

University of Jammu

Syllabus

Semester II Title: Principles of Microeconomics II.

Course Code: UECTC: 201

Credits: 6

Preamble: This course on Principles of Microeconomics will provide the students a thorough understanding and knowledge of theory of production and cost and types of market structures, factors pricing and welfare economics. The contents of this paper have laid emphasis on the advanced microeconomics to equip the students with knowledge of the conceptual issues including the production and cost and market equilibrium, factor pricing and welfare economics.

UNIT 1: Theory of Cost and Revenue

Concepts of Cost: Accounting cost, Economic cost, Opportunity cost, Implicit and Explicit Cost concepts and curves(Short run and Long run): Marginal cost, Average cost. Total cost fixed cost Variable cost and their relationship, Sunk cost.

Concept of Revenue and Revenue curves: Average Revenue. Marginal Revenue, Total Revenue, Economies of Scale: Internal and External internal Economies of Scale

UNIT 2: Market Structure-I

Market Forms: Perfect and Imperfect, Equilibrium of the Firm under Perfect Competition in the Short Run and Long Run: Shut Down Point: Short Run and Long Run Price and Output Decision of a Monopoly Firm; Price Discrimination and Its Degrees

UNIT 3: Market Structure - II

Equilibrium of the Firm under Monopolistic Competition in the Short Run and Long Run: Oligopoly: Meaning and Characteristics; Price Leadership and the Kinked Demand Curve: Theory of Oligopoly

UNIT 4: Factor Pricing

Marginal Productivity Theory of Distribution: Classical Version: Modern Theory of Wages: Ricardian Theory of Rent: Concept of Quasi- Rent: Classical Theory of Interest, Keynesian Liquidity Preference Theory of Interest. Theories of Profit-Risk Uncertainty and Innovation

UNIT 5: Welfare Economics

Concept of Welfare: Classical Welfare Economics, Pareto-Optimality: Marginal Conditions. Value Judgement, Bergson Samuelson Social Welfare Function; Kaldor-Hicks Compensation Principle

Suggested Readings:

1. Paul A, Samuelson: Micro Economics
2. A. Koutsoyiannis: Modern Micro Economics
3. C.S Barla: Advanced Micro Economics
4. N.C.Ray: An Introduction to Micro Economics
5. Hal R. Varian: Micro Economic Analysis
6. Dominick Salvatore: Micro Economic Theory
7. H.L. Ahuja: Modern Micro Economics
8. M.L. Seth: Micro Economics
9. T.R.Jain&A.S.Sandhu: Micro Economics
10. Amit Sachdeva: Micro Economics
11. Richard G.Lipsey: An Introduction to Positive Economics

UNIT 1: Theory of Cost and Revenue

Meaning of Cost

Cost, a key concept in economics, is the monetary expense incurred 'by organizations for various purposes, such as acquiring resources, producing goods and services, advertising, and hiring workers. In other words, cost can be defined as monetary expenses that are incurred by an organization for a specified tiling or activity.

According to Institute of Cost and Work Accountants (ICWA), cost implies “measurement in monetary terms of the amount of resources used for the purpose of production of goods or rendering services.” In terms of manufacturing, costs refer to sum total -of monetary value of resources used in producing or manufacturing a product. These resources can be raw material, labor, and land.

Opportunity cost

It is also referred to as alternative cost. Organizations tend to utilize their limited resources for the most productive alternative and forgo the income expected from the second-best use of these resources.

Opportunity cost may be defined as the return from the second-best use of the firm's limited resources, which it forgoes in order to benefit from the best use of these resources.

Example: Let us assume that an organisation has a capital resource of 1,00,000 and two alternative courses to choose from. It can either purchase a printing machine or photo copier, both having a productive life span of 12 years.

The printing machine would yield an income of 30,000 per annum while the photocopier would yield an income of 20, 000 per annum. An organisation that aims to maximize its profit would use the available amount to purchase the printing machine and forgo the income expected from the photo copier. Therefore, the opportunity cost in this case is the income forgone by the organisation, i.e., 20, 000 per annum.

Explicit costs

Explicit costs, also referred to as actual costs, include those payments that the employer makes to purchase or own the factors of production. These costs comprise payments for raw materials, interest paid on loans, rent paid for leased building or machinery and taxes paid to the government.

An explicit cost is one that has occurred and is clearly reported in accounting books as a separate cost.

Example: if an organisation borrows a sum of 70,00,000 at an interest rate of 4% per year, the interest cost of 2,80,000 per year would be an explicit cost for the organisation.

Implicit cost

It is the estimated value of the inputs supplied by the owners including normal profit. For example, interest on own capital, rent of own land, salary for the services of entrepreneur, etc. Such costs are the costs of self supplied factors.

So, Cost in economics includes actual expenditure on inputs (i.e. explicit cost) and the imputed value of the inputs supplied by the owners (i.e. implicit cost).

Accounting costs

Accounting costs include the financial expenditure incurred by a firm in acquiring inputs for the production of a commodity. These expenditures include salaries/wages of labour, payment for the purchase of raw materials and machinery, etc.

Accounting costs are recorded in the books of accounts of a firm and appear on the firm's income statement. Accounting costs include all explicit costs along with certain implicit costs of an organisation.

Example: depreciation expenses (implicit cost) are included in the books of account as a firm's accounting costs.

Economic costs

Economic costs include the total cost of opting for one alternative over another.

The concept of economic costs is similar that of opportunity costs or implicit costs with the only difference that economic costs include the accounting cost (or explicit cost) as well as the opportunity cost (or implicit cost) incurred to carry out an action over the forgone action. Ok

Example: if the economic cost of the employee in the above example would include his/her week's pay as well as the expense incurred on the vacation.

Sunk cost

A sunk cost is an irretrievable cost. Once spent, the sunk cost cannot be recovered when the firm leaves the industry.

A sunk cost is incurred in the past and cannot be changed. In other words, A sunk cost refers to money that has already been spent and which cannot be recovered

There are various examples of sunk cost:

Advertising expenditure. If you advertise a new product, that money is gone and cannot be retrieved.

Research into a new product. If the product doesn't work out, you are left with nothing you can sell on.

Labour costs. If a firm sets up a new business, it will need to employ people to work and manage, these costs cannot be recovered.

Fixed costs

Fixed costs refer to the costs borne by a firm that do not change with changes in the output level. Even if the firm does not produce anything, its fixed costs would still remain the same.

Example: depreciation, administrative costs, rent of land and buildings, taxes, etc. are fixed costs of a firm that remain unchanged even though the firm's output changes. However, if the time period under consideration is long enough to make alterations in the firm's capacity, the fixed costs may also vary.

Variable costs

Variable costs refer to the costs that are directly dependent on the output level of the firm. In other words, variable costs vary with the changes in the volume or level of output.

Example: if an organisation increases its level of output, it would require more raw materials. Cost of raw material is a variable cost for the firm.

Short run cost curves:

In the short run, some of the factors of production cannot be varied, and therefore,

Remain fixed. In short run curves, we will discuss the three costs

1. Total cost analysis
2. Average cost
3. Marginal cost

1. Total cost

Total cost can be divided into two parts

Total fixed cost

And total variable cost

In the short run, some of the factors of production cannot be varied, and therefore, Remain fixed. The cost that a firm incurs to employ these fixed inputs is Called the total fixed cost (TFC). Whatever amount of output the firm produces, this cost remains fixed for the firm. To produce any required Level of output, the firm, in the short run, can adjust only variable inputs.

Accordingly, the cost that a firm incurs to employ these variable inputs is Called the total variable cost (TVC). Adding the fixed and the variable costs,

We get the total cost (TC) of a firm

$$TC = TVC + TFC$$

In order to increase the production of output, the firm must employ more of the variable inputs. As a result, total variable cost and total cost will increase.

2. Average cost

It is the cost per unit of output produced. If total cost is rs. 100 and number of unit produced are 10, then average cost is rs. 10.

$$\text{Average cost} = \text{total cost} / \text{no. Of units}$$

In the beginning average cost falls then it reaches the lowest point, thereafter it rises. The average cost curve is almost U shaped curve, because of the operation of laws of return.

$$\text{Average cost or Average total cost} = \text{Average fixed Cost} + \text{Average Variable cost}$$

Average Fixed Cost (AFC): Average fixed cost is the total fixed cost divided by the number of unit of output produced.

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Since total fixed cost remains the same at all level of output, the AFC falls as output increases; therefore the AFC curve slopes downwards.

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3. Marginal Cost

Marginal cost is the addition to the total cost for producing additional unit of a commodity. Suppose Total Cost of producing 10 units is Rs.50/, the total cost of producing

11th unit is Rs.58/-, thus for producing one more unit i.e. 11th unit, the marginal cost is Rs.8/- (58-50).

Marginal cost is the change in total cost as a result of change in output.

$$MC = \Delta TC / \Delta q$$

ΔTC : Represent change in TC.

Δq : Represent small change in total output.

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Meaning of Revenue

The term revenue refers to the income obtained by a firm through the sale of goods at different prices. In the words of Dooley, 'the revenue of a firm is its sales, receipts or income'.

Revenue, in economics, the income that a firm receives from the sale of a good or service to its customers. Technically, revenue is calculated by multiplying the price (p) of the good by the quantity produced and sold (q). In algebraic form, revenue ® is defined as $R = p \times q$.

The revenue concepts are concerned with Total Revenue, Average Revenue and Marginal Revenue.

There are three types of revenue

1. Total Revenue:

The income earned by a seller or producer after selling the output is called the total revenue. In fact, total revenue is the multiple of price and output. The behavior of total revenue depends on the market where the firm produces or sells.

“Total revenue is the sum of all sales, receipts or income of a firm.” Dooley

Total revenue may be defined as the “product of planned sales (output) and expected selling price.” Clower and Due “Total revenue at any output is equal to price per unit multiplied by quantity sold.” Stonier and Hague

2. Average Revenue:

Average revenue refers to the revenue obtained by the seller by selling the per unit commodity. It is obtained by dividing the total revenue by total output.

“The average revenue curve shows that the price of the firm’s product is the same at each level of output.” Stonier and Hague

3. Marginal Revenue:

Marginal revenue is the net revenue obtained by selling an additional unit of the commodity. “Marginal revenue is the change in total revenue which results from the sale of one more or one less unit of output.” Ferguson. Thus, marginal revenue is the addition made to the total revenue by selling one more unit of the good. In algebraic terms, marginal revenue is the net addition to the total revenue by selling n units of a commodity instead of $n - 1$.

