant to be spent directly on the purchase of labour.** The Wages fund, that is, the amount of working capital

provided for obtaining the services of labour is not in practice any fund set aside for paying the wages. The producers only have an estimate of it in their minds. The aggregate of these individual producers' estimates make the national estimate of wages fund which ordinarily remains fixed over times. Therefore, any change in the wage rate that may occur will be due to a change in the number of workers willing to work for wages. The Wages Fund theory does not suggest that in the long run wage rate should remain stable at a certain level. It admits that over time wage rate may rise either due to an increase in the wages fund resulting from higher savings or the decrease in the workforce. The possibility of both the factors operating simultaneously also exists.

18.3.3 Interest

J.S. Mill is the chief exponent of the classical theory of interest. In his opinion, **the Rate of Interest is determined by the interaction of demand for and the supply of capital.** He remarked that "the rate of interest ... depends essentially and permanently on the comparative amount of real capital offered and demanded in the way of loan", and thus "fluctuations in the rate of interest arise from variations either in the demand for loans or in the supply"

The classical theory of interest suggests that the source of supply of capital is that part of income which is withheld from consumption. This is called **Saving.** In the classical theory, saving is functionally related to interest and varies directly with it. The demand for capital is made for investment purposes only and is interest elastic. It implies that the demand for capital rises as the rate of interest decreases and it diminishes with the rise in the rate of interest. To be brief, the demand for capital varies inversely with rate of interest. The demand for and supply of capital are equal at a rate of interest which is obtained by the intersection of the demand and supply schedules.

18.3.4 Profit

The classical economists did not provide any coherent theory of profit. It was difficult for them because they had relied on labour theory of value for explaining the values of commodities. According to this theory, **the value of a commodity depends on the amount of labour embodied in it.** This might have been true in the earlier societies, when labour was the sole producer of commodities. Even in his times, Adam Smith noted that employers used their own capital along with the hired labour for producing commodities. He, therefore argued that when goods are sold they must fetch not only enough to cover the wages of workers but they must also bring in something by way of profit for their employers. Smith did not believe that profits may be a special type of wages, the reward for labour of inspection or supervision. In his opinion, profits bear relation to only the size of the capital stock of the employers. Ricardo, who also relied on labour theory of value, failed to explain adequately the origin of capitalist's profit. He argued that the value of commodities depends on both present and past labour. In this way, he incorporated capital into his system and found an explanation for profit.

To sum up, the classical theories which explain rent, wages, interest, and profit provide some insight into the distribution process but they are not entirely correct and, therefore, have been abandoned. Modern economists now assert that land alone does not earn rent. It can accrue to any factor of production. This approach you will learn later in subsequent Unit. Wages are determined neither by the subsistence level of workers nor by the wages fund. It is the marginal productivity of workers that decisively determines the wage rate. Since neither the saving, nor investment are interest elastic, the basic premise of the classical theory of interest is incorrect. Finally, the classical theory fails to explain why profits arise.

Check Your Progress B

1) Define Subsistence wages.

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2) Distinguish between Rent and Interest.

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3) State whether the following statements are **True** or **False.**

   i) According to Ricardo, rent is paid to landlord for the improved fertility of the land.

   ii) Marginal land is the least efficient land under cultivation.

   iii) Rent is earned by all types of land including the marginal land.

   iv) According to Subsistence wage theory, workers get wages that are enough to enable them to exist.

   v) The Wages fund theory was propounded by Adam Smith.

   vi) In the classical theory of interest, saving is assumed to be interest elastic.

   vii) Investment varies inversely with rate of interest.

4) Fill in the blanks.

   i) ……and ……were the most prominent economists of the classical school.

   ii) Ricardo's theory of rent is based on …….reasoning.

iii) The classical theory explains interest in terms of ..... for and..... of savings.

iv) In the ..... run, the actual wage rate can be at variance from the subsistence wage.

v) The Wages fund theory does not suggest that in the ……. run, wage rate should remain stable at a certain level.

vi) The classical economists did not provide any coherent theory of…….

vii) According to Adam Smith, employers earned profits due to .... used by them.

18.4 THE MARGINAL PRODUCTIVITY THEORY

Karl Marx and some other socialist thinkers were of the view that in a capitalist system, labour was not paid all that it produced. The surplus was retained by the capitalist and it constituted his profit. This was such an indictment of capitalism that the system looked unethical. Some economists did not agree with Marx and attempted to prove that in a capitalistic system of production there was no exploitation of workers. In doing so they developed the Marginal Productivity Theory of Distribution in the particular context of wage and labour. Later on, this theory was used to explain the determination of rewards to other factors of production also. Among the exponents of the Marginal Productivity Theory, J.B. Clark was the foremost. In The **Distribution of Wealth,** he attempted to identify the objective basis of distribution and in the process he developed the marginal productivity theory of distribution. Later on, Jevons, Wicksteed, Walras and Marshall also made their contributions by way of making certain refinements in this theory. It is, however, to be noted that whereas for J.B. Clark, the marginal productivity theory is essentially a theory of distribution, for Marshall it is a theory of demand for the factors of production.

18.4.1 Concepts of Productivity

It is necessary for you to learn certain concepts of productivity before the marginal productivity theory is explained to you. These concepts are as follows:

1) **Average physical productivity (APP):** The output in any productive activity is always in the form of physical units. For example, in agriculture the output of wheat may be measured in quintals, in a readymade garments factory, shirts and trousers are measured in units. You know that production is carried out jointly by land, labour, capital and enterprise. Let us suppose that it is possible for us to separate the contribution of all the units of a factor from joint output. In this case, average physical productivity of this factor i.e. labour will be found by dividing the total output due to labour by total number of units of labour. This may be written as follows:

$$\text{APP of labour} = \frac{\text{Total output due to labour}}{\text{Total no.of units of labour}}$$

You have learnt the concept of average physical productivity in previous unit. There it has been explained that the shape of APP curve is like inverted 'U'.

2) **Marginal physical productivity (MPP):** You have learnt the concept of marginal physical productivity in previous unit. Here it will suffice to say that keeping quantities of other factors of production as constant, if a variable factor, which is labour in this case, is increased by one unit, the addition to total production that takes place is its marginal physical productivity. We can express the marginal physical productivity of the n^{th} unit of labour as follows:

$MPP_n = TPP_n - TPP_{(n-1)}$

In the equation, MPP_n is the marginal physical productivity of the n^{th} unit of labour. TPP_n is the total productivity of n units and $TPP_{(n-1)}$ is the total productivity of (n-1) units. Earlier, it has been explained that the shape of MPP curve is like inverted 'U'. Further, it intersects APP curve at its highest point. This has been shown in Figure 18.1.

Figure 18.1 :Average and Marginal Physical Productivity

3 **Average revenue productivity (ARP):** Since factors of production are paid in the form of money, it is far more useful to know the money value of the productivity of a factor. Average revenue productivity of a factor refers to the money value of the average physical productivity. For knowing average revenue productivity of a factor, its average physical productivity has to be multiplied by the price of the product. We can express this as follows:

$ARP = APP \times P$

Where,

ARP= Average revenue productivity,

APP = Average physical productivity, and

P= Price of the product.

Average revenue productivity curve is an exact replica of average physical productivity curve.

4 **Marginal revenue productivity (MRP):** From the point of view of the determination of the price of a particular factor, the concept of marginal revenue productivity is far more useful than the concept of the marginal physical productivity. In order to find the marginal revenue productivity of a factor, say labour, one has to multiply the marginal physical productivity by the marginal revenue of the product. This may be expressed as follows:

$MRP_n = MPP_n \times MR$

Where,

MRP_n = Marginal revenue productivity of the nth unit of labour,

MPP = Marginal physical productivity of the nth unit of labour, and

MR = Marginal revenue of the product.

Under perfect competition since marginal revenue is always equal to the price, in order to find MRP one can multiply MPP by the price also. The marginal revenue productivity curve under perfect competition is exact replica of marginal physical productivity curve. Under monopoly it has the same shape, but is far steeper than MPP curve. This is so because under monopoly not only marginal revenue remains lower than price, but it also shows a tendency to decline as the sales of the product increase.

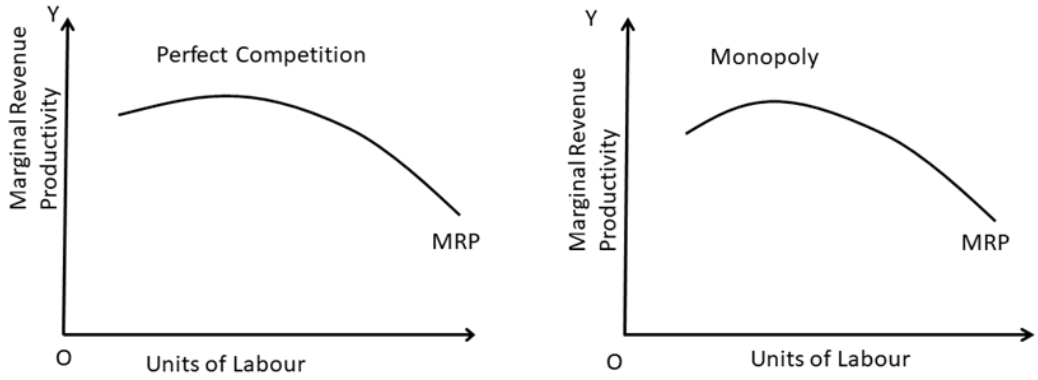

Figure 18.2: Marginal Revenue Productivity Curve under PerfectCompetition and Monopoly

5 **Value of marginal physical product (VMPP):** Value of marginal physical product refers to the value one gets by multiplying the marginal

physical productivity by the price of the product. This may be expressed as follows:

VMPP = MPP ×P

Where,

VMPP= Value of marginal physical product,

MPP= Marginal physical productivity, and

P= Price of the product.

Under perfect competition since marginal revenue is equal to price, MRP and VMPP are equal. However, under monopoly because marginal revenue is lower than price, MRP is lower than VMPP.

18.4.2 Statement of the Marginal Productivity Theory

There are two versions of the marginal productivity theory. According to the J.B Clark's version of the theory, reward to a factor of production for its services is determined by the marginal revenue productivity of that factor. Alfred Marshall takes a somewhat different view. He states that the marginal revenue productivity of a factor reveals the demand for that factor. This demand together with the supply of the factor determine the factor price which in a perfectly competitive market is naturally equal to the marginal revenue productivity of the factor.

You have learnt earlier that buyers make a demand for commodities because they have utility. They do not mind paying for these commodities as they possess want satisfying power in the form of utility. Factors of production are not directly useful in the sense that they do not have want satisfying power. However, their importance lies in their usefulness in production. Hence, the demand for a factor of production depends on its productivity. It is thus clear that in contrast to the demand for consumer goods which is direct, demand for a factor of production is derived and depends on the demand for those goods in the production of which it will be used.

It is clear that productivity is relevant for determining the reward to a factor of production. Another aspect that has to be explained is as to why the producer attempts to equalize the factor price with the marginal revenue productivity only. Since now almost all economies are totally monetized implying that factors of production are remunerated in money only, the concepts of average physical productivity and marginal physical productivity are not directly relevant. Now, we are left with three concepts, viz., Average revenue productivity, Marginal revenue productivity and Value of marginal physical product. Out of these three measures of productivity, the producer attaches importance to marginal revenue productivity only.

The principal objective of all producers is to maximize their profits. In order to realize this objective, the producer must equalize the reward to a factor with the marginal revenue productivity. This condition is valid for all market conditions. However, in case of a perfectly competitive product market, the

value of marginal physical product will be the same as the marginal revenue productivity. Further in a perfectly competitive factor market, the reward to a factor will be equal to marginal revenue productivity as well as average revenue productivity. This has been shown in Figure 18.3.

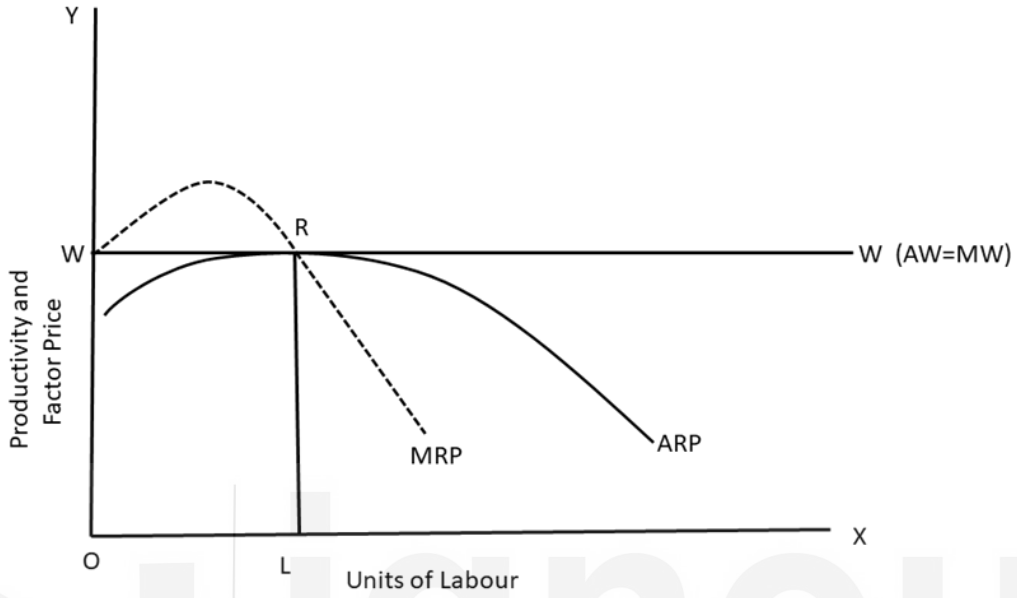

Figure 18.3: Factor Price, that is, wage rate equals MRP and also ARP

It can be seen in Figure 18.3 that if the factor in question is labour, then the wage rate OW, determined by the interaction of demand for and supply of labour equals both marginal revenue productivity and average revenue productivity. In case the producer does not follow the rule of equalizing marginal revenue productivity of a factor with its price, he cannot maximize his profits.