Economies of Scale

Meaning

The economies of scale are cost benefits received by a firm through a large scale production. When a firm increases its production level, the average cost per unit reduces. Hence, the economy of scale is achieved as a result of spreading costs over a large number of units.

Prof. Stigler defines economies of scale as synonyms with returns to scale. As the scale of production is increased, up to a certain point, one gets economies of scale.

The economies may be classified as Internal Economics and External Economics

Internal Economies. Internal economies are those economies which are open to Internal an individual firm when size expands. They emerge within the firm itself as its scale of production increases. Internal economies in the scale of its output cannot be realized unless the firm increases its output Internal economies are of the following types

1. **Technical Economies.** They arise from the fact that it is easy to make a large machine and there is mechanical advantage in the use of a large machine Technical economies pertain not to the size of the firm but to the size of factory
2. **Managerial Economies.** These economies arise from the creation of special departments or from functional specialization. They also result from the delegation of routine and detailed matters to subordinates. The managerial expenses can be reduced by increasing the size of an establishment under one management.
3. **Commercial Economies.** Commercial economies arise from the purchase of materials and sale of goods. Large businesses have bargaining advantages and are accorded a preferential treatment by the firms they deal with. They are able to secure freight concessions from transport and railways, cheap credit from the banks, prompt delivery careful attention and considerate treatment from all dealers. This means more profits. A large firm can employ experts and carry on research and experiments. It can buy and sell when market trends are favourable.

4. Financial Economies. These economies arise from the fact that a big has better credit and can borrow on more favorable[terms. Its shares enjoy a wider market which encourages a prospective investor.
5. Risk-Bearing Economies. A big firm can spread risks and can often eliminate them. This it does by diversifying output Diversification imparts its strength and stability and makes it less vulnerable to changes in commercial fortunes. There is also diversification of markets, of sources of supply and of processes of manufactures.

External Economies

External economies are those economies which occurred to each member firm as a result of the expansion of the industry as a whole Expansion of an industry may lead to the availability of new and cheaper raw materials, tools and machinery and to the discovery and diffusion of a superior technical knowledge Some raw materials and tools may be made available at reduced prices, because as the industry grows, subsidiary and correlated firms may spring up in the vicinity of the industry to provide it with raw materials and tools at reduced prices Various types of external economics are given below.

1. Economies of Concentration. These economies relate to advantages arising from the availability of skilled workers, the provision of better transport and credit facilities, stimulation of improvements, benefits from subsidiaries and so on. Scattered firms cannot enjoy such economies. These are the advantages of a localized industry. Every firm in the industry shares the common stock of knowledge and experience. Concentration of firms enables the transport system to cut down costs. Such economies are of special importance in a country like India which has not yet been fully industrialized
2. Economics of Information. These economics refer to the benefits which all firms engaged in an industry derive from the publication of trade and technical journals and from central research institutions in a localized industry, research and experiments are centralized. Each individual firm need not incur expenditure on research. It can draw such benefits from the common pool

3. Economies of Disintegration. When an industry grows, it becomes possible to split up some of the processes which are taken over by specialist firms. Example, a number of cotton mills located in a particular locality may have the benefit of a separate calendaring plant
4. Economics of Welfare. As compared to a large firm, an industry is in more advantageous position to provide welfare facilities to the workers. It may provide free housing, free transportation, free education, etc. Such facilities increase the productive efficiency and raise the quality and quantity of product

UNIT 2: Market Structure-I

Meaning of Market

A market is a place where two parties can gather to facilitate the exchange of goods and services. The parties involved are usually buyers and sellers. In Economics, however, the term “Market” does not refer to only particular place but it refers to a market for a commodity or commodities. It refers to an arrangement whereby buyers and sellers come in close contact with each other directly or indirectly to buy and sell goods. Further, it follows that for the existence of a market, buyers and sellers need not personally meet each other at a particular place. They may contact each other by any means such as a letter of exchange, telephone and mail, etc. Thus, the term “Market” is used in economics in a typical and specialized sense. It does not refer only to a particular place and fixed location.

Further, it refers to the conditions and commercial relationships facilitating transactions between buyers and sellers. Therefore, a market signifies any arrangement in which the sale and purchase of goods take place. Thus, in the word of Cournot, a French economist Cournot “Economists understand by the ‘Market’ not any particular market place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality, easily and quickly.”

Market forms – perfect and imperfect

Depending on the number of sellers and the Degree of competition, the market structure is classified into two broad categories

1. Perfect competition
2. Imperfect competition

Difference between Perfect Competition and imperfect competition

1. In Perfect Competition there are a large number of firms which compete among themselves in regards to price. Whereas in imperfect competition there is limited number of firms and there is competition only in regard to having target share in the limited demand for his product.

2. In Perfect Competition each individual firm controls only a small portion of the total market which is very insignificant. Each firm is a price-taker and quantity adjuster whereas in imperfect competition individual firm is a price-maker because it has considerable influence on the supply of the commodity.

3. In Perfect Competition each buyer and seller has a perfect knowledge regarding the market situations. In case if a firm wishes to charge a higher price than the existing price prevalent in the market, there is fear that he may lose all his customers. But this is not the case in imperfect competition because of lack of knowledge and some sort of attachment towards the product and the firm.

4. In Perfect Competition the demand curve is horizontal to X-axis whereas in imperfect competition demand curve slopes downwards. Both AR and MR slopes downward having a negative slope.

5. In Perfect Competition the marginal revenue is equal to average revenue, the marginal cost is equal to marginal revenue and average revenue both in short and long periods. Therefore, at the point of equilibrium:

$$AR = MR = AC = MC$$

In Imperfect Competition the equilibrium of the firm is where $MR = MC$ and $AR = AC$. Both MR and MC are more than AR and AC.

Perfect competition and its characteristics

Perfect competition refers to a market situation where there are large number of buyers and sellers. The seller sells homogeneous product at a uniform price and enjoys freedom of enterprise. The price is determined not by the firm but by the industry. Therefore, the seller is a price taker and not price maker.

Features of a Perfect Market:

A perfect market has the following features

1. Free and Perfect Competition:

In a perfect market, there are no checks either on the buyers or sellers. They are free to buy or to sell to any person. It means there are no monopolies.

2. Cheap and Efficient Transport and Communication:

Uniform price for the commodity would not be possible if the changes in the prices are not quickly adjusted or the commodity cannot be quickly transported. Thus cheap and efficient means of transport and communication are must.

3. Wide Extent:

Sometimes wide market is regarded as the same thing as the perfect market. For wide market, the commodity should have permanent and universal demand. The commodity should be portable. Means of transport and communication should be quick. There should be peace and security and extensive division of labour.

4. Large number of firms:

In this market, a product is produced and sold by large number of firms. Since there are large number of firms, therefore each firm is supplying only a small part of the total supply in the market, thus no one firm has any market power. It implies that no firm can influence the price of the product rather each must accept the price set by the forces of market demand and supply. The firms are price-takers instead of price-makers.

5. Large number of buyers:

In a perfectly competitive market, there are large numbers of buyers each demanding a small part of the total market supply of the product. As a result, no single buyer is in a position to influence the market price determined by the forces of market demand and supply.

6. Homogeneous Product:

In a perfectly competitive market, all the firms produce and supply the identical products. It means that the products of all the firms are perfect substitutes of each other. As a result of this, the price elasticity of demand for a firm's product is infinite.

7. Free entry and exit:

In a perfectly competitive market, there are no restrictions on the entry of new firms into market or on the exit of existing firms from the market.

8. Perfect knowledge:

In a perfectly competitive market, the firms and the buyers possess perfect information about the market. It implies that no buyer or firm is ignorant about the price prevailing in the market.

9. Perfect mobility of factors of production:

In a perfectly competitive market, the factors of production are completely mobile leading to factor-price equalization throughout the market.

Meaning and features of monopoly

The word monopoly is composed of two words. Mono means single and poly mean seller. Thus monopoly is a form of market organisation for a commodity in which there is only one seller of the commodity. There is no close substitute for the commodity sold by only one seller. The seller, being the sole seller has full control over the supply of the commodity. The seller dictates the price to consumer. A monopolist is thus a price maker and not price taker.

Definitions:

“Pure monopoly is represented by a market situation in which there is a single seller of a product for which there are no substitutes; this single seller is unaffected by and does not affect the prices and outputs of other products sold in the economy.” Bilas

“Monopoly is a market situation in which there is a single seller. There are no close substitutes of the commodity it produces, there are barriers to entry”. -Koutsoyiannis

Features

1. One Seller and Large Number of Buyers:

The monopolist's firm is the only firm; it is an industry. But the number of buyers is assumed to be large.

2. No Close Substitutes:

There shall not be any close substitutes for the product sold by the monopolist. The cross elasticity of demand between the product of the monopolist and others must be negligible or zero.

3. Difficulty of Entry of New Firms:

There are either natural or artificial restrictions on the entry of firms into the industry, even when the firm is making abnormal profits.

4. Monopoly is also an Industry:

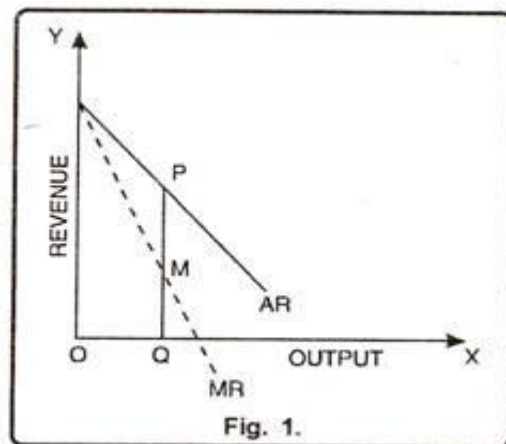
Under monopoly there is only one firm which constitutes the industry. Difference between firm and industry comes to an end.

5. Price Maker:

Under monopoly, monopolist has full control over the supply of the commodity. But due to large number of buyers, demand of any one buyer constitutes an infinitely small part of the total demand. Therefore, buyers have to pay the price fixed by the monopolist.

Nature of Demand and Revenue under Monopoly:

Under monopoly, it becomes essential to understand the nature of demand curve facing a monopolist. In a monopoly situation, there is no difference between firm and industry. Therefore, under monopoly, firm's demand curve constitutes the industry's demand curve. Since the demand curve of the consumer slopes downward from left to right, the monopolist faces a downward sloping demand curve. It means, if the monopolist reduces the price of the product, demand of that product will increase and vice-versa. (Fig. 1). In Fig. 1 average revenue curve of the monopolist slopes downward from left to right. Marginal revenue (MR) also falls and slopes downward from left to right. MR curve is below AR curve showing that at OQ output, average revenue (= Price) is PQ whereas marginal revenue is MQ. That way $AR > MR$ or $PQ > MQ$



Meaning of price discrimination and its degrees

Price discrimination

It is the act of selling the same product by a producer by a different price to the different buyers in the different self markets is called price discrimination. But it is very difficult to sell the same product at different prices. Therefore, the products are slightly differentiated by the seller to successfully practice price discrimination. Therefore, price discrimination means charging different prices for the technically similar products.

Degrees of price discrimination

First Degree Price Discrimination

It is that price discrimination monopolist charges as high price from each buyer as he is will to pay for each unit of the commodity rather than to go without the commodity. He the monopolist is in a position to know the price each buyer is willing to pay in this type of price discrimination the consumer surplus is completely exhausted. In other words monopolist charge so high price from each by that his entire consumer is extracted by the seller. This is why it is known perfect price discrimination. An example of limited price discrimination of this type can be a greccy doctor

Second degree price discrimination

Second degree price discrimination aims at extracting the major part of the consumer's surplus and not the entire

Consumer's surplus Price discrimination of second degree occurs when monopolist divides the all buyers into different groups and from each group so much price is charged which the marginal buyer of that group is willing to pay.

Price Discrimination of third degree.

Price discrimination of third degrees means that the monopolist divides his whole market into two or more separate sub-markets on the basis of difference in elasticity of demand and fix different price for each sub-market. Price in different sub-markets depends upon quantity supplied in a market and elasticity of demand in than submarket. This type of price discrimination is common. First and second degree price discriminations are difficult and not practiced.

Shut down point

A point at which a businessman thinks that there is no benefit in continuing the business operations and decides to shut down the business either temporarily or permanently is called the shutdown point. This situation could be a result of output and price where the business earns just the revenue enough to cover the total variable costs. Shutdown point occurs exactly when the marginal profit of the business reaches a negative scale.

At the shutdown point, no economic benefit is seen to continue production. If there is an additional loss—either a rise in variable costs or a drop in revenue, the cost of operations may outweigh the revenue. In this situation, shutting the business down is the better choice than to continue it. If the situation is reversed, then continuing the business would be a better option.

A shutdown point is an operating level where a business does not benefit in continuing production operations in the short run when revenue from selling their product is unable to cover variable costs of production. The shutdown point represents a point where a firm will incur

higher and increasing losses if it continues production, as opposed to reduced losses if production is ceased. The shutdown point occurs at a point where marginal profit reaches a negative scale.

Understanding Shutdown Points

A shutdown arises when price or average revenue (AR) falls below average variable cost (AVC) at the profit-maximizing output level. Continued production will incur additional variable costs but will not generate enough revenue to cover them. At the same time, the firm will still have fixed costs to pay, further increasing the losses.

A shutdown point is typically a short-run position; however, in the long run, the firm should shut down and leave the industry if its product price is less than its average total cost. Therefore, there are two shutdown points for a firm – in the short run and the long run. The decision to shut down is dependent on which costs the firm can avoid by shutting down production. The short run is a period where at least one of the firm's inputs is fixed, resulting in fixed costs incurred despite the decision to shut down.

In summary, the shutdown point has the following characteristics:

- It is the output and price point where a firm is able to just cover its total variable cost.
- The average variable cost (AVC) is at its minimum point.
- It is where the marginal cost (MC) curve intercepts the average variable cost (AVC) curve.
- The firm is indifferent between shutting down and continuing production where losses equal to the total fixed costs are incurred regardless of either decision.



Where:

MC – Marginal Cost

ATC – Average Total Cost

AVC – Average Variable Cost

SP – Shutdown Price

BEP – Break-even Price

Short-Run Shutdown Decision

The cost of production is divided into two parts – fixed costs and variable costs. The break-even point is a point where revenue generated from sales of a product is equal to the production cost (fixed cost plus variable cost). Zero profit is generated at the break-even point. On the graph above, it is the point where the average total cost (ATC) is equal to marginal cost (MC) (i.e., $MC = ATC$). Marginal cost equals a change in total costs for each additional unit produced. Fixed costs do not change in the short run; hence, the change in total costs refers to variable cost only.

The shutdown zone represents an area between the break-even point and the shutdown point. It is an area where production can continue, as average revenue (AR) will still be able to cover average variable cost (AVC). However, in the shutdown zone, the firm will be making losses as the price is below average total cost (ATC). The firm operates at any level above the AVC curve as long as it is where $MC = MR$ (price). The MC curve above the AVC is also the short-run supply curve of the firm.

The shutdown rule states that a firm should continue operations as long as the price (average revenue) is able to cover average variable costs. The firm can continue operating, as it will be producing where marginal revenue (price, average revenue) is equal to marginal cost, a condition that ensures profit maximization or loss minimization.

UNIT 3: Market Structure - II

Monopolistic competition and it's features

Monopolistic competition is a market structure in which there are large number of buyers and sellers sell differentiated product which are close but not perfect substitute. Monopolistic competition dominates the industrial world. Under monopolistic competition, a firm has some freedom to fix its price and it has a price policy.

Features of monopolistic competition

1. Many buyers and sellers

Similar to perfect competition, there are many buyers and sellers in the market. However, there are fewer in Monopolistic Competition. Consumers have a wide variety of choices which is not offered by other market structures such as a monopoly or oligopoly.

2. Slightly differentiated Products

Firms that operate in a monopolistic market have very similar products but are slightly differentiated to add value over the competition. Clothing markets are a prime example. There are many types of clothes, each with a slightly different style. This differentiation can be seen in four ways: Physical, Marketing, Human capital, and differentiation through distribution.

3. Maximize profits

Firms in a monopolistic market seek to maximize profit. In economics, this is where marginal costs equal marginal revenue. By doing so, the firm produces right up to the point whereby it becomes unprofitable to produce any more goods. To produce any further would create a loss for the firm. So up to this point, the firm is making a profit on producing an additional unit to sell.

4. Low barriers to entry and exit

New entrants are easily able to enter as there are none or very insignificant barriers to entry. The cost to start a new business is low and the risk involved in failing is also comparatively low. So

the incentive to enter the market is high, whilst few tools are needed. In other words, there are many more people who are able and willing to compete.

5. Potential supernormal profits in the short term

Monopolistic firms can make supernormal profits if they can benefit from a gap in the market. Looking at clothing, for example, one company may create a new design that has never been done before.

If it goes down a hit with the customers, the firm benefits from high levels of demand. These lead to supernormal profits in the short-term until other firms become aware. They then try to make similar products, thereby reducing the level of profits of the original firm.

6. Normal profits in the long-run

Over the long-term, profits shrink as new entrants enter the market to compete. Due to low barriers to entry, new firms can see any supernormal profits that are made and come in to take their share. So whilst some firms may benefit from new products in the short-term, these supernormal profits are brought back down again with the introduction of competition.

7. Imperfect information

In perfect competition, the customer is able to gather information relatively easily as all products are the same. At the same time, the cost to gather information in a monopoly structure is relatively low as there is only one firm.

By contrast, in monopolistic competition, many firms offer slightly different products – which makes information gathering more time consuming and costly. Insurance is a prime example – which is why a number of comparison sites have come into existence.

8. Non-price competition

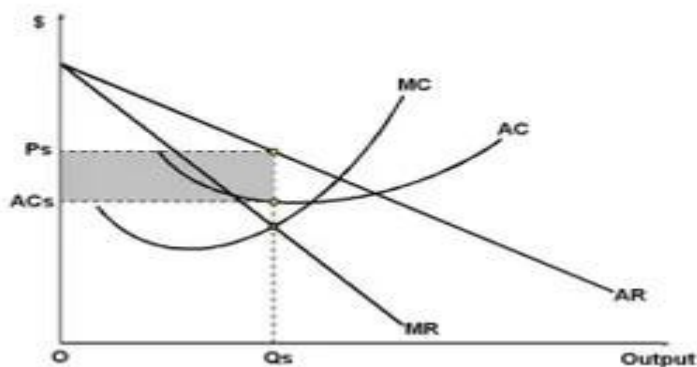
The market offers slightly different products, so businesses compete on product/service quality. This can come through shorter wait times or more attentive employees. At the same time, firms will also compete on other non-price factors such as location, branding/advertising, and quality.

Short-run Curve

In the short-run, firms in monopolistic competition are able to make a supernormal profit. For example, a new clothing manufacturer may produce a new design that becomes an instant hit. In the short-term, customers flock to buy it.

However, competitors acknowledge this and will try and make similar designs, thereby taking customers back. In the long-run, competitors will flock into the market to make profits from the new design and reduce profits from supernormal to 'ordinary' profits.

As with all profit maximising firms, they will continue to produce until Marginal Revenue equals Marginal Cost. This means that if it is no longer profitable to produce a product, then the business will not do so. For example, Walmart will no longer sell its Cereal Brand for \$2 if its Marginal Cost is greater.

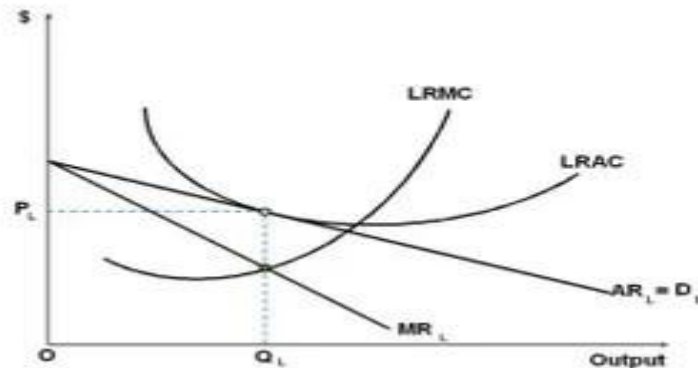


As we can see from the graph above and below, average costs increase as new entrants enter the market. This is due to the fact that firms are unable to benefit from economies of scale.

To begin with, the firm making supernormal profits will increase production so that Marginal Costs = Marginal Revenue. However, when new businesses enter, they will take customers away; meaning the original firm will have to reduce production. In turn, this can lead to a more inefficient production process which increases the average cost to all businesses.

Long-run Curve

Over the long-run, average costs increase due to higher levels of competition, and profits fall to normalized levels. Firms will still aim to profit maximize, thereby increasing production until Marginal Revenue (MR) = Marginal Cost (MC).