Broadly, marginal productivity theory is correct as a factor's reward normally cannot be greater or less than its marginal revenue productivity. However, the marginal productivity theory is based on a number of assumptions which need to be stated to understand the implications of the theory.

18.4.3 Assumptions of the Marginal Productivity Theory

The marginal productivity theory is based on the following assumptions:

1 Perfect competition is assumed to be prevalent in the factor markets. Suppose the factor of production that we are considering is labour. It is assumed that in the market for labour, the number of buyers and sellers is so much that the wage rate cannot be influenced by any one of them single handed. Moreover, labour is assumed to be both homogeneous and mobile.

2 The commodity produced by the concerned factor of production is assumed to be selling in a perfectly competitive market.

3 The theory assumes that the various factors of production can be combined in different proportions in the process of production. This means that it is possible to carry out production by varying the quantity

of one factor of production whereas the quantities of other factors of production remain constant.

4 The production takes place in accordance with the law of variable proportions, implying that in the final stage it is the law of diminishing returns which operates.

5 The theory assumes full employment in the economy which implies that all factor units are employed. Thus, it connotes that no factor units will be willing to work at any price/reward which is less than the prevailing market price.

18.4.4 Reward to a Factor and Factor Employment in a Firm

We have stated earlier in this Unit that a factor of production is useful to a producer on account of its productivity. Therefore, the firm carrying out production makes a demand for a factor of production keeping in view the marginal revenue productivity of that factor. Look at Figure 18.3, where the curve MRP represents the marginal revenue productivity of labour in a particular firm. The downward sloping portion of this curve essentially indicates the firm's demand for labour. From the firm's point of view, the supply of labour is perfectly elastic and it can employ labour in whatever quantity it likes at the prevailing wage rate which is OW. This wage rate as earlier pointed out is determined by the forces of demand and supply in the labour market. In a perfectly competitive labour market, neither the firm employing labour nor any worker offering his services can influence this wage rate by exercising any influence either on the demand for or supply of labour. In this situation, every firm employing labour is a wage-taker and faces the supply curve of labour as shown by WW in Figure 18.3. Since the supply curve of labour is perfectly elastic, not only the average wage and the marginal wage are equal but they are also constant throughout.

Since a firm carries out production in order to earn maximum possible profit, it expands its production upto a point where marginal revenue productivity of a factor becomes equal to the marginal factor price. In our illustration, labour is the variable factor. Hence, the firm decides to employ labour upto such a point that the marginal revenue productivity of labour becomes equal to marginal wage. In Figure 18.3, the firm reaches this stage when it employs labour in OL quantity. By employing less of labour than OL and carrying out production will mean loss of some profit that the firm could earn. Similarly, employing labour in quantity larger than OL will result in some unavoidable loss because beyond OL marginal revenue productivity is less than the marginal wage. Thus we generalize that the firm would be in equilibrium only if it employs the labour (variable factor) in such a quantity that its marginal revenue productivity becomes equal to marginal wage which in a perfectly competitive labour market is the same as average wage.

In Figure 18.3, you will observe that not only marginal revenue productivity of labour is equal to a marginal wage but the two are also equal to average revenue productivity and average wage. In this situation, the firm neither appropriates any surplus nor suffers any loss. Hence, neither new firms feel

induced to join the industry, nor any of the old firms feel any compulsion to leave it. The industry is thus in equilibrium.

18.5 CRITICAL ANALYSIS OF MARGINAL PRODUCTIVITY THEORY

The marginal productivity theory does not offer an entirely satisfactory explanation of distribution. It has been criticized on the following grounds:

1 **Factors of production are not always divisible:** Marginal productivity of a factor of production can be estimated only when a factor of production should be divisible or variable in small quantity. In practice, however, this is not always possible. How do we measure the marginal productivity of large steel plants which are neither variable in small quantity nor divisible.

Therefore, measurement of marginal productivity of capital equipment in most cases is extremely difficult.

2 **Factor proportions in most modern industries are not variable:** In modern industries now sophisticated technology has been introduced, and as a result labour and capital are employed in some fixed ratios. Producers think that these factor proportions cannot be changed. This is a situation in which marginal productivity of a factor cannot be measured.

3 **Marginal productivity of capital and enterprise is not measurable:** In the production process, capital acquires the form of capital equipment and in capital equipment, technology on which productivity of labour greatly depends is embodied. This is such a complex situation in which the available methods of estimated marginal productivity of capital cannot be measured. Further interest is earned by the lender of the funds. Does it imply that money lending is a productive activity, and in case this is true, then how is money lending related to the productive activity of machinery, plant and other capital equipment is a riddle which the marginal productivity theory has failed to resolve. The problem with respect to enterprise is still more difficult to overcome because its units cannot be identified clearly. Further like land, labour, capital and enterprise is not a variable factor which completely rules out the measurement of the marginal productivity of enterprise.

4 **Unrealistic assumptions:** The assumption of perfect competition is highly unrealistic, because it is not met either in factor markets or commodity markets. In the real world, imperfect competition prevails and it is possible for the employer to hire factors of production for a remuneration which is lower than the marginal productivity. This is the basis of exploitation in a capitalist society operating at a level of less than full employment.

5 **The marginal productivity theory does not explain distribution:** The marginal productivity theory does not explain how rewards to different factors of production are determined. It merely explains the demand for a

factor of production and then acknowledges the fact that reward to a particular factor of production is determined by its demand and supply. Having known the factor price, the firm employs a factor upto a point where its reward is equal to its marginal revenue productivity. Hence, the marginal productivity theory cannot be accepted since it is based on highly questionable assumptions.

Check Your Progress C

1 Differentiate between Average physical productivity and Marginal physical productivity.

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2 What do you mean by Marginal revenue productivity.

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3 State whether the following statements are **True** or **False.**

i) Reward to a factor is equal to its marginal revenue productivity…….

ii) Marginal productivity curve reflects the supply of the factor concerned.……

iii) The marginal productivity theory assumes perfect competition in factor market.…….

iv) The marginal productivity theory assumes imperfect competition in the product market.…….

v) The marginal productivity theory assumes fixed factor proportions in production.…….

4 Fill in the blanks.

i) On dividing total output due to labour by the total number of units of labour one get saverage .....productivity of labour.

ii) For knowing average revenue productivity, average physical productivity is to be multiplied by the ..... of the product.

iii) On multiplying the marginal physical productivity by the price of the product one gets .....

iv) The prevailing factor price is equilibrium factor price if it is equal to..... of the factor.

v) Under .... marginal revenue productivity of a factor is equal to value of its marginal physical product.

18.6 LET US SUM UP

The income distribution is examined in two ways. One way to examine it is to study as to how the national income has been shared by the people. This is called personal distribution. The other way to examine it is to study as to how different factors of production have been rewarded. This is called functional distribution.

The earliest systematic discussion on distribution of income is found in the writings of the classical economists. They, however, did not provide a general theory which could explain rewards to all factors. They developed specific theories for different factors of production. The theory of rent was developed by Ricardo who stated that it is paid to the landlord for the original and indestructible powers of the soil. There are two theories of wages, the subsistence theory of wages states that wages are fixed at the subsistence level of workers. The wages fund theory states that wages are determined by the amount of wages fund and the supply of labour. Interest, according to the classical economists, is determined by the demand for and supply of capital. Profit is also earned by the capitalists. These theories now do not find any supporters.

The marginal productivity theory developed by J.B. Clark and others suggests that reward to each of the four factors of production is determined by its marginal revenue productivity. When remuneration to a factor is equal to both marginal and average revenue productivity and also marginal factor price then both the firm which employs the factor of production and the industry to which the firm belongs are considered to be in equilibrium.

The marginal productivity theory is based on highly questionable assumptions which undermine its validity. Further, marginal productivity theory explains the demand for a factor rather than its price. The reward to a factor is determined by the demand for and the supply of the factor of production in question.

18.7 KEY WORDS

Average Physical Productivity: Per unit productivity of a factor of production measured in physical units of the product.

Average Revenue Productivity: Per unit productivity of a factor of production measured in money value of the product.

Factor Price: Reward to a unit of a factor of production expressed in money terms.

Functional Distribution: Distribution of income among the various factors in accordance with the services rendered by them.

Interest Elasticity: Responsiveness to changes in interest rate.

Marginal Land: Inferior most land whose value of output can just recover the cost of cultivation.

Marginal Physical Productivity: Addition to total output due to an additional unit of a variable factor.

Marginal Revenue Productivity: Value obtained by multiplying marginal physical productivity by the marginal revenue.

Personal Distribution: Distribution of the national income among the people.

Rent: Reward to landlord for the services of land.

Subsistence Wage: Wage rate which is sufficient only for subsistence living.

Value of Marginal Physical Product: Value obtained by multiplying marginal physical productivity by the price.

Variable Factor Proportions: Proportions in which various factors of production are employed having scope for changes.

18.8 ANSWERS TO CHECK YOUR PROGRESS

Check your progress A

2 (i) False (ii) True (iii) True (iv) False (v) False (vi) True (vii) True

3 (i) Land (ii) Interest (iii) Entrepreneur (iv) Wages

(v) Personal distribution (vi) Functional distribution

Check your progress B

3 (i) False (ii) True (iii) False (iv) True (v) False (vi) True (vii) True

4 (i) Adam Smith, Ricardo (ii) Deductive (iii) Demand, Supply (iv) Short (v) Long (vi) Profit (vii) Capital.

Check your progress C

3 (i) True (ii) False (iii) True (iv) False (v) False

4 (i) Physical (ii) Price (iii) Value of marginal physical product

(iv) Marginal revenue productivity (v) Perfect competition.

18.9 TERMINAL QUESTIONS

1 Define functional distribution and distinguish it from personal distribution.

2 How did classical economists explain distribution of income among various factors of production?

3 Distinguish between interest and profit. Is it not correct to say that both are earned by the capitalists for the capital they invest in the production process?

4 How did classical economists explain determination of wages?

5 Explain the marginal productivity theory of distribution. Also state its assumptions. Why is the marginal productivity theory not considered a satisfactory theory of distribution?

Note: These questions will help you to understand the unit better. Try to write answers for them. But do not send answers to the University. These are for your practice only.

UNIT 19 DISTRIBUTION OF INCOME-I : WAGES AND INTEREST

Structure

19.0 OBJECTIVES

After studying this unit you should be able to:

- distinguish between competitive and non-competitive wages
- explain the significance of collective bargaining for the workers
- describe the functions of interest
- state the difference between nominal and real rates of interest
- discuss the various approaches of determination of rate of interest.

19.1 INTRODUCTION

In our day-to-day life, we quite often use the words wages and interest. In economics, these words have a definite meaning. In this unit you will learn in detail about wages. You will also learn the significance of collective bargaining in the determination of wages. Collective bargaining has least importance in case of competitive labour market. In such cases the wage rate is equal to the marginal productivity of labour. You will be also acquainted with the influence of interest rates on the allocation of funds and relevance of real interest rates in the decision-making process.

19.2 WAGES

The term 'wages' refers to the amount of remuneration paid to workers in return for the labour which they contribute in production. Payment of wages to workers may be either in the form of money or in kind. Sometimes workers are self-employed and carry out production according to their own plans. In all such cases their wages are not easily distinguishable from their profits.

Money wage and Real wage

Economists often talk of money wage and real wage. The concept of money wage is simple. It refers to the amount of money paid to the worker by the employer for the services rendered by him in production. The concept of real wage is wider. It refers to the amount of goods and services which a worker can obtain for his money wage plus the incidental benefits which he enjoys from the job. No doubt workers care a lot for their money wages but from the point of view of their living standard, their real wages are far more relevant.

Determination of wages

Wages in traditional societies were customarily determined and were just sufficient for subsistence living. In modern market economies, wages are determined by interaction of demand for, and supply of labour. You might have observed that now-a-days wage rates differ widely. A mechanical engineer may earn Rs. 1,60,000 per month whereas a clerk earns Rs. 60,000 and an unskilled worker gets Rs. 20,000. These wage differentials are important and any theory of wages must explain them. You must be knowing that wages are higher in the USA than for the same type of labour in Italy, and they are higher in Italy than in India. This implies that the general wage level is higher in some countries than in others. This is because in certain countries natural resources and capital are available in abundant quantity and the technology is superior. These factors favorably affect the productivity of labour which obviously has a bearing on the wages of workers. The productivity of labour is lower in all those countries which are not richly endowed with natural resources and capital and are also poor in technical know-how. As a result, the general wage level is lower in these countries. But the labour is not homogeneous in any country, and, therefore, there exist separate markets for different types of labour in which different wages are determined.

Labour markets are broadly of two types: (1) competitive, and (2) non-competitive. In the absence of a trade union, the labour market may be competitive provided services of workers are demanded by a large number of small firms. The presence of trade unions who bargain for wages on behalf of workers and a very small number of employers who often collude against them make labour market non-competitive. Wages are never the same in competitive and non-competitive labour markets.

19.2.1 Competitive Wages

Competitive wages refer to return to labour in a competitive labour market for its services. Such a market for labour normally does not exist. Theoretically, the concept of competitive labour market assumes that labour is homogeneous and is provided by a large number of workers competing among themselves for getting employment. Similarly, the employers asking for the services of workers are so many that no one individually can affect the wage rate by his behaviour. In a competitive labour market whereas the workers attempt to secure as much wages as possible for them, the employers try to pay as low wages as possible for them. The wage rate that will actually be determined will depend on the demand for, and supply of labour.

The demand for labour is derived demand and depends on its usefulness in production which in concrete form gets reflected in its marginal revenue productivity. As you have already learnt in Unit 17 that eventually it is the law of diminishing returns that operates in production, the marginal revenue product of a factor of production declines as more of its units are employed. This implies that after a certain point, the marginal revenue product curve for labour will have a downward slope from left to right, and this segment of the marginal revenue product curve will actively be the demand curve for labour. Therefore, the demand curve for labour will have a negative slope. Look at Figure 19.1 where DD is the demand curve for labour.