This is shown on the diagram where MR and Long-run Marginal Cost (LRMC) intersects. The firm will then sell at the price at the point where it intersects the demand curve – which is at price P_L . The long-run average costs then go through this point. At this point, the firm will make no profit in the long-run.

Oligopoly market and it's features

The term oligopoly is derived from two Greek words: 'oligi' means few and 'polein' means to sell. Oligopoly is a market structure in which there are only a few sellers (but more than two) of the homogeneous or differentiated products. So, oligopoly lies in between monopolistic competition and monopoly.

Oligopoly refers to a market situation in which there are a few firms selling homogeneous or differentiated products. Oligopoly is, sometimes, also known as 'competition among the few' as there are few sellers in the market and every seller influences and is influenced by the behaviour of other firms.

Example of Oligopoly:

In India, markets for automobiles, cement, steel, aluminium, etc, are the examples of oligopolistic market. In all these markets, there are few firms for each particular product.

DUOPOLY is a special case of oligopoly, in which there are exactly two sellers. Under duopoly, it is assumed that the product sold by the two firms is homogeneous and there is no substitute for it. Examples where two companies control a large proportion of a market are: (i) Pepsi and Coca-Cola in the soft drink market; (ii) Airbus and Boeing in the commercial large jet aircraft market; (iii) Intel and AMD in the consumer desktop computer microprocessor market.

Features of Oligopoly:

The main features of oligopoly are elaborated as follows:

1. Few firms:

Under oligopoly, there are few large firms. The exact number of firms is not defined. Each firm produces a significant portion of the total output. There exists severe competition among different firms and each firm try to manipulate both prices and volume of production to outsmart each other. For example, the market for automobiles in India is an oligopolist structure as there are only few producers of automobiles.

The number of the firms is so small that an action by any one firm is likely to affect the rival firms. So, every firm keeps a close watch on the activities of rival firms.

2. Interdependence:

Firms under oligopoly are interdependent. Interdependence means that actions of one firm affect the actions of other firms. A firm considers the action and reaction of the rival firms while determining its price and output levels. A change in output or price by one firm evokes reaction from other firms operating in the market.

For example, market for cars in India is dominated by few firms (Maruti, Tata, Hyundai, Ford, Honda, etc.). A change by any one firm (say, Tata) in any of its vehicle (say, Indica) will induce other firms (say, Maruti, Hyundai, etc.) to make changes in their respective vehicles.

3. Non-Price Competition:

Under oligopoly, firms are in a position to influence the prices. However, they try to avoid price competition for the fear of price war. They follow the policy of price rigidity. Price rigidity refers to a situation in which price tends to stay fixed irrespective of changes in demand and supply conditions. Firms use other methods like advertising, better services to customers, etc. to compete with each other.

If a firm tries to reduce the price, the rivals will also react by reducing their prices. However, if it tries to raise the price, other firms might not do so. It will lead to loss of customers for the firm, which intended to raise the price. So, firms prefer non-price competition instead of price competition.

4. Barriers to Entry of Firms:

The main reason for few firms under oligopoly is the barriers, which prevent entry of new firms into the industry. Patents, requirement of large capital, control over crucial raw materials, etc., are some of the reasons, which prevent new firms from entering into industry. Only those firms enter into the industry which is able to cross these barriers. As a result, firms can earn abnormal profits in the long run.

5. Role of Selling Costs:

Due to severe competition and interdependence of the firms, various sales promotion techniques are used to promote sales of the product. Advertisement is in full swing under oligopoly, and many a times advertisement can become a matter of life-and-death. A firm under oligopoly relies more on non-price competition. Selling costs are more important under oligopoly than under monopolistic competition.

6. Behaviour:

Under oligopoly, there is complete interdependence among different firms. So, price and output decisions of a particular firm directly influence the competing firms. Instead of independent price and output strategy, oligopoly firms prefer group decisions that will protect the interest of all the

firms. Group Behavior means that firms tend to behave as if they were a single firm even though individually they retain their independence.

7. Nature of the Product:

The firms under oligopoly may produce homogeneous or differentiated product.

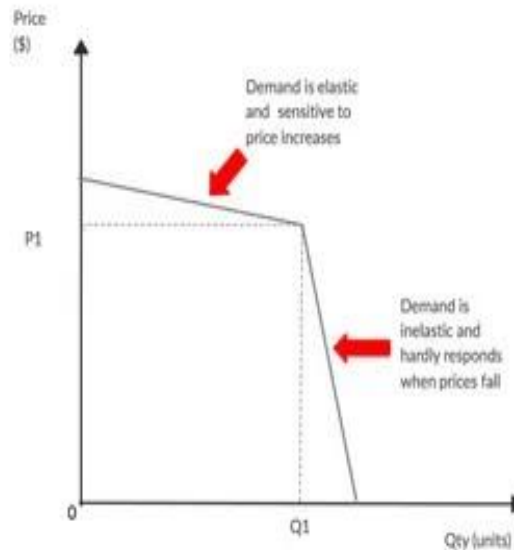
- i. If the firms produce a homogeneous product, like cement or steel, the industry is called a pure or perfect oligopoly.
- ii. If the firms produce a differentiated product, like automobiles, the industry is called differentiated or imperfect oligopoly.

8. Demand Curve:

Under oligopoly, the exact behavior pattern of a producer cannot be determined with certainty. So, demand curve faced by an oligopolist is indeterminate (uncertain). As firms are inter-dependent, a firm cannot ignore the reaction of the rival firms. Any change in price by one firm may lead to change in prices by the competing firms. So, demand curve keeps on shifting and it is not definite, rather it is indeterminate.

Oligopoly Graph – Kinked Demand Curve

The kinked demand curve is distinctive of an oligopolistic market. It shows how, at higher and lower prices, the elasticity of demand changes. As a result, prices remain relatively rigid.



As we can see in the chart above, firms are unlikely to be incentivized to increase or decrease prices. This is because increasing prices will significantly impact demand. As competitors keep their prices stable, the firm that increases prices will lose customers to cheaper rivals. At the same time, reducing prices won't increase demand. This is because price decreases will be met with fierce competition. In an oligopoly, when one firm reduces its prices, the others follow. In turn, any real gains in demand will be negligible.

Price Leadership under Oligopoly:

In certain situations, organizations under oligopoly are not involved in collusion.

There are a number of oligopolistic organizations in the market, but one of them is the dominant organization, which is called the price leader. Price leadership takes place when there is only one dominant organization in the industry, which sets the price and others follow it.

Sometimes, an agreement may be developed among organizations to assign a leadership role to one of them. The dominant organization is treated as price leader because of various reasons, such as large size of the organization, large economies of scale, and advanced technology. According to the agreement, there is no formal restriction that other organizations should follow the price set by the leading organization. However, sometimes agreement is formal in nature.

Price leadership is assumed to stabilize the price and maintain price discipline.

Price-Output Determination under Price Leadership:

Price leadership takes place when there is only one dominant organization in the industry, which sets the price and others follow it. Different economists have developed different models for determining price and output in price leadership.

Here, we would discuss a simple model for determining price and output in price leadership, which is shown in Figure-4:

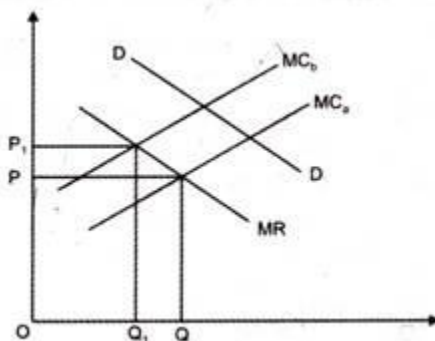


Figure-4: Price Leadership Model

Suppose there are two organizations, A and B producing identical products where organization A has a lower cost of the production than organization B. Therefore, consumers are indifferent between these two organizations due to identical products. This implies that both the organizations would face same demand curve, which further represents equal market share.

In Figure, DD is the demand curve of both the organizations and MR is their marginal revenue. MC_a and MC_b are the marginal cost curves of organization A and B respectively. As stated earlier, the cost of production of organization A is less than B, thus, MC_a is drawn below MC_b .

Let us first start the discussion of price leadership with the case of organization A. The profits of organization A would be maximized at a point where MR intersects MC_a . At this point, the

output of organization A would be OQ with the price level OP. On the other hand, the profits of organization B would be maximized at a point where MR intersects MC_b with output OQ_1 and price OP_1 .

In such a case, the price of organization B is more as compared to organization A. However, both the organizations have to charge the same price as products are homogeneous. In this case, organization A is the price leader and organization B is the follower.

Thus, organization A will dictate the price to organization B. Both the organizations will follow the same output, OQ and price OP. However, the profits earned by organization B are less than A, as it has to produce at price OP which is less than its profit maximizing price, OP_1 . In addition, the organization B also has high costs of production that leads to lower profits at price OP_1 .

Drawbacks of Price Leadership:

The price leadership suffers from various drawbacks.

These are discussed as follows:

- i. Makes it difficult for the price leader to assess the reactions of followers.
- ii. Leads to malpractices, such as charging lower prices by rival organizations in the form of rebates, money back guarantees, after delivery free services, and easy installment facility. The prices charged by rival organizations are comparatively less than the prices set by the price leader.
- iii. Leads to non-price competition by rival organizations in the form of aggressive promotion strategies.
- iv. Influences new organizations to enter into the industry because of price rise. These new organizations may not follow the leader of the industry.

- v. Poses problems if there are differences in cost of price leaders and price followers. In case, if cost of production of price leader is less, then he/she would fix lower prices. This will lead to a loss for a price follower if his/her cost of production is more than the price leader

UNIT 4: Factor Pricing

Marginal Productivity Theory of Distribution: Definitions, Assumptions, Explanation

The oldest and most significant theory of factor pricing is the marginal productivity theory. It is also known as Micro Theory of Factor Pricing.

It was propounded by the German economist T.H. Von Thunen. But later on many economists like Karl Menger, Walras, Wicksteed, Edgeworth and Clark etc. contributed for the development of this theory.

According to this theory, remuneration of each factor of production tends to be equal to its marginal productivity.

Marginal productivity is the addition that the use of one extra unit of the factor makes to the total production. So long as the marginal cost of a factor is less than the marginal productivity, the entrepreneur will go on employing more and more units of the factors. He will stop giving further employment as soon as the marginal productivity of the factor is equal to the marginal cost of the factors.

Definitions:

“The distribution of income of society is controlled by a natural law, if it worked without friction, would give to every agent of production the amount of wealth which that agent creates.”

-J.B. Clark

“The marginal productivity theory contends that in equilibrium each productive agent will be rewarded in accordance with its marginal productivity.” -Mark Blaug

“The marginal productivity theory of income distribution states that in the long run under perfect competition, factors of production would tend to receive a real rate of return which was exactly equal to their marginal productivity.” -Liebhafasky

Assumptions of the Theory:

The main assumptions of the theory are as under:

1. Perfect Competition:

The marginal productivity theory rests upon the fundamental assumption of perfect competition. This is because it cannot take into account unequal bargaining power between the buyers and the sellers.

2. Homogeneous Factors:

This theory assumes that units of a factor of production are homogeneous. This implies that different units of factor of production have the same efficiency. Thus, the productivity of all workers offering the particular type of labour is the same.

3. Rational Behaviour:

The theory assumes that every producer desires to reap maximum profits. This is because the organizer is a rational person and he so combines the different factors of production in such a way that marginal productivity from a unit of money is the same in the case of every factor of production.

4. Perfect Substitutability:

The theory is also based upon the assumption of perfect substitution not only between the different units of the same factor but also between the different units of various factors of production.

5. Perfect Mobility:

The theory assumes that both labour and capital are perfectly mobile between industries and localities. In the absence of this assumption the factor rewards could never tend to be equal as between different regions or employments.

6. Interchangeability:

It implies that all units of a factor are equally efficient and interchangeable. This is because different units of a factor of production are homogeneous, since they are of the same efficiency, they can be employed inter-changeable, and e.g., whether we employ the fourth man or the fifth man, his productivity shall be the same.

7. Perfect Adaptability:

The theory takes for granted that various factors of production are perfectly adaptable as between different occupations.

8. Knowledge about Marginal Productivity:

Both producers and owners of factors of production have means of knowing the value of factor's marginal product.

9. Full Employment:

It is assumed that various factors of production are fully employed with the exception of those who seek a wage above the value of their marginal product.

10. Law of Variable Proportions:

The law of variable proportions is applicable in the economy.

11. The Amount of Factors of Production should be Capable of being Varied:

It is assumed that the quantity of factors of production can be varied i.e. their units can either be increased or decreased. Then the remuneration of a factor becomes equal to its marginal productivity.

12. The Law of Diminishing Marginal Returns:

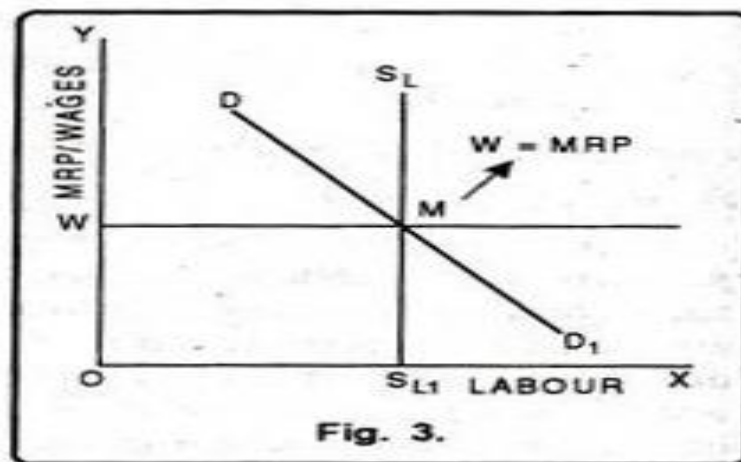
It means that as units of a factor of production are increased the marginal productivity goes on diminishing.

13. Long-Run Analysis:

Marginal productivity theory of distribution seeks to explain determination of a factor's remuneration only in the long period.

Explanation of the Theory:

The marginal productivity theory states that under perfect competition, price of each factor of production will be equal to its marginal productivity. The price of the factor is determined by the industry. The firm will employ that number of a given factor at which price is equal to its marginal productivity. Thus, for industry, it is a theory of factor pricing while for a firm it is a factor demand theory.



Thus factor price is determined by the demand for factor i.e. factor price will be equal to the marginal revenue productivity. It has been shown by above Fig. . In the Fig. , number of labour has been taken on OX axis whereas wages and MRP have been taken on OY axis. DD1 is the industry's demand curve for labour. This is also the Marginal Revenue Productivity curve.

Factor Price (OW) = Marginal Revenue Productivity MRP.

Thus under perfect competition, factor price is determined by the industry and firm demands units of a factor at this price.

Analysis of Marginal Productivity Theory from the Point of View of Firm:

Under perfect competition, number of firms is very large. No single firm can influence the market price of a factor of production. Every firm acts as a price taker and not a price maker. Therefore, it has to accept the prevailing price. No employer would like to pay more than what others are paying. In other words, a firm will employ that number of a factor at which its price is equal to the value of marginal productivity. Therefore, from the point of view of a firm, the theory indicates how many units of a factor it should demand.

It is due to this reason that it is also called Theory of Factor Demand. Other things remaining the same, as more and more labourers are employed by a firm, its marginal physical productivity goes on diminishing. As price under perfect competition remains constant, so when marginal physical productivity of labour goes on diminishing, marginal revenue productivity will also go on diminishing. Therefore, in order to get the equilibrium position, a firm will employ labourers up to a point where their respective marginal revenue productivity is equal to their wage rate.

Criticisms

- (i) It assumes that all the units of a factor are homogeneous, so that any one unit is as good as any other. This is not actually the case. All labourers are not alike; they are of varying efficiency; nor are all the units of land similar. The capital equipment is also of different types. Thus, we cannot talk of marginal productivity of a factor in general.
- (ii) It is assumed that different factors are capable of being substituted for one another, so that, at the margin, it is possible to use a little more land or a little more labour or capital, etc. If this substitution is not possible, marginal productivity of the various factors may remain unequal. Actually, it is not always possible to substitute labour for capital and vice versa. Different factors of production are not close substitutes for one another.
- (iii) It is also assumed that the amount of a particular factor that is used can be continuously varied, so that it is possible to apply a little more or a little less of the same factor. If this cannot be done, as is sometimes the case, the use of the factor

cannot be pushed to the point at which its marginal productivity becomes equal to its cost.

- (iv) It is assumed that the factors of production are mobile as between various uses. We know that land lacks mobility; nor are labour and capital perfectly mobile. Human package is said to be the least portable. If a factor cannot be moved from one use or employment to another, its marginal productivity in the various employments may remain unequal.
- (v) The theory is based on the law of diminishing returns as applied to the organisation of a business. This means that, other things being equal, a disproportionate increase in the supply of any one factor increases total production at a diminishing rate. We know, however, that in manufacturing industries, the operation of the law of diminishing returns is held in check. It is under these assumptions that the reward of each of the four factors of production, viz., rent of land, interest on capital, wages of labour and profits of enterprise, tends to equal the value of its marginal net product. But these assumptions do not always hold good.

Modern Theory of Wages:

Modern theory of wages regards wages as a price of labour and all other prices determined by the usual supply and demand analysis. According to this approach, wages are determined by the interaction of market forces of demand and supply.

Demand for Labour:

The demand for labour comes from the entrepreneurs as it is used for the production of goods and services. Thus, the demand for labour depends upon the productivity of labour i.e., the higher the productivity of labour, the greater will be the demand for it from employers. Thus, demand for labour depends upon the marginal productivity of labour; since the marginal productivity of labour will slope downwards after a stage, the demand curve of labour will also slope downward.

Factors Affecting the Demand for Labour:

1. Technological Changes:

Technological changes influence the marginal productivity of labour. Therefore, these changes also influence the demand for labour.

2. Derived Demand:

Demand for labour is a derived demand. It means that demand for labour depends upon the demand for goods and services which it produces. If at any given time the demand for a particular commodity produced by the labour is high, it is natural that the demand for labour shall also be high. Hence, the greater is the consumer demand for the product, the higher will be the demand for the labour to produce that commodity.

3. Proportion of Labour:

The demand for labour also depends upon the proportion in which labour is mixed with other factors of production. When a small amount of labour is engaged in the production of a product, the demand for that type of labour is inelastic. For instance, the demand for labour for operating automatic machines or latest machines in large scale factories is inelastic.

4. Cost of other Factors:

The demand for labour depends upon the cost of other factors of production which can be used as substitute for labour. If substitute factors are costly, the entrepreneur will naturally substitute labour in place of costly factor.

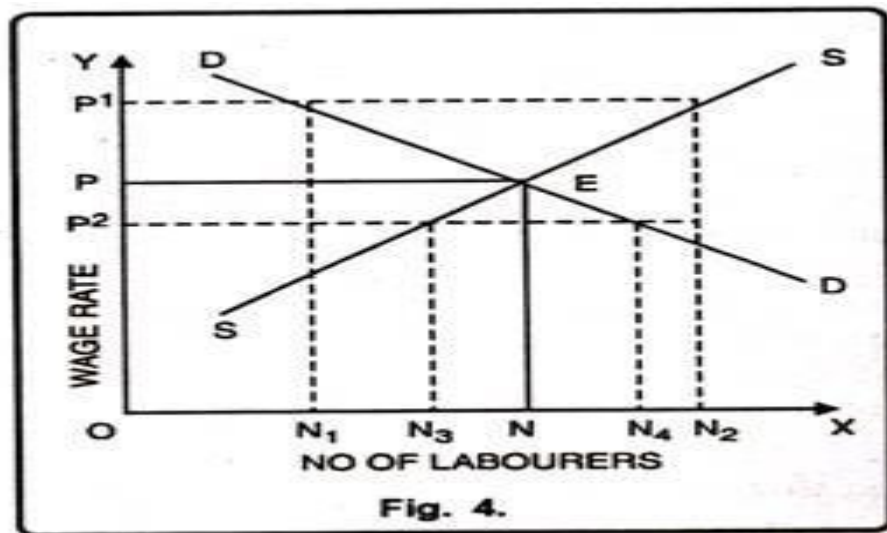
In such a case the demand for labour will be high. If the prices of substitute factors which can be used in place of labour have declined, the substitute factor will be used in place of labour. Hence, the demand for labour will decline.

Supply of Labour:

Supply of labour in an economy depends upon both economic as well as non-economic factors. Economic factors influencing the supply of labour comprises of existing employment, desire to increase monetary income, bargaining power of the labourers, size of population, income distribution etc. while the non-economic factors consist of family affection, social conditions, domestic environment etc.

Psychological factors also affect the supply of labour. It is only due to the psychological factors that a worker decides how much time he should devote to work and how much to leisure. Moreover, the supply of labour also depends on the elasticity.