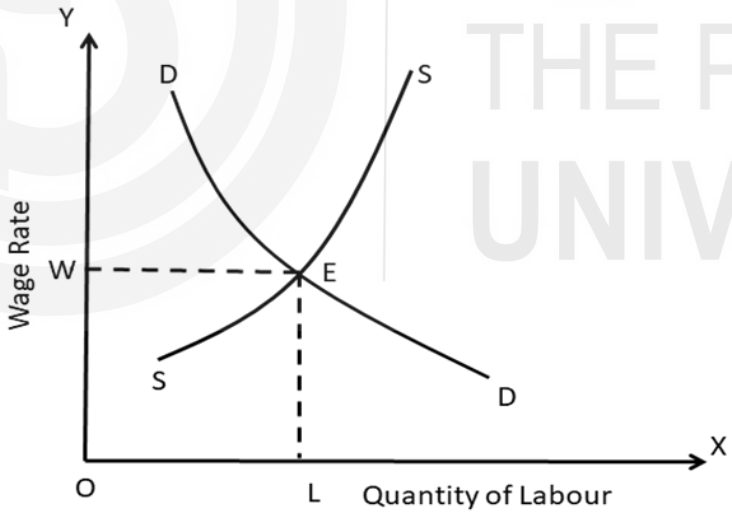

Figure 19.1 : Competitive Wage Rate

The supply of labour will be more at higher wages and less at lower wages. There are two reasons for this.

First, at lower wages only some workers will be willing to offer their labour. As wages rise more and more fresh workers will be willing to provide their labour.

Second, at higher wages some of the workers who were willing to work at lower wages might agree to work for longer hours. Therefore, in response to increase in wages supply of labour shows a tendency to increase.

But this should not be taken as an unqualified statement, because it has been observed that after reaching a certain level of wage rate, workers prefer leisure to more income and, therefore, the supply curve of labour has a backward slope. But for our present discussion we shall consider the supply curve of labour as shown in Figure 19.1. You will observe that no segment of the supply curve of labour SS has a backward slope.

In Figure 19.1, the demand for labour equals its supply at the wage rate OW. Workers, if competition is perfect in labour market, cannot compel employers to pay wages higher than OW and employers cannot force workers to accept wages lower than this. This is a competitive wage rate and is equal to the marginal revenue productivity of the labour. The competitive wage rate need not fall to minimum subsistence level if the country is well endowed with natural resources, capital and technical know-how. In a backward country, deficient in these resources competitive wage rate will be lower due to lower marginal productivity of labour and one should not be surprised if it actually falls to minimum subsistence level.

Let us now turn from the problem of wage rate in general and investigate the causes of differentials in competitive wage.

Some wage differentials are simply to compensate for the non-monetary differences in wages among jobs. Some jobs involve nerve strain, tiresome responsibility, seasonal lay-off, irregular job, short working life, dull training and lower social prestige. Naturally for these jobs wages may be somewhat higher so as to make them as attractive as other jobs. These are called 'equalizing differences'. Some other wage differentials are due to differences in the quality of labour. The work of a civil engineer is not the same as that of a mason or an unskilled labourer. Therefore, markets for their services are separate and non-competing and the wages determined for their work will be different.

Perhaps you are aware of this fact that in reality there does not exist a single market for labour as a group. There are as many markets for labour as there are the kinds of labour. In each of these labour markets competition may be perfect but on account of the non-competing nature of these groups, wage rate determined in one will be different from those in others.

19.2.2 Non-Competitive Wages

Real world labour markets are generally non-competitive. It is not always easy to grade labour into neat market categories. Only in cases when some labour is very specific, there may be a completely separate market for it. Otherwise in most cases, markets for various types of labour overlap and this introduces an element of imperfection in it.

Markets for particular types of labour may also be imperfect due to ignorance and immobility of labour.

But the more important reasons for imperfections in labour markets are collective bargaining by the trade unions on behalf of workers, wage policies of particular firms and the small number of employers. Now trade unions

exist in almost all countries and they bargain on behalf of workers with the employers for both service conditions and wage rate. Their intervention in the labour market eliminates the element of competition from it and thus influences the process of wage determination in a crucial manner. You will learn more about collective bargaining and its bearing on the wage determination in the next section of this unit.

Wages are sometimes sticky. They do not fall even when the demand for labour diminishes due to a decline in economic activity. This happens either due to the wage policy of the firm which employs labour or due to the resistance from the workers.

Lastly, with the growth in the size of industrial units, the number of employers for each kind of labour has become very much restricted and this has undermined the element of competition. So whatever be the reasons for imperfections in the labour market, the wage rate determined in it is generally at variance with the marginal productivity of labour.

Check Your Progress A

1 Distinguish between competitive and non-competitive labour market.

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2 What is the main distinction between competitive wage and non-competitive wages.

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3 State whether the following statements are **True** or **False**

i) Wages are always paid to workers in the form of money.

ii) From the point of view of the workers' living standards. real wage relevant than money wages.

iii) Wages in a competitive labour market are just sufficient for subsistence living.

iv) Trade union is an organization of traders.

v) Workers' marginal productivity has a bearing on their wage rate.

vi) Demand curve for the labour has a positive slope.

vii) That segment of the marginal revenue product curve of labour which slopes downwards from left to right indicates the demand for labour.

viii) Wage rate is determined by the demand for, and supply of labour.

4 Fill in the blanks.

i) Real world labour markets are generally ……...

ii) If all labour were homogeneous, competitive wage differentials could be explained as .....differences.

iii) Supply curve of labour has a .....slope.

iv) When workers value leisure more than increased income, the supply curve of labour has a ..... slope.

v) Wages in India are lower than in the USA because the productivity of labour is..... in the former.

vi) Presence of a trade union undermines ..... in labour market.

vii) If there is just one employer, the labour market will be .....

viii) Workers belonging to non-competitive groups get .....wages.

19.3 COLLECTIVE BARGAINING AND WAGES

The bargaining power of workers is weaker as compared to employers for various reasons. Employers can pay wages to workers which are less than their marginal revenue productivity. This actually amounts to exploitation of workers. Workers are now conscious of their exploitation by the employers and want to prevent it. In order to achieve this objective, they organize themselves into trade unions which do collective bargaining with the employers on their behalf.

19.3.1 Trade Unions and Collective Bargaining

Trade Unions are organizations of workers. Their membership is always voluntary,Workers join a trade union with the expectation that when it bargains with the employers on such behalf, it gets higher wages for their services. Trade unions often enjoy statutory recognition and thus have a legitimate right to negotiate with the employers or even fight with them in order to protect the interests of the workers.

Maurice Dobb has very rightly remarked, "Trade unions are essentially the product of a capitalist wage system in that they represent the obvious line of defence against the economic weakness, in which propertyless wage-earners find themselves when acting as unorganised individuals".

It is obvious that in the absence of any organization each individual worker will have to bargain separately for his wages, and the employer taking full advantage of this weakness will deny him his legitimate wages. He can, however, overcome this weakness by joining some trade union. Collective bargaining through a trade union definitely improves the bargaining power of the workers and thus they manage to get wages which are certainly higher than those which they might have got if there were no trade unions.

Some economists have, however, failed to appreciate the role of trade unions in securing fair wages for the workers. Assuming that competition in the labour market is perfect, they contend that the wage rate is bound to be equal to the marginal revenue productivity of labour and no trade union whatever be its strength can compel employers to pay wages more than this. Therefore, in their opinion, trade unions have no relevance even for the workers.

But these economists are not right in their assertion because the very assumption on which they base their argument is unrealistic. In reality most labour markets are imperfect. In many cases the employer may be just one firm, and if there are more than one employers, they may collude to force workers to accept wages which are less than their marginal revenue productivity.

Therefore, trade unions have great relevance for the workers and they will continue to exist till the employer-employee relationship that has given rise to them exists.

19.3.2 Collective Bargaining and Wage Increases

Recognizing the fact that when workers bargain collectively through a trade union, they manage to secure higher wages. Let us examine how in practice they can hope to realize this objective. Samuelson has mentioned three methods of raising wages; all are interrelated:

i) trade unions can restrict the supply of labour;

ii) they can force the employer to raise the standard wages, and

iii) they can create conditions whereby the demand curve for labour shifts upward.

1 **Restricting the supply of labour:** Workers' unions often restrict the supply of labour in order to secure higher wages for the members. The common restrictive devices are reduction in working hours, immigration barriers, long periods of apprenticeship, preventing non-union members from holding jobs and slow down of the working pace. Look at Figure 19.2 where the impact of these measures to restrict labour supply on the wage rate has been shown. In this figure the original supply curve of labour is SS and the wage rate determined is OW. A contraction in the supply of labour due to restrictive measures of the trade union shifts the supply curve leftward. The supply curve is now S_1, S_1, and the wage rate determined is OW_1, which is higher than OW.

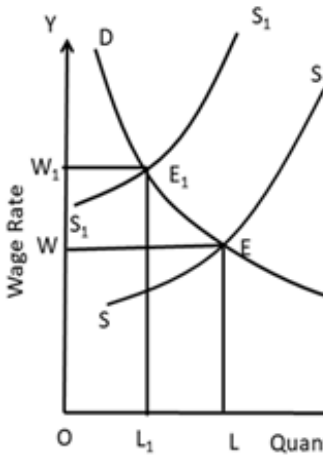

Figure 19.2 : Restricting the supply of labour in order to secure a rise in wages

2 **Raising the standard wage rates:** Sometimes trade unions insist on raising the standard wage rate, but do not object to retrenchment of some workers. In all such cases the employment declines. Look at Figure 19.3 where OW is the original wage rate.

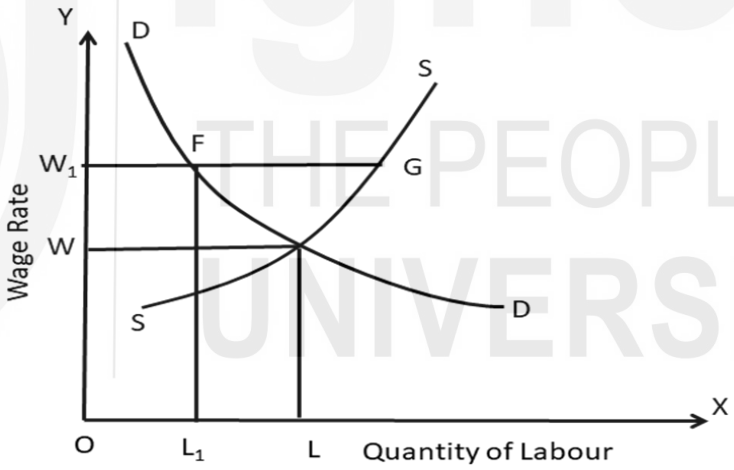

Figure 19.3: Raising the wage rate results in decline in employment

Under pressure if employer raises the wage rate from OW to OW_1 the employment falls from OL to OL_1,

3 **Shifting the demand curve for labour upward:** If workers' unions secure higher wages, the living standards of workers improve. Often this in turn raises their productivity and the demand curve for labour eventually shifts upward stabilizing the wage rate at a higher level.

Figure 19.4 where the demand curve for labour shifts upwards from DD to D_1D_1, and as a result wage rate rises from OW to OW_1,. The role of trade union in this case is that while bargaining for a higher wage, it assures the employer that the productivity of workers will rise and be commensurate with the wage rate.

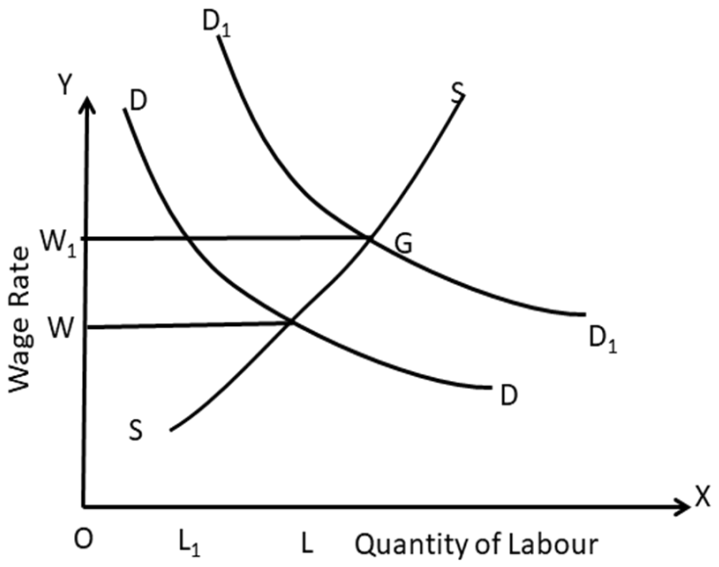

Figure 19.4: Upward shift in the demand curve for Labour cause an increase in the wage rate

19.3.3 Collective Bargaining and Elimination of Exploitation

Monopsony is a situation in which there is just one employer. In such a case average wage (AW) curve rises from left to right because more workers can be employed only at higher wages. The corresponding marginal wage curve (MW) also rises and its upward slope is twice the upward slope of AW. Look at Figure 19.5 where employment has been determined with reference to the point of intersection of the marginal revenue productivity (MRP) curve and the marginal wage curve. Here, employment is OL and the wage rate that is determined is OW. The difference between MRP and AW is the exploitation of labour. The trade union through bargaining can succeed in getting an increase in wage rate until it becomes equal to the MRP of labour. The wage rate can be pushed upto OW_1, where it equals MRP of labour

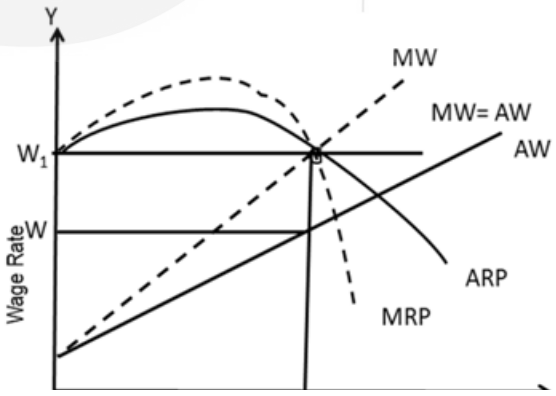

Figure 19.5: Increase in Wage rate under monopsony

When this actually happens the exploitation of workers is fully eliminated. A rise in the wage rate less than WW_1, will eliminate exploitation of workers only partially.

Check Your Progress B

1. What is collective bargaining in labour market.

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2. List three methods of raising wages.

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3. State whether the following statements are **True** or **False.**

   i) The bargaining power of workers is weaker than that of employers.

   ii) Workers are never exploited by employers.

   iii) Workers collectively bargain through trade unions.

   iv) Trade unions are essentially the product of communist social system. .....

   v) By restricting the supply of labour a rise in wage rate can be secured.

   vi) Monopsony is a situation in which there are a few employers of labour.

4. Fill in the blanks.

   i) A trade union is a …….organization of workers.

   ii) If wage rate is .....than the marginal revenue productivity, the trade union shave relevance.

   iii) Under ..... in the absence of a trade union, exploitation of workers is inevitable.

   iv) Wage rate will rise if demand curve for labour shifts …….

   v) Wage rate will rise if the supply curve of labour moves…….

   vi) Forcing employers to raise the standard wage can result in .....

19.4 INTEREST

Interest is a payment for the use of money. If you borrow money from your bank to buy a machine, a shop or a tractor, you will have to pay interest on this money. The lender asks for interest because he is denied the use of his own money until the borrower repays the loan. Let us explain the useful

functions of interest, variations among interest rates and nominal or real interest rate.

19.4.1 Functions of Interest

Interest performs a very useful function in a market economy. In such an economy, producers generally borrow funds for making investments. Unless the economy is passing through the phase of severe depression, the demand for funds for investment purposes will be greater than the supply of funds. The question thus arises is as to who should get the funds and which projects should be allowed to be undertaken with the help of borrowed financial resources. In a market economy, no authority will decide these matters using its own discretion or criterion. The prevailing interest rate will settle these issues. You are perhaps aware that all projects are never equally profitable. Therefore, if the prevailing interest rate is quite high, then only those investors who have very good projects in hand from profitability point of view will borrow funds and will go ahead with their investment plans. At a relatively lower rate of interest, even somewhat less remunerative projects can obtain funds.

It should thus be clear to you that interest rates have a useful role to play in allocation of scarce funds, the merit of this method of funds allocation is that it is always the most remunerative project that gets funds first. Discretion and subjectivity have no place in funds allocation by means of interest rates.

19.4.2 Variations among Interest Rates

So far we have talked of the interest rate, but in real life you will find that at a given point of time there are many rates of interest.

Today, you may get an interest rate of 5.0 per cent on deposits in savings account and 6.5 per cent on fixed deposits for three years made with banks. On fixed deposits made for shorter periods, interest rates are lower. Banks generally charge an interest rate of 16.5 per cent approx. on advances but for a car loan from some of the Banks, you may be required to pay 18.0 per cent. Rates of interest for consumption and production purposes are not the same. Similarly, the rate of interest which a small firm will be required to pay will not be the same which a large firm pays. Rate of interest on bonds issued by the government is generally lower than that on the debentures issued by the private companies. Even the government's different securities do not yield the same rate of interest. For example, the rate of interest of Treasury Bills is always lower than that on the bonds.

Gross interest and Net interest

The quoted rates of interest are actually the gross rates of interest and are more than a ‘rental fee' for the use of money. Strictly speaking ‘rental fee' for the use of money is net rate of interest and is the same for all borrowings. But gross rates of interest include payments for many other purposes apart from net rate of interest. Some loans involve greater risks than others.

For example, the risk element is greater in case of a loan to a small firm with small assets than in case of a loan to the Tata Iron and Steel Co.

Similarly, loans for consumption purposes are riskier than loans for production purposes. In case of lending for short period the risk element in respect of capital value is far less than in cases of long term loans. Obviously the lender wants to be adequately compensated for the risk involved in lending. It is this reason why interest rates are higher on loans given to small borrowers. Similarly, loans given for consumption purposes and for long periods involve higher rates of interest.

Processing of loan and its management involve some costs. These are not the same in respect of all loans. Further getting repayment of loan and periodical payments of interest is not always automatic. Often borrowers have to be sent reminders and when these do not prove to be effective, other methods, including recourse to legal remedy become necessary. This whole exercise involves both costs and inconveniences. Therefore, keeping in view the default probability and the resulting inconvenience and costs from it, the lenders charge the rate of interest. Since the probability of default is not the same in all money lending, the compensation expected for the same also differs and thus the quoted rates of interest vary from each other.

19.4.3 Nominal and Real Rates of Interest

Nominal rate of interest is that percentage return per year which has to be paid on any loan of money. In other words, it is quoted rate of interest and is not influenced by the purchasing power of money. You know that presently you can get 3 per cent per annum approx. as return on your deposits with your bank in the savings account. Similarly, one gets a return of 4.40 per cent per annum approx. on fixed deposits for a period of three years with banks, and a return of 6- 6.5 per cent per annum approx.on fixed deposits for the same period with corporate enterprises. These are all nominal rates of interest. They are important from the point of view of both lenders and borrowers as they influence their decisions to an extent as savers and investors.

However, in an inflationary economy when the general price level rises rapidly the nominal rates of interest lose much relevance. In an inflationary situation only the real rate of interest is relevant. The real rate of interest is arrived at after making adjustment in the nominal rate of interest for the rate of inflation.

Let us suppose, a certain nominal rate of interest is 10 per cent per annum in some country. In this country, in the relevant period the rate of inflation is 8 per cent per annum. The implication of this is that in one year the lender suffers in real terms a capital loss of 8 per cent on the money lent by him. Therefore, though the nominal rate of interest in this case is 10 per cent per annum, in real terms the lender earns about 2 per cent per annum only.

Sometimes, the rate of inflation is higher than the nominal rate of interest. In such a case the real rate of interest becomes negative. If such a situation develops in an economy, then many people do not consider it worthwhile to save and it may have its serious repercussions on the capital stock of the country.

Check Your Progress C

1 List the important functions of interest.

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2 Distinguish between nominal and real rates of interest.

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3 State whether the following statements are **True**or **False.**

i) Interest is a payment for the use of money.

ii) Allocation of scarce funds by means of interest rates is discretionary.

iii) Net rate of interest is the 'rental fee for the use of money.

iv) Risk element differs in different lending's, and this may cause interest rates differentials.

v) "Real rate of interest' is that percentage return which has to be paid on any loan of money.

vi) If rate of inflation is higher than the nominal rate of interest, the real rate of interest will be negative.

19.5 INTEREST AS THE RETURN ON CAPITAL

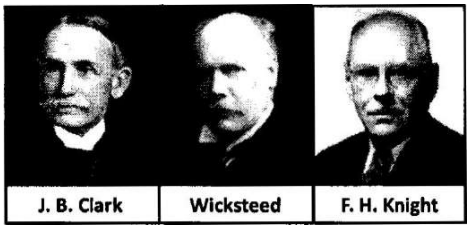
By now we know that interest is paid for the use of money. Since money is borrowed mostly for investment purposes, one can justifiably say that it represents capital and the interest paid for its use is the return on capital. The question now to be answered is as to how the rate of interest, that is, the rate of return on capital is determined. It is not easy to give an entirely satisfactory answer to this question.

Theories of Interest

The theories of interest can be divided into two groups: (1) Real theories, and (2) Monetary theories.

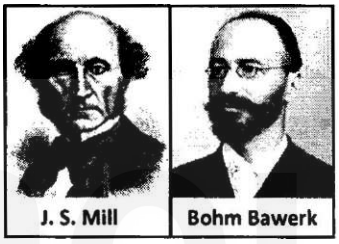
Real theories looked upon interest as the income obtained from capital. These theories attributed interest to real factors like productivity of capital, abstinence, time-preference, etc. Among the real theories, the more important theories are briefly summarised below:

1. ***Marginal Productivity Theory***. The theory, as postulated by J.B. Clark, Wicksteed and F.H. Knight, stated that the rate of interest is determined by the marginal productivity of capital.



The theory put more emphasis on the demand for capital and ignored the supply aspect.

2. ***Psychological Theories.*** These theories attempted to link the rate of interest to the psychological factors that determine the supply of capital.

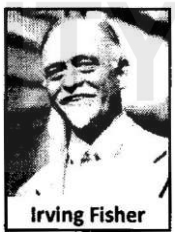


J.S. Mill, **Senior** and others believed that the supply of capital depended on 'abstinence' and that the rate of interest was equal to the amount needed to induce the necessary abstinence on the part of the savers.

BohmBawerk and others had the view that people prefer the present to the future and that the rate of interest measured such 'time preference'.

The psychological theories overemphasised the forces underlying the supply of capital and ignored the role of demand in determination of interest rates.

3. ***Demand-supply Theory***. Irving Fisher and Marshall combined the marginal productivity theory and the psychological theories in an equilibrium theory. According to this theory, rate of interest is determined by the demand for and supply of capital. The demand for capital is determined by its marginal productivity, while supply of capital is determined by the abstinence or 'waiting' of the marginal saver.



Monetary Theories. Monetary theories emphasise the role of "money" in determination of rate of interest. The important theories from this group are:

- Liquidity Preference Theory,
- Loanable Funds Theory, and
- IS-LM Theory

There is no agreement among economists as to how the rate of interest is determined. Each of the above theories has its advocates. We look more closely at these theories.

Liquidity Preference Theory

J.M. Keynes propounded the liquidity preference theory of interest. Keynes regarded interest as a purely monetary phenomenon. Interest is determined by the interaction of the demand for and the supply of money.

Keynes defined interest as the reward for parting with liquidity for a specified period. It is not a reward for hoardings but for postponing consumption. The demand for liquidity together with the supply of money determines rate of interest.

Demand for Money. Keynes believed that the demand for money is not a derived demand but a direct demand. Money is demanded because it is the most liquid of all assets which could be converted into goods and services without any loss of time and value. People want to hold money for the following motives:

- *Transactions Motive*. This demand reflects the need for cash for the current transactions of personal and business exchanges and is derived directly from the medium of exchange function of money. The transactions demand for money is the amount of it required over a period to carry out all transactions involving purchases and sales of commodities and in dealing in securities, property rights, and other claims of various types.

  The size of monetary balances required for transaction purposes depends upon the size of receipts and expenditures, the time pattern of expenditures, the intervals between receipts, and the price level.

- *Precautionary Motive*. Precautionary demand for money arises out of the need for any contingent payments or expenditures. Individuals and firms alike desire to hold cash balances for covering events of a more uncertain nature like accident, prolonged illness, loss of job or replacement of machinery, etc. These are called precautionary balances. Precautionary demand for money also depends upon the levels of income. At higher levels of income, individuals and firms may hold more cash balance for meeting unforeseen situations.

- *Speculative Demand for Money*. Money also serves as a store of value. The asset 'demand for money' arises on account of the store of value function of money. The speculative demand for money is to hold it as an alternative to the financial assets like bonds.

Of the motives discussed above, Keynes attached more importance to the speculative motive. While the transactional motive and the precautionary motive are the functions of the level of income, the speculative demand for money depends upon the rate of interest. In other words, the asset demand for money is influenced more by the speculative motive rather than by transactional and precautionary motives.

There exists inverse relationship between the assets demand for money and the rate of interest. Larger amounts of money would be held at lower interest

rate and vice versa. Prof. Keynes called the assets demand for money as 'liquidity preference'.

In brief, there are three motives for holding money in the form of cash. They are: transactions motive, precautionary motive and speculative motive.

Liquidity Preference and Determination of Interest. Ready purchasing power is called liquidity. Individuals and firms prefer to hold money in liquid form because it provides them a chance to make immediate use of the purchasing power. In other words, people's preference to keep their assets in the form of ready purchasing power is called liquidity preference.

The demand for money for liquidity preference is a direct function of the rate of interest. Liquidity preference curve has a downward slope to the right indicating that at higher interest rate, less money is demanded, and conversely, at low rate of interest more money is demanded.

Supply of Money. The aggregate supply of money (Ms) in an economy consists of (i) currency with the public (C), (ii) net demand and time liabilities of banks (DD + TD), and (Hi) other deposits with the Central Bank (OD). The supply of money in an economy is regulated by the monetary authority of that country, usually the Central Bank.

Equilibrium Rate of Interest. Equilibrium in the money market is determined at a point where demand for money equals its supply. Symbolically,

$M^d = M^s$

where, M^d = Demand for money, and

M^s = Supply of money.

The demand curve of money or liquidity preference curve slopes downwards to the right indicating that larger quantity of money is demanded at a lower rate of interest than at a higher rate of interest. The supply of money remains unchanged during the short-run, therefore, the supply curve of money has a vertical slope. Equilibrium in the money market is determined at a point, where the demand curve of money intersects the supply curve as shown in Fig. 18.6.

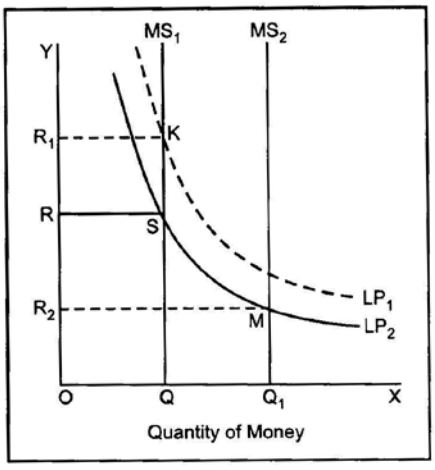


Fig. 19.6: Supply of Money and Liquidity Preference curve

In Fig. 19.6, LP_1, is the original liquidity preference curve which represents the demand for money. MS_1 is the supply curve of money which is perfectly inelastic. At a point of time money supply remains constant. Equilibrium rate of interest is determined at the point S where the LP_1, curve intersects the MS_1 curve. The equilibrium rate of interest is OR.

If the money supply remains unchanged but the liquidity preference increases, the LP curve shifts to LP_1, and the new equilibrium rate of interest is determined at point K, where rate of in3terest increases from OR to OR_1. It shows that money supply remaining unchanged the rate of interest increases with increase in liquidity preference and vice versa.