The supply of labour for a firm is perfectly elastic, so, the firm at current wages can employ as many workers as it wishes. On the contrary the nature of supply of labour for an industry is not infinitely elastic. Thus, it cannot employ more and more labourers at the current wage rate. The industry can do so by attracting labourers from other industries by offering them higher wages. Following diagram clears this point more vividly.



In Fig. 4 number of laborers supplied and demanded has been taken on X-axis and wages on Y-axis. SS is the backward bending supply curve. OW relates to the initial wage rate. When the wage rate is OW', the hours supplied are OX1. The maximum working hours are OX at wage rate OW. Now suppose the wage rate increases to OW'', in that case hours supplied will decrease

to OX1. Thus, we may conclude that like other factors of production, supply curve of labour is also upward sloping from left to right.

Factors Affecting Supply:

1. Size of Population:

The supply of labour depends upon several factors. In the first place, the supply at any given time depends upon the number of labourers in the country. This, in itself is a result of the size of population and that proportion of this population which is called working population.

The size of population is determined by the difference in birth rate and the death rate. The proportion of total population which is called working population depends upon occupational distribution, level of technical advancement, conservation and mobility of labour.

2. Efficiency of Labour:

The supply of labour does not merely depend upon the size of population . It also depends upon the efficiency of labour. Efficiency depends upon several factors like hours of working, service and working conditions, wage rates, economic incentives and other conditions that have a bearing upon the working ability of labour.

3. Mobility of Labour: The supply of labour also depends upon the mobility of labour. If the labour is less mobile either because the means of transport are not developed or there is conservatism among the labourers, or because there are climatic, language or traditional hindrances, then it follows that supply of labour shall be highly limited.

Classical theory of Interest

The economists like Ricardo, J. S. Mill, Marshall and Pigou developed the, classical theory of interest which is also known as the capital theory of interest or the saving-investment theory of

interest or the real theory of interest. According to this theory, interest is a real phenomenon and the rate of interest is determined exclusively by the real factors, i.e., the supply of and demand for capital under perfect competition. The supply of capital is governed by thrift (i.e. saving) or time preference and the demand for capital is influenced by the productivity of capital.

Assumptions of Classical Theory of Interest:

The classical theory of interest is based upon the following assumptions:

1. Perfect competition exists in the factor market
2. The theory assumes full employment of resources.
3. Economic agents act rationally, i.e., they are motivated by self-interest and want to maximise economic benefit.
4. The price level is assumed to be constant. If it changes then the economic agents do not suffer money illusion, i.e., savers and investors react to changes in the real interest rates and not the changes in the money interest rates.
5. Money is neutral and serves only as a medium of exchange and not as a store of value.

Supply of Capital:

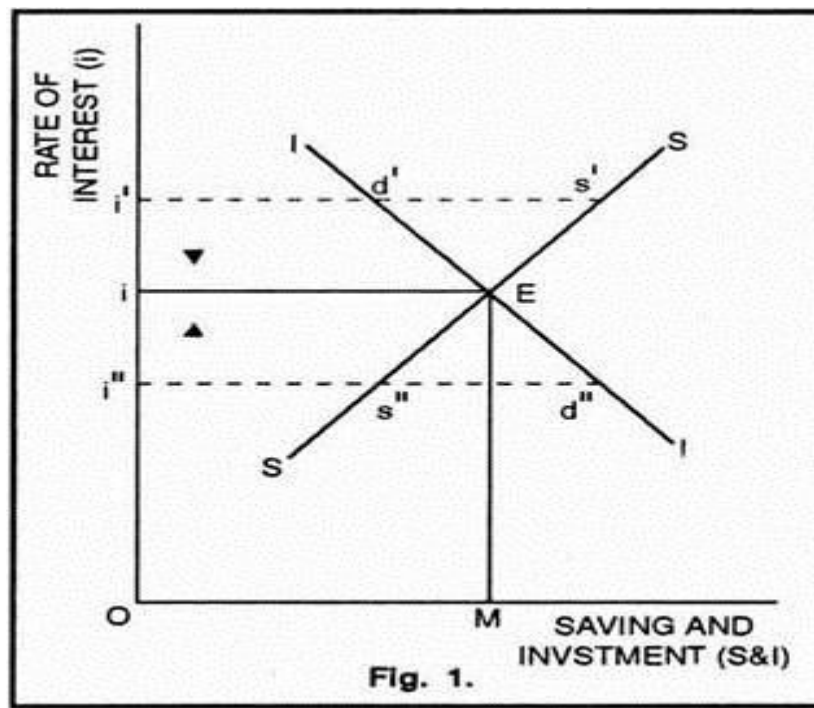
The supply of capital depends upon savings which, in turn, depend upon a number of psychological, economic and institutional factors broadly classified as – (a) the will to save, (b) the power to save, and (c) the facilities to save. Saving means curtailment of consumption or postponement of the present consumption. Thus, saving involves a sacrifice, abstinence or waiting. The rate of interest is considered to be the reward for abstinence or waiting.

It is an inducement for the act of saving or foregoing the present consumption. In deciding between the present consumption (which involves no saving) and the future consumption (which requires saving), the individual has to take into consideration the opportunity cost of each alternative and the opportunity cost is measured by the rate of interest.

For example, if the current rate of interest is 5% then by consuming Re. 1 of income now, the individual is foregoing the consumption of Rs. 1.05 one year later. Thus, the higher the current

rate of interest, the greater the opportunity cost of present consumption as compared to the future consumption, and, as a result, greater the inducement to save out of the present income.

Hence, saving is interest elastic and there is a positive relationship between the rate of interest and saving. The supply curve of capital or the saving schedule (SS curve in Figure 1) slopes upward to the right which indicates that higher the rate of interest, larger will be the savings and greater will be the supply of capital and vice versa.



Demand for Capital:

Capital is demanded by the investors because it is productive and brings profits to them. The demand for capital or investment demand depends, on the one hand, on the productivity of capital, i.e., returns on investment, and on the other hand, on the rate of interest, i. e., the cost of investment. Productivity of capital is subject to the law of diminishing returns.

Additional units of capital are less productive than the earlier units; with the investment of more and more capital, the marginal productivity of capital declines. The producer will continue his

investment of capital as long as the productivity of capital is more than the rate of interest and will stop further investment when the productivity of capital equals the rate of interest. This shows that at higher rates of interest, the producers demand less capital and at lower rates of interest, they demand more capital. Thus, the demand for capital is inversely related to the rate of interest.

Determination of Rate of Interest:

Assuming the income level to be given, the rate of interest is determined by the intersection of the demand curve and the supply curve of capital.

The determination of equilibrium rate of interest of the following three conditions:

- (i) The supply of capital or saving is an increasing function of the rate of interest:

$$S = f(i); dS/di > 0$$

- (ii) The demand for capital or investment is a decreasing function of the rate of interest:

$$I = f(i); dI/di < 0$$

- (iii) The supply of capital equals the demand for capital:

$$S = I$$

In Figure , the II curve (demand curve for capital) intersects the SS curve (supply curve of capital) at point E. The equilibrium rate of interest is O_i and OM is the quantity of capital demanded and supplied at this rate. In other words, at the equilibrium rate of interest, i.e., O_i , saving = investment = OM.

Any deviation from the equilibrium rate of interest (O_i) will be unstable. If, at any time, the rate of interest rises to O_i' the supply of capital exceeds the demand for capital ($I_{s'} > i_{d'}$). As a result of this excess of capital supply, the rate of interest will fall to its equilibrium level (O_i). Similarly, if the rate of interest falls to O_i'' , the demand for capital exceeds the supply of capital ($i''_{d''} > i'_{s''}$). As a result of this excess of capital demand, the rate of interest rises to its equilibrium level (O_i).

Criticisms of Classical Theory:

The classical theory of interest has been criticized by Keynes on many grounds:

1. Interest not a Reward for Saving:

Keynes has criticized the classical view that interest is the reward for saving or capital on the following grounds:

- (a) An individual can get interest by lending money which he has not saved but has inherited from his forefathers.
- (b) If a person hoards his savings in the form of cash, he earns no interest,
- (c) Savings depend not only on the rate of interest but also on the level of income, hence interest cannot be a reward for saving,
- (d) Keynes regards interest as a monetary phenomenon and defines the rate of interest as a reward for parting with liquidity (or cash balances) rather than a reward for saving.

2. Saving and Investment not Interest Elastic:

The classical theory assumes that saving and investment are interest elastic, i.e., sensitive to changes in the rate of interest. But it is not always so. In reality, investment depends more on marginal efficiency of capital and future expectations than on the rate of interest, particularly during periods of depression.

Similarly, savings are rarely interest elastic. People may save without any rise in the rate of interest, or may save even if the rate of interest falls to zero. In fact, savings are more influenced by the level of income than by the rate of interest.

3. Rate of Interest not Equilibrating Force:

According to the classical economists, the equality between saving and investment is maintained by the interest rate adjustment mechanism. Keynes objected to this view and gave a different mechanism for restoring the equality. According to him, income, and not rate of interest, is the equilibrating force between saving and investment. Whenever saving exceeds investment, income level declines. As a result, saving falls and becomes equal to investment. Similarly, if investment exceeds saving, income level rises, saving increases and becomes equal to investment.

4. Role of Money Ignored:

The classical theory of interest assumes money to be neutral, merely acting as a medium of exchange. It ignores the role of money as a store of value, i.e., it does not take in to consideration

the possibility that saving may be hoarded. It also completely ignores the important role the quantity of money, the created money and the bank credit can play in the determination of the rate of interest. All these factors make the classical theory unrealistic and irrelevant in the modern dynamic world.

5. Unrealistic Assumption of Full Employment:

The classical theory is unrealistic because it operates under the special conditions of full employment. Normally, less-than full employment, and not full employment, conditions prevail in the actual world. According to Keynes, when there are unemployed resources in the economy, people need not be paid for abstaining from consumption (i.e., for saving). The problem in such an economy is to put idle resources to use rather than to withdraw already employed resources from their existing employment. Hence, under unemployment conditions, interest cannot be a reward for abstinence or waiting.

6. Discrepancy between Market and Natural Rates:

The classical economists assume that discrepancy between the natural (real) and market (money) rates of interest is merely a chance and cannot exist for a long time. But, according to Wicksell, Keynes and other monetary economists, the market rate of interest normally deviates from the natural rate of interest and this deviation is due to the influence of monetary factors like creation and destruction of bank credit.

7. Narrow View of Supply of Capital:

The classical economists included only saving in the supply of capital. But in reality, the supply of capital comprises of dishoarded money. Moreover, newly created money and bank credit also form important sources of supply of capital.

Keynes' Liquidity Preference Theory of Interest Rate Determination!

The determinants of the equilibrium interest rate in the classical model are the 'real' factors of the supply of saving and the demand for investment. On the other hand, in the Keynesian analysis, determinants of the interest rate are the 'monetary' factors alone.

Keynes' analysis concentrates on the demand for and supply of money as the determinants of interest rate. According to Keynes, the rate of interest is purely "a monetary phenomenon."

Interest is the price paid for borrowed funds. People like to keep cash with them rather than investing cash in assets. Thus, there is a preference for liquid cash.

People, out of their income, intend to save a part. How much of their resources will be held in the form of cash and how much will be spent depend upon what Keynes calls liquidity preference, Cash being the most liquid asset, people prefer cash. And interest is the reward for parting with liquidity. However, the rate of interest in the Keynesian theory is determined by the demand for money and supply of money.

Demand for Money:

Demand for money is not to be confused with the demand for a commodity that people 'consume'. But since money is not consumed, the demand for money is a demand to hold an asset.

The desire for liquidity or demand for money arises because of three motives:

- (a) Transaction motive
- (b) Precautionary motive
- (c) Speculative motive
- (a) Transaction Demand for Money:

Money is needed for day-to-day transactions. As there is a gap between the receipt of income and spending, money is demanded. Incomes are earned usually at the end of each month or fortnight or week but individuals spend their incomes to meet day-to-day transactions.

Since payments or spending are made throughout a period and receipts or incomes are received after a period of time, an individual needs 'active balance' in the form of cash to finance his transactions. This is known as transaction demand for money or need- based money—which directly depends on the level of income of an individual and businesses.

People with higher incomes keep more liquid money at hand to meet their need-based transactions. In other words, transaction demand for money is an increasing function of money income.

Symbolically,

$$T_{dm} = f(Y)$$

Where, T_{dm} stands for transaction demand for money and Y stands for money income.

(b) Precautionary Demand for Money:

Future is uncertain. That is why people hold cash balances to meet unforeseen contingencies, like sickness, death, accidents, danger of unemployment, etc. The amount of money held under this motive, called 'Idle balance', also depends on the level of money income of an individual.

People with higher incomes can afford to keep more liquid money to meet such emergencies. This means that this kind of demand for money is also an increasing function of money income. The relationship between precautionary demand for money (P_{dm}) and the volume of income is normally a direct one.

Thus,

$$P_{dm} = f(Y)$$

(c) Speculative Demand for Money:

This sort of demand for money is really Keynes' contribution. The speculative motive refers to the desire to hold one's assets in liquid form to take advantages of market movements regarding the uncertainty and expectation of future changes in the rate of interest.

The cash held under this motive is used to make speculative gains by dealing in bonds and securities whose prices and rate of interest fluctuate inversely. If bond prices are expected to rise (or the rate of interest is expected to fall) people will now buy bonds and sell when their prices rise to have a capital gain. In such a situation, bond is more attractive than cash.

Contrarily, if bond prices are expected to fall (or the rate of interest is expected to rise) in future, people will now sell bonds to avoid capital loss. In such a situation, cash is more attractive than bond. Thus, at a low rate of interest, liquidity preference is high and, at a high rate of interest, securities are attractive. Now it is clear that the speculative demand for money (S_{dm}) varies inversely with the rate of interest. Thus,

$$S_{dm} = f(r)$$

Where, r is the rate of interest.

Total Demand for Money:

The total demand for money (D_M) is the sum of all three types of demand for money. That is, $D_M = T_{dm} + P_{dm} + S_{dm}$. The demand for money has a negative slope because of the inverse relationship between the speculative demand for money and the rate of interest.

However, the negative sloping liquidity preference curve becomes perfectly elastic at a low rate of interest. According to Keynes, there is a floor interest rate below which the rate of interest cannot fall. This minimum rate of interest indicates absolute liquidity preference of the people.

This is what Keynes called 'liquidity trap'. In Fig. D_M is the liquidity preference curve. At minimum rate of interest, r_{min} , the curve is perfectly elastic. However, there is a ceiling of interest rate, say r_{max} , above which it cannot rise. Thus, interest rate fluctuates between r_{max} and r_{min} .

Money Supply:

The supply of money in a particular period depends upon the policy of the central bank of a country. Money supply curve, S_M , has been drawn perfectly inelastic as it is institutionally given.

Determination of Interest Rate:

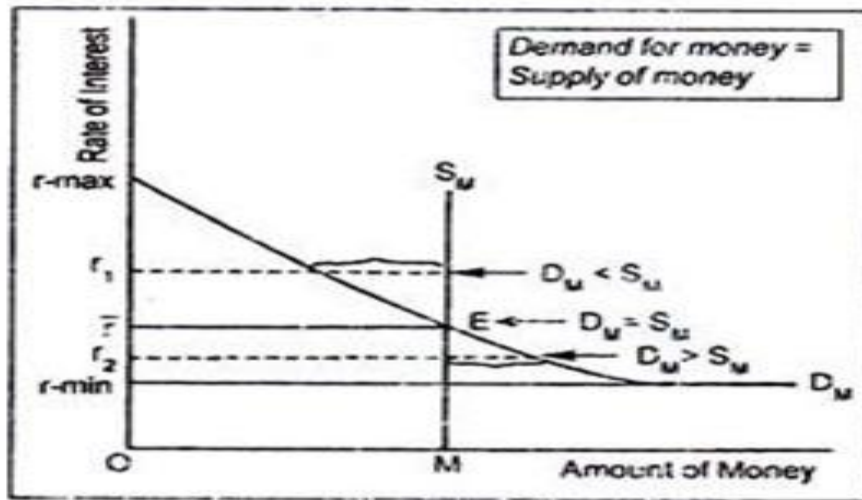


Fig. 6.20: Keynesian Theory

According to Keynes, the rate of interest is determined by the demand for money and the supply of money. OM is the total amount of money supplied by the central bank. At point E, demand for money becomes equal to the supply of money. Thus, the equilibrium interest rate is determined at r . Now, suppose that the rate of interest is greater than r . In such a situation, supply of money will exceed the demand for money. People will purchase more securities. Consequently, its price will rise and interest rate will fall until demand for money becomes equal to the supply of money.

On the other hand, if the rate of interest becomes less than r , demand for money will exceed supply of money, people will sell their securities. Price of securities will tumble and rate of interest will rise until we reach point E. Thus, the rate of interest is determined by the monetary variables only.

Limitations:

Even Keynes' liquidity preference theory is not free from criticisms:

Firstly, like the classical and neo-classical theories, Keynes' theory is an indeterminate one. Keynes charged the classical theory on the ground that it assumed the level of employment fixed.

Same criticism applies to the Keynesian theory since it assumes a given level of income. Keynes' theory suggests that D_m and S_M determine the rate of interest. Without knowing the level of

income we cannot know the transaction demand for money as well as the speculative demand for money. Obviously, as income changes, liquidity preference schedule changes—leading to a change in the interest rate.

Therefore, one cannot, determine the rate of interest until the level of income is known and the level of income cannot be determined until the rate of interest is known. Hence indeterminacy. Hicks and Hansen solved this problem in their IS-LM analysis by determining simultaneously the rate of interest and the level of income.

It is indeed true also that the neo-classical authors or the pro-pounders of the loanable funds theory earlier made attempt to integrate both the real factors and the monetary factors in the interest rate determination but not with great successes. Such defects had been greatly removed by the neo-Keynesian economists—J.R. Hicks and A.H. Hansen.

Secondly, Keynes committed an error in rejecting real factors as the determinants of interest rate determination.

Thirdly, Keynes' theory gives a choice between holding risky bonds and riskless cash. An individual holds either bond or cash and never both. In the real world, it is the uncertainty or risk that induces an individual to hold both. This gap in Keynes' theory has been filled up by James Tobin. In fact, today people make a choice between a variety of assets.

Conclusion:

Despite these criticisms, Keynes' liquidity preference theory tells a lot on income, output and employment of a country. His basic purpose was to demonstrate that a capitalist economy can never reach full employment due to the existence of liquidity trap.

Though the liquidity trap has been overemphasized by Keynes yet he demolished the classical conclusion the goal of full employment. Further, his theory has an important policy implication. A central bank is incapable of reviving a capitalistic economy during depression because of liquidity trap. In other words, monetary policy is useless during depressionary phase of an economy.

Ricardian theory of Rent

Ricardo defined rent as “that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil.” In his theory, rent is nothing but the producer’s surplus or differential gain and it is found in land only.

David Ricardo, an English classical economist, first developed a theory in 1817 to explain the origin and nature of economic rent.

Ricardo used the economy and rent to analyze a particular question. In the Napoleonic wars (18.05-1815) there was a large rise in corn and land prices. Did the rise in land prices force up the price of corn, or did the high price of corn increase the demand for land and so push up land prices. Ricardo defined rent as, “that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil.” In his theory, rent is nothing but the producer’s surplus or differential gain, and it is found in land only.

Assumptions of the Theory:

The Ricardian theory of rent is based on the following assumptions:

1. Rent of land arises due to the differences in the fertility or situation of the different plots of land. It arises owing to the original and indestructible powers of the soil.
2. Ricardo assumes the operation of the law of diminishing marginal returns in the case of the cultivation of land. As the different plots of land differ in fertility, the produce from the inferior plots of land diminishes though the total cost of production in each plot of land is the same.
3. Ricardo looks at the supply of land from the standpoint of society as a whole.
4. In the Ricardian theory it is assumed that land, being a gift of nature, has no supply price and no cost of production. So rent is not a part of the cost, and being so it does not and cannot enter into cost and price. This means that from society’s point of view the entire return from land is surplus earning.

Quasi rent

The concept of quasi-rent was given by Alfred Marshall. He defined quasi rent as surplus earnings generated by the factors of production, except land. The earnings from machines and instruments are termed as quasi-rent.

The quasi-rent refers to the income produced when the demand for products increases suddenly.

It is used for a short-period of time. In economic rent, the supply of factor is fixed, such as land. However, in quasi-rent the supply of factor is temporary and can be increased or decreased after some time, such as machine.

For example, there is a sudden increase in the demand of houses, but the supply of houses does not increase with that speed because of the limited building material.

The sudden increase in the return from selling of houses is termed as quasi-rent. Quasi-rent is regarded as the surplus that is temporary in nature. When the building material would be available, then the surplus amount would automatically be eradicated. Similarly, same type of surplus arises in case of other goods, such as ships, machines, and automobiles.