On the other hand, if the liquidity preference remains unchanged and money supply increases, as shown by the movement on MS_1 curve to MS_2, the equilibrium rate of interest shall fall to OR_2.

Out of the two determinants of interest, *i.e.*, the quantity of money and liquidity preference, Keynes attaches greater importance to the latter. It is so, because even if money supply remains unchanged, the rate of interest will increase and decrease according to the changes in the liquidity preference.

Criticism. Keynes' Liquidity Preference Theory of Interest has been criticised on the following grounds:

- *No Liquidity without Saving*. According to Keynes, interest is a reward for parting with liquidity. It is no compensation or inducement for saving. However, according to Jacob Viner, "*without saving there can be no liquidity to surrender.*"
- *Keynes Ignored the 'Real Factors'*. Rate of interest is not purely a monetary phenomenon as asserted by Keynes. Real forces like productivity of capital, saving, etc., also play an important role in the determination of interest rates.
- *Keynes' Theory is Indeterminate*. According to this theory, rate of interest is determined by the speculative demand for money and the supply of money available for satisfying speculative demand. Given the total supply of money, we cannot know how much money will be available to satisfy the demand for money.
- *Theory Fails to Operate in the Long-Run*. Keynes' Theory explains the determinants of the rate of interest only in the short-run. The theory fails to explain variations in the rate of interest in the long-run.
- *Marginal Efficiency of Capital Ignored*. According to Keynes, the demand for money is influenced by the liquidity preference. But the demand for money is also influenced by the marginal efficiency of capital.

Recent Refinements. The Keynesian theory of the demand for money has been refined and broadened and numerous empirical studies conducted to establish the degree of responsiveness of the demand for money with respect to income, the rate of interest and other variables.

To a number of economists, it is an over-simplification to consider the demand for transactions balances as a function of income alone. They argue that the demand for money for transaction purposes is positively related to income and inversely related to the rate of interest. Further, the classification of the demand for money into "transactions demand" and "speculative demand", however, has been considered by a number of investigators as somewhat artificial; they, instead, attempt to explain the total demand for money. But using different definitions of the money stock, empirical studies along this approach yield divergent results. Studies based on the conventional definition of the money stock suggest that the demand for money is responsive to both income and the rate of interest. **Prof. Milton Friedman**, on the other hand, uses a different definition of the stock of money; defining the money stock including time deposits in commercial banks, his study suggests a high income elasticity and practically no interest elasticity of the demand for money. This led to his conclusion that money is a "luxury" good, the demand for which increases in greater proportion than the increase in income.

Apart from income and rate of interest, wealth and other variables have been introduced into the demand-for-money function. But while it is generally agreed that national wealth bears some relation to the demand for money, it is statistically difficult to assert the independent effects of wealth and income on the demand for money as income and wealth are highly correlated. It has also been argued that the liquidity function is irreversible in that its downward trail after an increase in the supply of money may be different from its upward path after a corresponding decrease in the money supply; this reflects changes in the composition of assets and assets value as the rate of interest changes.

Loanable Funds Theory

The loanable funds theory was originally propounded by **Knut Wicksell**, and was later developed by economists like **Bertil Ohlin, Gunnar Myrdal** and **Robertson**. According to the theory, the rate of interest is determined by the equilibrium between the demand for and supply of loanable funds. Funds which are available in the market for lending and borrowing are called loanable **funds**.

Demand for Loanable Funds. Demand for loanable funds comes primarily from three sources which are as follows:

i) *Investment*. The largest borrowers of money are the business firms or the producers. The producers borrow money for the purchase or manufacture of new capital goods, including building up of the inventory stocks. At low rate of interest, there is more demand for money for investment purposes and vice versa.

ii) *Hoarding*. People hold cash balances for transactions, precautionary and speculative motives. Hoardings are interest elastic. At high rate of interest less idle cash will be demanded, and vice versa.

iii) *Dissaving*. People spend on consumption in a given period some of the savings accumulated in the past. Their current consumption exceeds the income of the previous period. Sometimes, the households have to borrow for the purchase of consumer durables such as car, refrigerator, house, etc.

At high rate of interest less money is demanded, and at lower rate of interest more money is demanded.

Supply of Loanable Funds. The supply of loanable funds is derived from a number of sources, *viz.*, savings, dishoarding, bank credit, supply of legal tender money, disinvestment, *etc*.

i) *Savings*. The prime source of the supply of loanable funds is the saving of the households and firms. When a households's consumption expenditure falls short of his income, savings take place. Firms also save in the form of undistributed profits. At higher rate of interest the propensity to save is more than at a lower rate of interest.

ii) *Bank Credit*. Banks create credit through loans. They increase the stock of money by extending loans to business or making investment in securities and bonds.

iii) *Legal Tender Money*. The central bank of a country enjoys the sole right to issue legal tender money which includes paper notes, coins and now plastic currency.

iv) *Disinvestment*. Disinvestment means disentangling of the present fixed and working capital. When the funds reserved for the maintenance, wear

and tear and replacement of plant and equipment are used for lending purposes, it is called disinvestment.

v) *Dishoarding*. Households and business firms maintain cash reserves with themselves for transactional, precautionary and speculative motives. A part of these cash reserves may be used for lending purposes. The release of accumulated cash reserves for lending is called **dishoarding**.

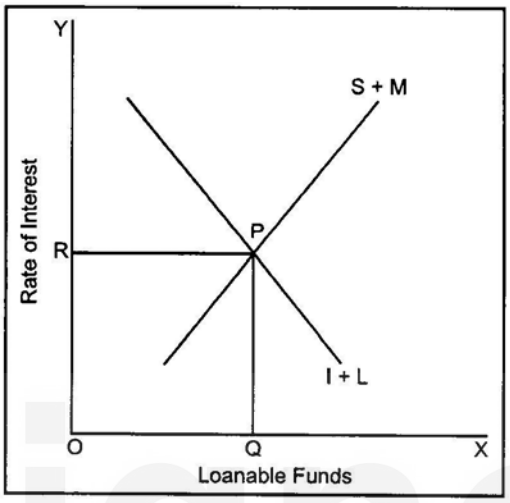


Fig. 19.7: Equilibrium Rate of Interest

Equilibrium Rate of Interest. Rate of interest is determined at a point where the demand for loanable funds equals their supply. The demand curve of loanable funds slopes downwards indicating that more money is demanded at a lower rate of interest than at a higher rate of interest. Supply curve of the loanable funds, on the other hand, slopes upwards showing that more money is supplied at a higher rate of interest than at a lower rate of interest. In Fig. 19.7, S + M is the supply curve of loanable funds, whereas I + L is the demand curve for loanable funds. Equilibrium rate of interest is determined at point P where at OR rate of interest OQ quantity of money is demanded and supplied. In case, the rate of interest is more than OR, the supply of loanable

funds would exceed their demand, as a result, the rate of interest would fall and come back to its original equilibrium level. Conversely, if the rate of interest falls below OR level, the demand for loanable funds would exceed their supply; as a result, the rate of interest would rise and reach the original equilibrium level at OR.

Criticism. The loanable funds theory is criticised on many counts, the important among these are as follows:

i) The theory mis-specifies the various sources of supply and demand of loanable funds. All savings in the economy are not routed through the loan market. Sometimes, households and firms invest directly into physical assets. Similarly, all dishoarding of cash balance is not always used for lending purposes, a part of it may be spent directly by the dishoarders.

ii) The theory is based on the partial equilibrium analysis. The theory assumes that the rate of interest influences all macro-economic variables

such as investment, saving, prices, demand and supply of money, etc. But, in reality, the rate of interest itself is affected by these factors.

iii) The theory assumes the existence of a perfect and well-integrated financial market. But, in actual practice, a large number of financial transactions take place in imperfectly competitive and segmented markets.

iv) The theory tries to combine the real and monetary factors for the determination of interest, which is wrong. For example, real factor like investment refers to a flow, whereas monetary factor like liquidity refers to a stock. Combining of such inconsistent factors is highly illogical.

In a developing economy like India, determination of interest cannot always be left to market forces of demand and supply; for example, demand for loans in such sectors of the economy as agriculture is always very high, but, the supply is limited. In such circumstances, agriculture will be denied resources and it will not develop. Similarly, small-scale industries require funds for development. But if these industries are left to manage the resources for themselves they will never be in a position to develop. Hence, the Government arranges to supply credit to such sectors of the economy as agriculture, small enterprises, etc., at lower rates of interest in order to facilitate their development.

IS-LM Theory

The IS-LM model is a way to explain and distill the economic ideas put forth by John Maynard Keynes in the 1930s. The model was developed by the economist John Hicks in 1937, after Keynes published his magnum opus *The General Theory of Employment, Interest and Money* (1936).

The IS-LM model provides another way of looking at the determination of the level of short-run real gross domestic product (real GDP) in the economy.

The basis of the IS-LM model is an analysis of the money market and an analysis of the goods market, which together determine the equilibrium levels of interest rates and output in the economy, given prices

The IS-LM model appears as a graph that shows the intersection of goods and the money market. The IS stands for Investment and Savings. The LM stands for Liquidity and Money. On the vertical axis of the graph, ‘r’ represents the interest rate on government bonds. The IS-LM model attempts to explain a way to keep the economy in balance through an equilibrium of money supply versus interest rates.

The IS-LM is also sometimes called the Hicks-Hansen model.

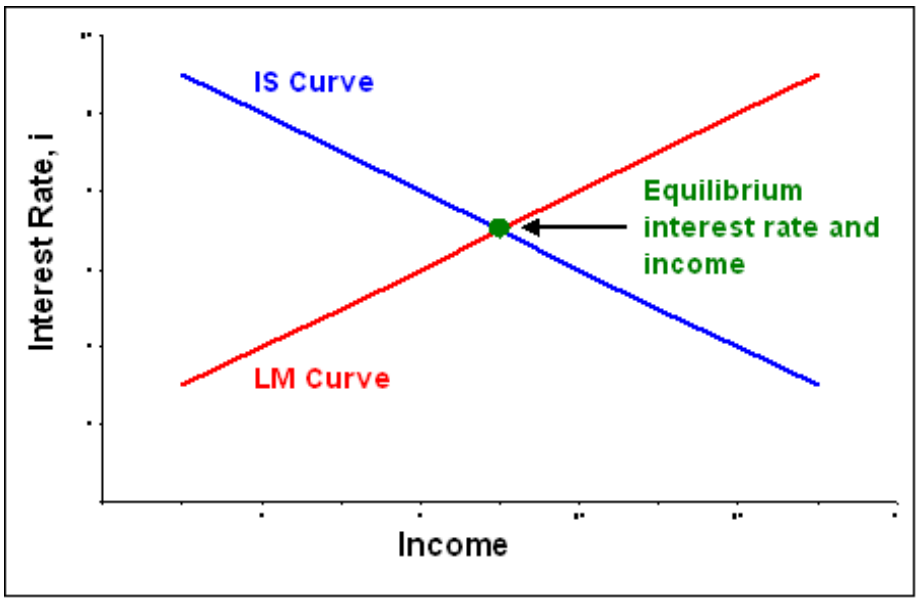


Figure 19.8: ISLM

Check Your Progress D

1 List three components of demand for loanable funds.

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2 State whether the following statements are **True** or **False**.

i) In the classical theory of interest, saving varies directly with rate of interest.

ii) In the classical theory of interest, investment varies inversely with the rate of interest.

iii) The rate of interest at which demand for loanable funds equals their supply, is natural rate of interest.

iv) Money rate of interest and natural rate of interest can be at variance only. temporarily.

v) According to Keynes, interest is a return on capital.

vi) The classical economists were of the view that interest is a monetary phenomenon.

vii) The limitation of the classical theory of interest is that it ignores monetary factors.

viii) Keynes did not ignore the real factors like saving and investment in his theory of interest.

ix) The correct theory of interest is one which takes note of both real and monetary factors.

19.6 LET US SUM UP

Wages are earnings of workers for the services they render in production. They are higher in those countries where productivity of labour is higher due to better endowments of natural resources and capital and superior technical know-how.

Labour markets can be competitive and non-competitive. When workers are not organized and employers are many, labour market is competitive. In such a labour market, wage rate is determined by the interaction of demand for and supply of labour, and is equal to its marginal revenue productivity. This wage rate need not always be equal to minimum subsistence level.

In reality, since there are a large varieties of job, requiring different types of labour, wage rates are also many. In some cases, these wage differentials can be explained in terms of nature of job, working life, training, social prestige etc. In other words, wages are different because there are non-competing groups of labour.

Presence of a trade union in a labour market makes it non-competitive. Workers join trade union with the hope that it can prevent their exploitation and secure a higher wage rate for them. Bargaining with employers through a trade union is known as collective bargaining. It often improves the capacity of workers to bargain with the employers. Generally, trade unions try to secure higher wages for their members by restricting the supply of labour, by forcing employers to raise the standard wage rate and creating conditions whereby the demand for labour increases. But a trade union is most relevant in the case of monopsony, that is, when there is one employer. Under monopsony, in the absence of a trade union the wage rate is lower than the marginal revenue productivity of labour and thus exploitation of labour is inevitable. A trade union in this case can successfully compel the employer to raise the wage rate to the level of marginal revenue productivity of labour and can thus eliminate exploitation.

Interest is the payment for the use of money. It performs a very useful function in the allocation of scarce funds. The merit of this method of funds allocation is that it leaves no scope for arbitrariness and it is always the most remunerative project that receives funds on priority basis.

In real life, at a point of time there can be a number of interest rates. The differences in these interest rates are mainly due to the differences in the risk element involved in different loans. Other factors which also contribute to interest rates differentials are costs and inconveniences associated with the handling of loans. Nominal rate of interest is the quoted rate of interest while the real rate of interest is a rate of interest adjusted for inflation. For major decisions, it is the latter that is more important.

For the classical and neo-classical economists interest is a return on capital. According to the classical economists, it is determined by the interaction of demand for and the supply of capital. The neo-classical economists consider monetary factors together with real factors viz., saving and investment to

explain determination of rate of interest. In their opinion, interest rate is determined by the demand for and supply of loanable funds. Having rejected this approach Keynes has argued that interest is a purely monetary phenomenon and is determined by the demand for and supply of money.

19.7 KEY WORDS

Collective Bargaining: Bargaining by workers jointly through some trade union.

Competitive Wages: Wage rate determined in a labour market where workers are too many and unorganized and the employers are also in large number and do not collude.

Loanable Funds: Funds which are available for lending purposes.

Money Wage: The amount of money paid to the workers by the employer for the services rendered by him in production.

Nominal Rate of Interest: The quoted rate of interest as a percentage return on the principal.

Non-competing Wages: Wage rates of labour groups among which there is no competition because each kind of labour is qualitatively different from the rest.

Non-competitive Wages: Wages determined in a labour market in which competition is non-existent either due to presence of a trade union and/or collusion among employers.

Real Wage: The amount of goods and services which a worker can obtain for his money wage plus the incidental benefits which he avails from the job.

Real Rate of Interest: A rate of interest which has been obtained after making adjustment for inflation.

Trade Union: An organization of workers to collectively bargain on their behalf with the employers.

19.8 ANSWERS TO CHECK YOUR PROGRESS

Check your progress A

3 (i) False (ii) True (iii) False (iv) False

(v) True(vi) False (vii) True (viii) True.

4 (i) Non-competitive (ii) Equalizing (iii) Positive (iv) Backward

(v) Lower (vi) Competition (vii) Monopsonistic

Check your progress B

3 (i) True (ii) False (iii) True (iv) False (vi) False

4 (i) Voluntary (ii) Lower (iii) Monopsony (iv) Rightward

(v) Leftward (vi) Unemployment.

Check your progress C

3 (i) True (ii) False (iii) True (iv) True (v) False (vi) True

Check your progress D

2 (i) True (ii) True (iii) False (iv) True (v) False (vi) False (vii) True

3 (viii) False (ix) True

19.9 TERMINAL QUESTIONS

1 Discuss the concepts of money wage and real wage. How are competitive wages determined?

2 How is it possible for trade unions to secure an increase in the wage rate through collective bargaining?

3 Distinguish between nominal and real rates of interest. Why are their interest rates differentials?

4 Is interest is a return on capital? How is interest rate determined?

5 Write note on Keynes' view of interest.

Note: These questions will help you to understand the unit better. Try to write answers for them but do not send your answers to the University. These are for your practice only.

UNIT 20 DISTRIBUTION OF INCOME-II: RENT AND PROFIT

Structure

20.0 OBJECTIVES

After studying this unit, you should be able to:

- describe what is rent
- explain how rent arises
- distinguish rent from quasi-rent
- describe the concept of profits
- list the sources of profits.

20.1 INTRODUCTION

Production carried out with the help of various factors of production results in income that is shared among their owners as wages, interest, rent and profits. In the previous unit you have learnt as to how wages and interest are determined. In this unit you will learn about rent and profits. With respect to rent, you will study the nature of rent, how it arises and whether land alone or all the factors of production earn rent. In common usage rent is a return on land. But in economics, some economists consider it as a surplus earned by certain categories of land due to the fact that its supply is inelastic. Any factor having this quality of land can thus earn something which will be of the nature of rent. Some other economists assert that any income received by a factor over and above its opportunity cost will be rent. These are some complex issues and we shall explain them in this unit in detail. With respect to profit you will study its concept and the sources from which profits

emerge. Broadly, profit is the income of the entrepreneur. But why should an entrepreneur earn profit is a question on which there is little agreement among economists. You will learn in this unit that disagreement among economists on this question arises from the fact that profits earned by the entrepreneurs arise from more than one source and it is not always clear as to which one of these sources is the most important.

20.2 THEORY OF RENT

In economics, there are two main approaches to rent. The first one is the classical approach, according to which, rent is the return on land to the landlord. The chief exponent of this approach was David Ricardo. He defined rent as "that portion of the produce of the earth which is paid to the landlord for the original and indestructible powers of the soil." He thus gave a very restricted meaning to rent. His theory nonetheless revealed an essential truth that any factor fixed in supply will earn something of the nature of rent. This actually helped in developing the concept of quasi-rent.

Modern economists reject the Ricardian approach. They argue that rent does not accrue to land alone. In their opinion, it is a kind of surplus that accrues to all the factors of production.

Joan Robinson is considered to be the chief exponent of this approach.

She has stated, *"The essence of the conception of rent is the conception of surplus earned by a particular part of a factor of production over and above the minimum earnings necessary to induce it to do its work."*

This concept of rent is so much different from the common notion of rent that one finds it difficult to comprehend it. Yet it is this concept of rent which is now widely used in economics. Therefore, it would be worthwhile to follow it more carefully. Joan Robinson argues that each factor expects a certain minimum income as a return for the work it does in production. The actual earnings, however, may be equal to these minimum earnings or may be more than that. In case, they exceed the minimum earnings which the factor had expected, the surplus would be rent.

Having learnt the concept of rent, it is now easily possible for you to follow the theory of rent. In this section, we shall now dwell at length first on rent as a return on land, and then economic rent as a surplus over transfer earnings, which are the same as the minimum earnings necessary to induce a factor to remain in its existing use.

20.2.1 Ricardian Theory of Rent

As stated earlier in this section, Ricardo had viewed rent as a return on land. But, he was of the view that rent did not arise until only the most efficient land was under cultivation. However, once this land was exhausted and due to the increase in the demand for food grains, farming had to be extended to somewhat less fertile land, rent emerged on the most fertile land. The amount of rent in this case was to be equal to the value of the excess output on the most fertile land over that on the less fertile land. Further pressure of

population creating additional demand for food grains in course of time could exhaust even the supply of the second best land and thus still less fertile land was to be brought under cultivation. In this situation, rent not only increased on the most fertile land, but also emerged on the second best land. There was no rent on the least fertile land under cultivation. Ricardo called it the Marginal land.

Following this logic, if there are several types of land with different levels of fertility under cultivation, then rent will not occur only on the least fertile land, that is, on the marginal land. On all other types of land, rent will be paid equal to the value of their surplus output over that on the marginal land.

Suppose, there is a newly colonized country having land of three kinds, viz., A, B and C. Of these, A is the most fertile, B the second best and C the least fertile. Obviously people migrating to this country will cultivate land A first. The output of wheat that is possible on this land is 20 quintals per hectare by employing a certain amount of labour and capital which costs in money terms Rs. 4,000. The price of wheat is Rs. 200 per quintal. The total value of output of wheat is Rs. 4,000 which justcovers the cost of cultivation. Obviously, there is no surplus and, therefore, there is no rent on this land.

People will not cultivate land B or C until the demand for wheat can be met bycultivating land A. When demand for wheat increases due to an increase in population so much that it cannot be met by output on land A, some people will be left with no choice but to begin cultivation on land B. On this land with the same amount of labour and capital that farmers employed on land A, it is possible to produce only 16 quintals per hectare. This will raise the price of wheat to Rs. 250 per quintal. Now land B being the marginal land will be no rent land, and on land A rent will emerge and will be equal to money value of the surplus output over that on land B.

Since, the surplus output on land A over that on land B is 4 quintals and the price of wheat is Rs. 250 per quintal, the amount of rent on land A will be Rs. 1,000 per hectare. Likewise, when land C comes under cultivation, it becomes marginal land. If on land C the output of wheat per hectare is 10 quintals, the price of wheat will be Rs. 400 per quintal and the amount of rent on land A and land B will be the money values of the excess outputs on these lands over that on land C which are Rs. 4.000 and Rs. 2.400 respectively. Ricardo's concept of rent can be represented by a diagram (See Figure 20.1)

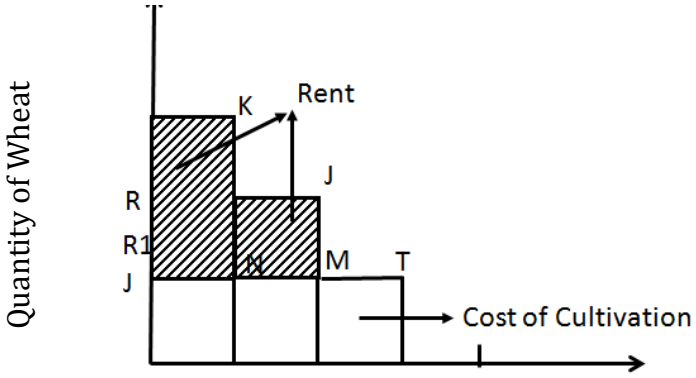


Figure 20.1: Rent on land as determined by Ricardo

On the X axis, we take various types of land A, B and C and on Y axis is given the output of wheat per hectare. The output on land A is represented by rectangle OK, on B land by rectangle PJ and on C land by rectangle LT. Since cost of cultivation is represented by rectangle ON or rectangle PM or LT, then C land is no rent land. Rent on A land is given by the shaded rectangle JK and on B land by shaded rectangle NJ.

Ricardo did not use any empirical evidence to propound his theory of rent. He relied entirely on deductive reasoning for this purpose and based his theory on certain assumptions. Briefly they are as follows:

1. The most efficient land both in terms of fertility and locational advantage was brought under cultivation first. Less efficient lands were cultivated later.
2. Scarcity is a unique quality of land and rent on land arise due to this quality.
3. Land is not homogeneous.
4. Land has certain original and indestructible powers which determine its quality in terms of fertility.
5. Marginal land is no rent land.

Evaluation of the theory

You can easily see that some of these assumptions are unrealistic. This was observed by various economists who criticized the Ricardian theory of rent for making questionable assumptions. It was said that Ricardo did not describe the order in which various types of land were cultivated correctly. Often less fertile barren land was cultivated first. Further, scarcity is not a unique quality of land. Other factors of production may also be scarce and can thus earn rent. Finally, no rent land is found nowhere and, therefore, it is wrong to say that the marginal land is no rent land.

20.2.2 Economic Rent and Transfer Earnings

In order to distinguish their concept of rent from rent in common usage the modern economists prefer to call it 'economic rent'. You have learnt earlier in this section that economic rent is a surplus that accrues to a factor of production over and above a minimum return that induces it to remain in its present use. This minimum payment to a factor of production is called transfer earnings.

If producer wants to employ a factor of production at a rate of payment lower than its transfer earnings, he will not succeed. In practice, the payment to a factor of production may be equal to its transfer earnings or may be even more than that. In case, the return to a factor of production is just equal to its transfer earnings, it does not earn any rent. However, quite often the remuneration to a factor of production is greater than ‘its transfer earnings', and in all such cases a part of the earnings of the factor concerned is of the nature of rent and the other part is its transfer earnings. Thus, the actual

return to a factor of production normally contains both transfer earnings and rent.

Economic rent of a factor input = Actual earnings of a factor – Transfer earnings of the factor

However, there are two limiting cases. In the first limiting case, the total earnings of the factor of production are transfer earnings. In the second limiting case, the entire payment to the factor of production is rent. You can follow this discussion easily with the help of the following illustrations.

1) First you can consider case of a person with a B.A. degree. Such a person is not trained for any specific job. He can do various kinds of jobs requiring no specific skill. Therefore, he can be a ticket collector in the railways, inspector in the revenue department or a clerk in some bank. Let us say, he is a clerk in a bank and gets Rs. 40,000 per month. Even as an inspector or a ticket collector he could get Rs. 40,000 per month. In this case, his transfer earnings are obviously Rs. 40,000 which he could get as an inspector in the revenue department or as ticket collector in railways and this is what he gets as his salary in his present employment. Therefore, there is no economic rent in his earnings.

First case

Actual earnings –Transfer earnings = Economic Rent= Zero

2) Let us now consider case of a person who is trained for a specific job such as dental surgery. This person cannot do any other job requiring special skill and will voluntarily not accept inferior jobs wanting no particular skill. Therefore, his transfer earnings are just nil and the entire salary amounting to Rs. 1,40,000 which he receives as a dental surgeon will be economic rent.

Second case

Actual earnings – zero (Transfer earnings) = Economic Rent

3) The two cases which we have discussed above are the limiting cases. In reality, rarely a factor of production is completely specific. Consider the case of a High Court Judge. Suppose, his salary is Rs. 1,50,000 per month. As an advocate this person could earn Rs. 80,000 per month. The transfer earnings of this person, therefore, are Rs. 80,000 per month, and in his monthly salary there is an economic rent of Rs. 70,000.

A careful consideration of the three examples will make it clear to you that economic rent is inversely related to the elasticity of supply of a factor of production. Let us first consider the case of a non-specific factor which gets the same return in all the possible uses to which it can be put. Obviously, the supply of such a factor will be perfectly elastic as shown in Figure 20.2. This implies that this factor is available only at a fixed price and if reward to it is even a little less than that, then not even one unit of it will be available to the producer. Moreover, the producer need not pay more to the factor because for him it is possible to get any quantity of the factor in question at the given price.

In Figure 20.2, RS is the supply curve showing that at OR factor price supply of the factor in question is perfectly elastic. The demand curve for the factor DD intersects it at E which means that the quantity of the factor employed is ON and the total earnings are OREN. In this case, since OR is the transfer earnings, the entire income earned by the factor is transfer earnings.

1) Perfectly elastic supply of factor

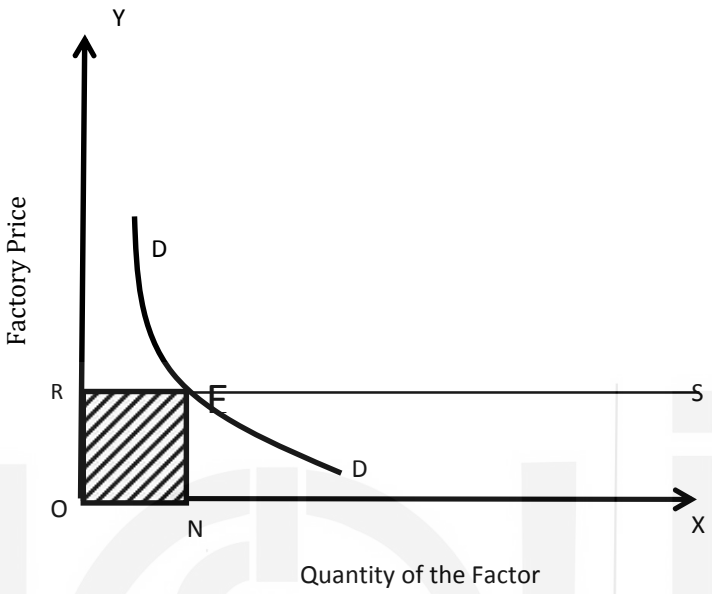


Figure 20.2: All the income of the factor is transfer earnings

2) Perfectly inelastic supply

Now consider the case of a factor which is completely specific. Its supply will be perfectly inelastic. The transfer earnings thus will be zero. This case is illustrated in Fig. 20.3

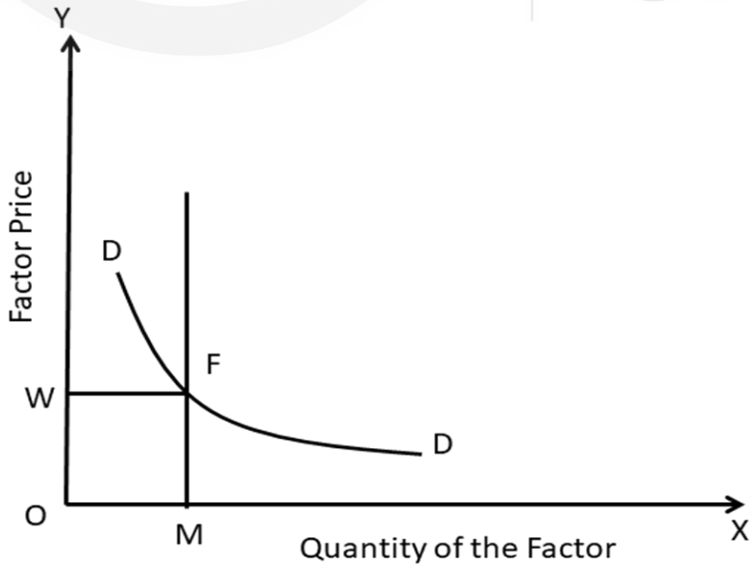
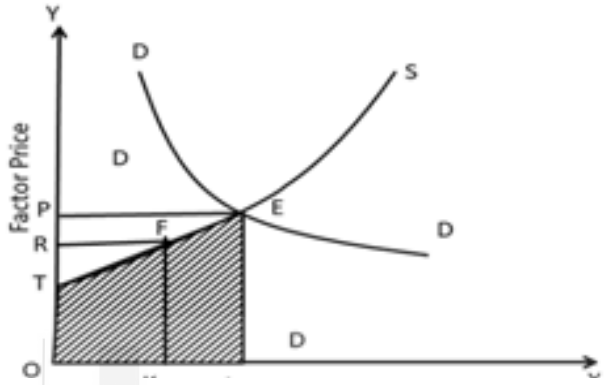


Figure 20.3 : All the income of the factor is an economic rent

You will observe that the factor price or the rate of return to the factor in this case is OW and the total earnings of the factor are OWFM. Since in this case, the transfer earnings of the factor are nil, the entire income earned by it is an economic rent.

In the case of elastic supply of a factor, the supply curve for it has a positive slope as shown in Figure 20.4. The demand curve for the factor DD intersects the supply curve TS at E and



Quantity of the Factor

Figure 20.4: Earnings of the factor include both transfer earnings and economic rent

the equilibrium factor price is LE or OP. It would be clear to you that the last unit of the factor which is OL^{th} unit gets the return equal to its supply price which is the same as its transfer earnings. Other units, of course, get something over and above their transfer earnings. For example, OK^{th} unit's transfer earnings are KF or OR. Hence, its income contains an economic rent amounting to RP. Considering all the units of the factor together, the total income is OPEL. This includes transfer earnings of all the units amounting to OTEL, and thus the economic rent earned by all the units is TPE.

Check Your Progress A

1) What is the concept of rent in the classical economics?

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2) What is the concept of economic rent in modern economics?

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3) What is the concept of transfer earnings?

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4) State whether the following statements are **True** or **False.**

i) According to Ricardo, rent is paid to landlord for the original and indestructible powers of the soil.

ii) According to the modern economists, there is always an element of economic rentin the earnings of a factor of production.

iii) Ricardo had asserted that the marginal land is no rent land.

iv) The Ricardian theory of rent is based on the empirical evidence that was availableat the time the theory was propounded.

v) In case, the supply of a factor of production is fixed, its entire income will be economic rent.

vi) If the supply of a factor of production is perfectly elastic, its whole income will be economic rent.

20.3 QUASI RENT

The concept of quasi-rent was first used by Marshall in his famous work **Principles of Economics.** In his opinion, supply of factors of production like capital equipment can be inelastic in the short period and this enables them to earn a surplus over their supply prices. Obviously, this surplus is of the nature of rent. But, Marshall preferred to call it quasi-rent, because he was able to see the basic distinction between land and other factors of production, particularly the capital equipment and buildings.

The supply of land remains fixed in both short and long periods. Man by his skill and effort cannot increase its supply even in the long period. This is, however, not true of capital equipment. Its supply may be inelastic in the short period, but in the long period it can always be increased. Therefore, Marshall was of the view that machines, buildings and skilled labour could earn a surplus over their supply prices only in the short period. In the long period, in response to increased demand when the supplies of these factors increase, the surplus gets eliminated. Therefore, Marshall asserted that quasi-rent cannot be earned by any factor of production in the long period.

Economists now do not use the term quasi-rent exactly in the same sense as Marshall used it. The quasi-rent is now defined as the surplus which a producer gets in the short period over his variable costs from the sale of his product.

We can use an illustration to follow this concept. Let us suppose that an entrepreneur borrows some money from a development bank to buy a machine which he would use for making some commodity. The monthly interest that he pays to the development bank on the loan is the fixed cost that the producer incurs in any case irrespective of the size of production. The machine, however, is used along with variable factors, such as labour and raw materials. Although a producer undertakes production with the objective of earning profits, it is not necessary that in the short period he succeeds in achieving this objective. In the short period, there are four possibilities.

- First, that the price of his product not only covers that total cost but also enables him
- to earn some profits.
- Second, that the price of the product covers variable costs and only a part of the fixed
- cost, and as a result there are some losses to the producer.
- Third, that the price of the product is just enough to cover only the variable costs and
- thus the losses of the producer are equal to the amount of fixed cost.
- Fourth, the price of the product is not enough to cover even the variable costs.

Obviously, in the last case the producer will not undertake production. In the third case, he has an option. He may or may not undertake production, because whatever he may do, he will have to suffer losses equal to the fixed cost. In the first two cases, he will definitely undertake production, but while in the first case he earns some profits, in the second case he suffers some losses. In the second case, the producer does not have the option of not undertaking the production because if he does that his losses will increase and be equal to the fixed cost while in the event of undertaking production he manages to recover a part of the fixed cost.

It should now be clear to you that in the first two cases the producer receives a surplus over the variable costs and thus earns quasi-rent. In the third case in the event of production being undertaken, the producer fails to receive any quasi-rent.

In the long period all factors of production are variable and a producer will undertake production only if he can cover total costs. In earlier unit, you have learnt that under perfect competition, the price of the product in the long period is necessarily equal to both average total unit cost and marginal cost, and thus the question of anything of the nature of quasirent accruing to the producer does not arise.

You can easily follow the concept of quasi-rent with the help of Figure 20.5. In this figure, we have considered a case of a firm operating in a perfectly competitive market. SAC is its

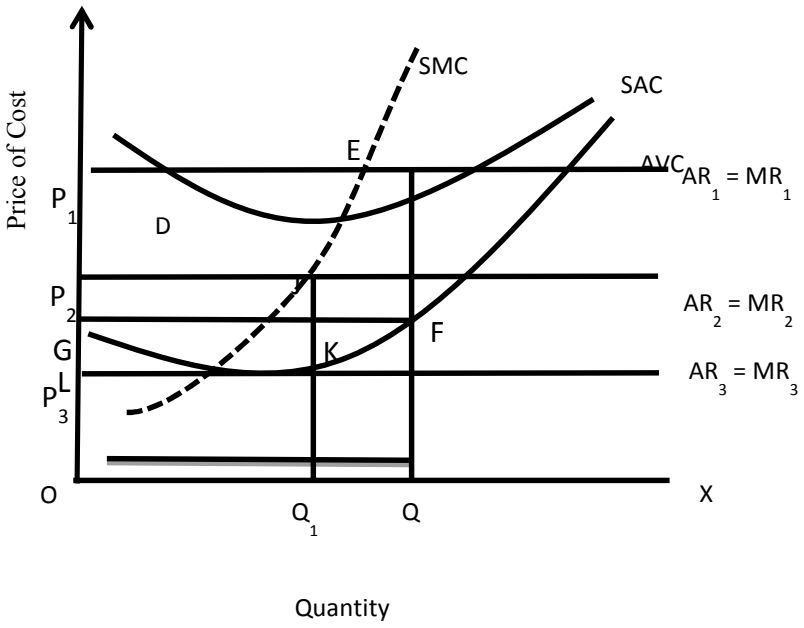

Figure 20.5 : Quasi-rent

short period average cost curve, AVC is the average variable cost curve and SMC is the short period marginal cost curve. Under perfect competition, since a firm is a price-taker, implying that it cannot influence the price, its demand curve is a horizontal.

Let us assume, that the price of the commodity produced by the firm is OP_1. At this price, the demand curve faced by the firm, that is, its average revenue curve will be AR_1. You have learnt in earlier unit that when average revenue of a firm is constant, its marginal revenue will be the same as the average revenue and also be constant. Hence, in Figure 20.5 we have AR_1, = MR_1. You will observe in this figure that SMC and MR_1, intersect each other at point E, which means that the firm is in equilibrium in the short period when its output is OQ_1. At this output level, the firm's total revenue is OP_1, × OQ_1, that is, OP_1, EQ_1, and the total variable cost is OG X OQ1, that is, OGFQ. Hence, the surplus of revenue over the variable costs is GP_1, ×OQ_1, that is GP_1 EF. This is the amount of quasi-rent accruing to the firm at the commodity price OP_1. Since in this case the price of the commodity is higher than its short period average cost, the profits earned by the firm are also included in the quasi-rent.

Let us now consider the case of the price being lower than the firm's short period average cost. In Figure 20.5 OP_2 is the price that fails to cover short period average cost of the firm. At this price since average variable cost can be recovered, the firm undertakes the production, and output level achieved is OQ_2. You will observe that at this output level, the marginal revenue indicated by MR_2 is equal to the short run marginal cost of the firm. The firm earns quasi-rent amounting to LP_2JK, though it suffers a loss due to its failure

to recover the whole of the fixed cost. Finally, we consider as to what happens if the price is OP_3. You will note that at this price only average variable cost is recovered and thus no amount of quasi-rent accrues to the firm. Any price lower than OP_3 will fail to induce the firm to undertake the production and is, therefore, not relevant from the point of view of the analysis of quasi-rent.

Check Your Progress B

1) Define the concept of the quasi-rent.

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2) State whether the following statements are True or False.

i) The quasi-rent accrues to the landlord.

ii) The quasi-rent emerges only in the short period.

i) The quasi-rent may or may not include the profits of the firm.

iv) The quasi-rent is surplus accruing to the firm over and above its short period marginal cost.

v) If the price of the product is equal to the average variable cost, the quasi-rent received by the firm is zero.

vi) The concept of quasi-rent was introduced in economic theory by David Ricardo.

vii) The surplus over its transfer earnings is the quasi-rent of the factor of production concerned.

viii) According to Marshall, the quasi-rent emerges in the short period due to the inelasticity of a factor's supply.

20.4 PROFITS

Profit is said to be the return to the entrepreneur for the functions performed by him in production. Generally, he performs two kinds of functions. First, he makes a plan for producing something and accordingly combines and organizes various factors of production. Second, he bears the risks involved in undertaking the production. While performing the first function, the role of the entrepreneur is more of an organizer in performing the latter function he really acts as an entrepreneur. Most economics believe that profits are earned by the entrepreneurs for rendering both the services. Some economists, however, do not subscribe to this view. In their opinion, the monopoly element present in both commodity and factor markets enables the so-called entrepreneurs to earn profits. On careful examination, you will discover that

none of the above stated viewpoints is entirely wrong. In fact, both the approaches to profits contain some truth and can be justifiably considered as complementary. Profits nonetheless remain one of the most controversial subject in economic theory and require detailed discussion. In this section, we shall concentrate on two aspects, viz., the concept of profits and the sources of profits.

20.4.1 Concept of Profits

The concept of profits is not easy to explain on account of much controversy about it. The best thing in such a situation that one can do is to discuss all those viewpoints which have got some acceptability.

First let us consider F.B. Hawley's viewpoint. In his opinion, profits are the returns to the entrepreneur for his risk bearing function in production. Other factors of production are paid for their services even before the product is sold in the market. Hence, they do not bear any risk. The entrepreneur who organizes the production bears the entire risk associated with his production. Hawley has identified broadly four types of risks. These are: (i) risks associated with the depreciation of the plant and machinery, (ii) their obsolescence due to technological change, (iii) marketability of the product, and (iv) the various unforeseen factors in the business.

F.H. Knight does not agree with Hawley. He distinguishes between risks which can be anticipated and risks which cannot be anticipated. The risks which can be anticipated are insurable and profit is not a reward for bearing such risks. Unexpected risks which in his opinion, are the uncertainties are non-insurable and profit is earned by the entrepreneur for bearing only them. Most economists now consider Knight's concept of profits more appropriate than that of Hawley.

J.B. Clark defines profit as a dynamic surplus. In his opinion, in a static society, the entrepreneur's role is reduced to that of the organizer who is paid wages rather than profits. Hence, profits cannot be expected to emerge in a static society. In a dynamic society, due to changes occurring in the size and composition of population, human wants, supply of capital, production techniques and forms of business organization, money value of the output is never equal to the costs of the factors of production other than enterprise. The firm in these changing conditions can always hope to earn a surplus which goes to the entrepreneur as his profit. However, the possibilities of getting losses cannot be ruled out altogether.

J.A. Schumpeter has argued that the entrepreneur plays a very positive role in production as an innovator. In his opinion, profit is a reward to the entrepreneur for making innovations. Schumpeter distinguishes an innovation from a scientific invention or a technological progress. In his opinion, an innovation implies adoption of a new technique in production, introduction of a new product, capturing new markets for the product securing control over an entirely new source of some important raw material and introducing a new organisational structure in the firm.

M. Kalecki and Joan Robinson totally disagree with the above-mentioned approaches. In their opinion, profit is a non-functional income and it emerges due to imperfections in the market, Perfect competition has perhaps never existed in any market and the presence of monopoly element in them enables an entrepreneur to earn profit. In fact, the amount of profit which any entrepreneur now earns depends to a great extent on the degree of monopoly power which he enjoys in the market.

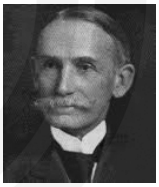
DIFFERENT VIEWS OF PROFITS

PROFITS ARE A REMUNERATION FOR BEARING RISK—**F.B. HAWLEY**

PROFITS ARE A REMUNERATION FOR BEARING UNCERTAINTIES

F.H. KNIGHT

PROFIT IS A DYNAMIC SURPLUS



—J.B. CLARK

PROFITS ARE DERIVED FROM INNOVATIONS

—J.A. SCHUMPETER

PROFITS ARISE DUE TO IMPERFECTIONS IN MARKETS

—JOAN ROBINSON

20.4.2 Sources of Profits

Profits do not arise due to a single factor. It is commonly believed that the risk element associated with the production is the principal source of profits. This view is not correct because a careful analysis of the profits clearly reveals that apart from risk or uncertainty there are some other important factors which give rise to profits. Among these, the more important sources of profits are the innovations done by the entrepreneur, the monopoly power enjoyed by the firm and the exploitation of labour. We shall now discuss each one of them in detail.

1) **Risk and Uncertainty:** You have earlier learnt in this unit that a section of economists define profit as a reward for risk bearing. Many economists do not agree with this view. Nonetheless the fact remains that risk element associated with production is an important source of profit. Production involves various kinds of risks. For instance, it is difficult to anticipate with certainty the exact demand for the product. Tastes and fashions may change, and, therefore, buyers may lose interest in a particular product. There may be cost escalation due to rise in factor prices. The machine and plant may become obsolete and may require replacement. The government may levy a heavy excise duty or the protection that has been given to the industry may be withdrawn. These are the risks which no producer can avoid totally. In fact, these are the non-insurable risks and in any case have to be borne by the entrepreneur. In return he gets profit. However, the probability of loss due to these uncertainties can never be ruled out. If demand for a product can be predicted, costs of production are stable, technological changes are so slow that the problem of obsolescence is totally non-existent and the state policies in respect of taxation and protection do not change suddenly, then the services of entrepreneur will not be required and profit will not emerge.

   Prior to the industrial revolution, artisans and handicraft workers generally produced for the local market. The demand for any product rarely fluctuated and the costs were stable over time. The tools used by these workers remained unchanged for centuries. Further taxation on production of commodities was rare. Hence, there was little risk involved in production. This explains why the entire earnings of artisans and handicraft workers were wages and there was nothing of the nature of profit in them.

2) **Innovations:** Another source of profit is innovation. Schumpeter attributes occurrence of profit solely to the introduction of innovations either in the production process or the marketing of the product. One may not agree entirely with Schumpeter's viewpoints because all profits cannot be explained in terms of innovations. Nonetheless it cannot be denied that some profits are certainly the result of innovations made by the entrepreneurs. In fact, it is the lure of profit that often induces entrepreneurs to make innovations. As discussed earlier in this unit innovations are not to be confused for technological changes. Schumpeter has used this concept in a wider sense.

He observed that this concept covered the following five cases: (1) the introduction of a new good, (2) the introduction of a new method of production, (3) the opening of a new market, (4) the conquest of the new source of the supply of raw materials, or half-manufactured goods, (5) the carrying out of the new organization of any industry, like the creation of a monopoly position.

Profits resulting from a particular innovation are essentially transitional. They are eliminated in course of time by the attempts of other firms to share them. An entrepreneur can hope to earn profits which arise from his innovating activity so long as other firms fail to retaliate. But in modern times, an entrepreneur cannot hope that other firms will not know his secrets. They will definitely eliminate the initial advantage which the entrepreneur had while making some innovation. Therefore, innovating activity has to be carried out continually if profits are to be earned on a regular basis from it. However, it has been observed that sometimes profits accrue from particular innovations for a considerable time either due to the ignorance of other firms of their existence or because of time that new firms would need to enter the industry.

3) **Monopoly Power:** A third source of entrepreneur's profit is the monopoly power enjoyed in the market. You have learnt in Block 4 which deals with the theory of price that perfect competition is a hypothetical situation and does not exist anywhere. Even if it is admitted that there may be some markets which are perfectly competitive, one should be clear that in such a market only normal profit is earned which truly speaking is nothing but wages for the managerial work done by the producer. M. Kalecki and many others assert that the source of real profit is the monopoly power that an entrepreneur enjoys in the market. This implies that greater the monopoly power that an entrepreneur can exercise, larger will be the amount of profit that accrues to him. A.P. Lerner has provided a quantitative measure for estimating the degree of monopoly existing in a market. Although, perfect competition is to be found nowhere, it can be considered an ideal situation due to total absence of monopoly element in it. Lerner having taken precisely this position argues that since under perfect competition price of a product is equal to its marginal cost, any deviation of price from the marginal cost shows that monopoly element is there in the market. The degree of monopoly, in his opinion, can be measured as follows:

Degree of Monopoly = $\frac{P-M}{P}$

Where,

P = Price

M = Marginal Cost.

The degree of monopoly, as Lerner measures it, is in fact reciprocal of elasticity of demand. This means that the degree of monopoly power which a firm enjoys in the market is inversely correlated with the elasticity of demand for a product. Lerner's measure of degree of monopoly, however, misses an important point. Apart from the elasticity of demand for the product, the other factor which has a great bearing on the monopoly power exercised by the firm is its share in the supply of the product.

In oligopolistic markets, for instance, there are generally a few firms of unequal sizes. A large firm accounting for a substantial portion of the supply of the product in such a case will emerge as a price leader and will make other firms to accept the price which maximizes its own profit. Other firms smaller in size and contributing much less to the supply of the product vis-a-vis the price leader will enjoy correspondingly less monopoly power, and thus their amount of profit will also be less.

4) **Exploitation of Labour:** Labour markets are never perfectly competitive. Quite often in these markets buyers of a particular type of labour power are very few. In some extreme cases, there may be just one firm desiring to employ a particular type of labour. In Unit 19, you have learnt that such a firm is known as a Monopsonistic firm. Under monopsony the wage rate is necessarily lower than the marginal revenue productivity of labour. According to Joan Robinson, the difference between the labor's marginal revenue productivity and the wage rate is the measure of workers' exploitation by the employer. It is, in fact, an illegitimate gain to the entrepreneur because it is not the result of any effort made by the entrepreneur. Nonetheless it emerges as one of the components of his profit.

   The profit from this source is, however, reduced if workers resort to collective bargaining through trade unions. If a trade union is well organized and strong, it can force the employer to pay wages equivalent to the marginal revenue productivity of labour. In that case, profit from this source will get eliminated. But for various reasons trade unions never succeed in getting legitimate wages for the workers. They succeed only in reducing the exploitation of workers. Often their attempts in these directions are frustrated by the governments and, therefore, exploitation of workers as a source of the capitalists' profit never dries up completely.

Check Your Progress C

1) State the concept of profit.

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2) What are the major sources of profit?

a) ……

b) ……

c) ……

d) ……

3) State whether the following statements are **True** or **False.**

i) The entire profit earned by an entrepreneur is due to his organizational efforts in production.

ii) A part of the profit, earned by the entrepreneur can be explained in terms of his risk bearing activity.

iii) According to F.H. Knight, profit is a reward to the entrepreneur for uncertainty bearing.

iv) Schumpeter has viewed profit as a dynamic surplus.

v) In a perfectly competitive market the normal profit earned by the entrepreneur is more of the nature of wages than real profit.

vi) Innovations done by the entrepreneur can explain his entire profit.

vii) In the absence of uncertainty, profits will not arise.

viii) Exploitation of workers is not a source of profits.

ix) Monopoly power exercised by the entrepreneur is linked a great deal with the elasticity of demand for his product.

x) Profit will not be earned by the entrepreneur under static conditions.

20.5 LET US SUM UP

There are two main approaches to rent: (1) The classical approach, and (2) The modern approach. The chief exponent of the classical approach is Ricardo, according to whom, rent is the return on land to the landlord for the original and indestructible powers of the soil. It did not arise so long as only the most fertile land was under cultivation. Only when pressure of population raising the demand for food grains compelled people to cultivate relatively less fertile land, rent emerged on more fertile lands and was equal to the money value of the excess output on these lands over the output on the marginal land. Marginal land remained no rent land. Ricardo's theory of rent is based on highly questionable assumptions and is, therefore, not acceptable to the modern economists. In order to distinguish their concept of rent from rent in common usage, the modern economists call it economic rent. In their

opinion, rent is a surplus that accrues to a factor of production over its transfer earnings. Transfer earnings refer to that return to a factor which will induce it to remain in its existing employment. Joan Robinson, who is the chief exponent of the modern approach to rent asserts that it is not specific to land. In other words, rent can be earned by all factors of production. It depends on the elasticity of supply of a factor of production and is in fact inversely related to it. This implies that in case of supply of a factor being perfectly elastic, its total earnings will be transfer earnings, and in the opposite case when the supply is perfectly inelastic, the total earnings of the factor will be rent.

The term quasi-rent was first used by Marshall. In his opinion, supply of a factor of production like capital equipment could be inelastic in the short period and thus it could earn more than its supply price. The excess return to a factor of production over its supply price in the short period was designated as quasi-rent by Marshall. The concept of quasi-rent in the modern economics is somewhat different. Now quasi-rent refers to the surplus that a producer gets in the short period over his variable costs from the sale of his product. Since in the long period all factors of production are variable and the price tends to be equal to average cost, the quasi-rent does not arise.

Profit is the return to the entrepreneur for his services in production. But what exactly these services are, on this question economist do not seem to be in agreement. Hawley viewed profit as a reward for risk bearing. Knight distinguishing between insurable risks and non-insurable risks argued that profit is the reward for bearing the non-insurable risks which he called uncertainties. For J.B. Clark profit is a dynamic surplus. Schumpeter has viewed profit as a return to the entrepreneur for his innovating activity. These concepts of profit are not entirely contradictory. They are in fact overlapping and complementary.

Among the sources of profit, the more important ones are risks and uncertainties which any producer faces in the production and the marketing of the product, the innovations made by him, the monopoly power that he exercises in the market and the exploitation of labour. In a dynamic society demand may change, costs may escalate, the machines may become obsolete, tax burden may increase and the protection given by the State to the industry may be withdrawn. These uncertainties are always there and no entrepreneur can avoid them. However, he is rewarded in the form of profit for bearing them. Some profits are the result of Innovation made by him. Innovations involve the introduction of a new good and the adoption of a new method of production, the opening of a new market, the conquest of a new source of the supply of raw materials and the introduction of a new organization in the firm. Further each firm enjoys some degree of monopoly power and it contributes to its profits. The monopoly power of a firm is inversely related to the elasticity of demand for the Finally, due to imperfections in the labour market wages paid to the workers are lower than their marginal revenue productivity. The exploitation of labour in this form by the capitalist contributes to his profits.

20.6 KEY WORDS

Dynamic Surplus: Surplus accruing to the entrepreneur due to economic and technological changes.

Exploitation: The amount by which wage rate is less than the marginal revenue productivity of labour.

Economic Rent: The surplus over transfer earnings of a factor of production.

Innovation: Introduction of a new commodity, adoption of a new technique of production, opening of a new market, finding a source of raw material and introduction of a new organisational system in the firm or industry.

Marginal Land: The least efficient land under cultivation that is able to cover only the cost of cultivation.

Monopoly Power: Power of the monopolist reflected in the form of control over the supply.

Non-specific Factor: A factor of production which can be used for various purposes.

Profit: Return to enterprise.

Quasi-Rent: Surplus over the variable costs accruing to the firm in the short period.

Rent: Part of the produce to the landlord for the use of land.

Risk: Possibility of suffering a loss.

Specific Factor: A factor of production which can be used only for a particular purpose.

Transfer Earnings: The minimum earnings that induce a factor of production to remain in its existing use.

Uncertainties: Risks which are of non-insurable nature.

20.7 ANSWERS TO CHECK YOUR PROGRESS

Check your progress A

4 i) True ii) False iii) True iv) False v) True vi) False

Check your progress B

2 i) False ii) True iii) True iv) False v) True vi) False vii) False viii) True

Check your progress C

3 i) False ii) True iii) True iv) False v) True vi) False vii) True viii) False ix) True X) True

20.8 TERMINAL QUESTIONS

1) What is the concept of rent? Can rent be earned by factors other than land?

2) Discuss the Ricardian theory of rent. What are its assumption?

3) Explain the concept of transfer earnings. How is it related to rent?

4) Discuss the concept of quasi-rent. How does it differ from the concept of economic rent?

5) Explain the concept of profit. Do you think that profit is a reward for uncertainty bearing?

6 What are the various sources of profits? Do you think that all profits can be explained in terms of the monopoly power exercised by the producer?

Note: The questions will help you to understand the unit better. Try to write answers for them, but do not send your answers to the University. These are for your practice only.

SOME USEFUL BOOKS

Ahuja, H.L. 1986. Analysis of Economic Systems and Microeconomic Theory, S. Chand and Co: New Delhi.

Dwivedi, D.N. 1985. Principles of Economics, Vani Educational Books : New Delhi.

Misra, S.K. 1988. Modern Economics, Pragati Publication: Delhi.

Samuelson, Paul. A. and William D. Nordhaus. 1985. Economics, McGraw-Hill : *New Delhi.*

Stonier and Ha Gue. A Text Book of Economic Theory, ELBS Edition : London.