In long-run, the earnings from durable goods are equal to the current interest rate. However, they can provide surplus earnings for temporary period, which are termed as quasi-rent. In short-run, equipment is used for only one purpose and not for other purposes. This implies that the transfer earning for such equipment is zero in the short run.

Therefore, the total earnings generated from the short run equipment are termed as quasi-rent. The supply of equipment is fixed in the short-run and cannot be increased with the increase in demand. However, in long-run, the supply of equipment can be increased that would result in the extinction of surplus earnings.

Quasi rent can also be expressed in terms of revenue, which is as follows:

Quasi-rent = Total revenue – total variable cost

In the long run, all the costs are considered as variable cost. In long-run, the equilibrium can be attained when total revenue is equal to total costs. In such a case, there is no quasi-rent.

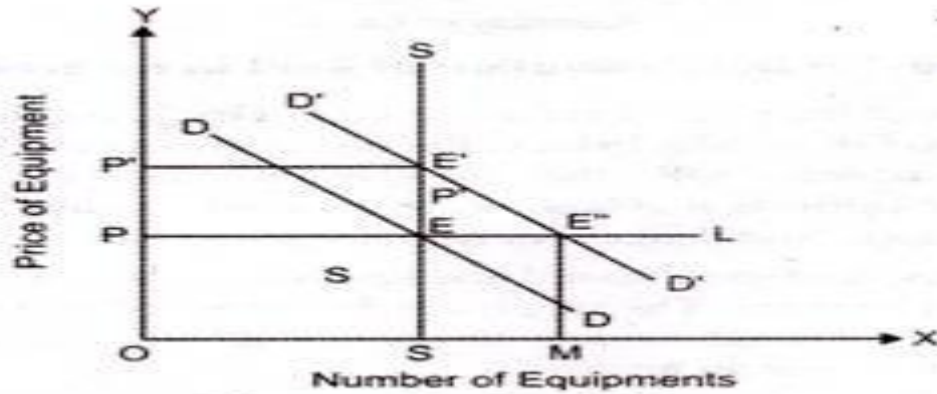


Figure-16: Quasi-Rent

In Figure, SS represents the inelastic supply curve. The demand (DD) and supply (SS) curve intersects at point E. At point E, the price is equal to OP and quantity of equipment is OS. In the short run, the increased demand (D'D') reaches to the price level of OP' with the constant supply of OS. As the number of equipment is constant in short-run, therefore, the transfer earnings are zero and quasi-rent is equal to total earnings from the equipment. However, in long-run, the supply of equipment (PL) is perfectly elastic. Therefore, any number of equipment can be supplied at OP. Now, the supply reaches to OM and prices fall to E''M. The quasi- rent would disappear because the price gets equal to the transfer earning (OP).

Risk theory of profit

This theory is associated with American economist Hawley. According to him profit is the reward for risk-taking in business. Risk-taking is supposed to be the most important function of an entrepreneur. Every production that is undertaken in anticipation of demand involves risk.

The theory predicts a positive relationships between risk and profit. Higher the risk greater is the possibility of profit.

According to Hawley the entrepreneur can avoid certain risks for a fixed payment to the insurance company. But he cannot get rid of all risks by means of insurance. If he does so he is not an entrepreneur and would earn only wages of management and not profit.

Criticism:

1. Risk-taking is not the only entrepreneurial function which leads to emergence of profits. Profits are also due to the organizational and coordinating ability of the entrepreneur. It is also reward for innovation.
2. According to Carver profit is paid to an entrepreneur not for bearing the risk but for minimizing and avoiding risk.
3. This theory assumes that profit is proportional to risk undertaken by entrepreneurs. But this is not true in practical life because even entrepreneurs who do not take any risk are paid profit.

Uncertainty Bearing Theory of Profit:

This theory was propounded by an American economist Prof. Frank H. Knight. This theory, starts on the foundation of Hawley's risk bearing theory. Knight agrees with Hawley that profit is a reward for risk-taking. There are two types of risks viz. foreseeable risk and unforeseeable risk. According to Knight unforeseeable risk is called uncertainty bearing.

Knight, regards profit as the reward for bearing non-insurable risks and uncertainties. He distinguishes between insurable and non-insurable risks. Certain risks are measurable, the probability of their occurrence can be statistically calculated. The risks of fire, theft, flood and death by accident are insurable. These risks are borne by the insurance company.

The premium paid for insurance is included in the cost of production. According to Knight these foreseen risks are not genuine economic risks eligible for any remuneration of profit. In other words insurable risk does not give rise to profit.

According to Knight profit is due to non-insurable risk or unforeseeable risk.

Some of the non- insurable risks which arise in modern business are as follows:

(a) Competitive risk:

Some new firms enter into the market unexpectedly. The existing firms may have to face serious competition from them. This will inevitably lower down the profit of the firms.

(b) Technical risk:

This risk arises from the possibility of machinery becoming obsolete due to the discovery of new processes. The existing firm may not be in a position to adopt these changes into its organization, and hence suffer losses.

(c) Risk of government intervention:

The government, in course of time, interferes into the affairs of the industry such as price control, tax policy, import and export restrictions, etc., which might reduce the profits of the firm.

(d) Cyclical risk:

This risk emerges from business cycles. Due to business recession or depression, consumer's purchasing power is reduced, consequently demand for the product of the firm also falls.

(e) Risk of demand:

This is generated by a shift or change of demand in the market.

Prof. Knight calls these risks as 'uncertainties' and 'it is uncertainties in this sense which explains profit in the proper use of the term'. These risks cannot be foreseen and measured, they become non- insurable and the uncertainties have to be borne by the entrepreneur. According to this theory there is a direct relationship between profit and uncertainty bearing.

Greater the uncertainty bearing the higher the level of profit. Uncertainty bearing has become so important in business enterprise in modern days, it has come to be considered as a separate factor of production. Like other factors it has a supply price and entrepreneurs undertake uncertainty

bearing in the expectation of earning certain level of profit. Profit is thus the reward for assuming uncertainty.

Criticism:

1. According to this theory, profit is the reward for uncertainty bearing. But critics point out that sometimes an entrepreneur earns no profit in spite of uncertainty bearing.
2. Uncertainty bearing is one of the determinants of profit and it is not the only determinant. Profit is also a reward for many other activities performed by entrepreneur like initiating, coordinating and bargaining, etc.
3. It is not possible to measure uncertainty in quantitative terms as depicted in this theory.
4. Uncertainty bearing cannot be looked upon as a separate factor of production like land, labour or capital. It is a psychological concept which forms part of the real cost of production.
5. Monopoly firms earn much larger profits than competitive firms and they are not due to the presence of uncertainty. This theory throws no light on monopoly profit.

Knight's theory of profit is more elaborate than other theories, because it combines the conception of risk, of economic change and of the role of business ability.

Schumpeter's Innovation Theory:

This theory was propounded by Schumpeter. According to this theory profit is the reward for innovations. Innovation may take any shape like introduction of a new technique or a new plant, a change in the internal structure or organizational set up of the firm or change in the quality of raw material, a new form of energy, better method of salesmanship, etc.

Thus the main motive for introducing innovation is the desire to earn profit. Profit is therefore the cause of innovation.

Prof. Schumpeter also explained his views on the functions of the entrepreneur. The entrepreneur organizes the business and combines the various factors of production. But this is not his real function and this will not yield him profit. The real function of the entrepreneur is to introduce innovations in business. It is innovations which yield him profit.

Criticisms:

1. This theory concentrates only on innovation, which is only one of the many functions of the entrepreneur and not the only factor.
2. This theory does not consider profit as the reward for risk-taking. According to Schumpeter it is the capitalist not the entrepreneur who undertakes risk.
3. This theory has ignored the importance of uncertainty bearing which is one of the factors that determines profit.
4. This theory attributes profit only to innovation ignoring other functions of entrepreneur.
5. This theory has presented a very narrow view of the function of the entrepreneur. He not only introduces innovation but he is equally responsible for proper organisation of the business. As such profit is not merely due to innovation. It is also due to organizational work performed by the entrepreneur.
6. It is an incomplete theory because it has failed to explain all the factors that influence profit

UNIT 5: Welfare Economics

Meaning of Welfare Economics

Welfare economics refers to the allocation of goods and resources for promoting social welfare. It deals with an economically efficient distribution of resources for the well being of the people. Welfare economists seek to guide the public policy such that the distribution is economically and socially beneficial for all sections of the society.

Welfare economics is a branch of economics which deals with the study of the structure of the economy, the markets comprised therein, to achieve an efficient allocation of goods and resources in the society.

The aim of welfare economics is the overall well-being of society. Hence, welfare economics involves an evaluation of the economic policies, guiding the public policies for the greater good of society. The study of welfare economics uses the tools of cost-benefit analysis and social welfare functions.

The underlying assumptions of the study are measurability and comparability of social welfare across various sections of society and ethical and philosophical considerations about social well being.

It involves the application of utility theory in economics. Utility refers to the value perceived by the society of the goods and services offered to the society. In the utility theory, consumers will seek to maximise their utility in their actions as buyers with sellers through the laws of demand and supply.

There are various criteria to measure whether the welfare gains arising from a change to the economy would outweigh the losses if any. When analysed in terms of Pareto efficiency, resources cannot be allocated to make one individual better off without making one or more individual worse off. The underlying assumption for this cost-benefit analysis is that utility gains and losses can be measured in terms of money.

Conclusion

Welfare economics seeks to achieve a state that will maximise the overall satisfaction for a society, maximising the producer and consumer surplus for the various markets comprised in the society.

Classical Welfare Economics.

The classical economists did not develop any specific theory of economic welfare. The classical welfare economics relates to the sketchy ideas of Smith, Ricardo and J.S. Mill about increasing the wealth of a nation. Smith explains real national income of a nation in terms of its physical output which is an index of its economic welfare. The real value of a commodity is its labour price being irksome and disagreeable. It is the division of labour which motivates labour to produce more. Smith associates increase in welfare with a reduction in the sacrifices required to produce more commodities

A person's wealth is measured by the value of a commodity produced by his own labour or his purchasing power over other men's labour. The more labour the larger, the total product or the increase in real income leading to improvement in welfare. Thus welfare is a positive function of population growth. According to Smith, the most positive mark of prosperity in any country is the increase in the number of its inhabitants.

Smith believes in the working of the 'invisible hand', i.e., the automatic working of the market. Since every person maximises his own satisfactions due to the automatic working of the economic system, the satisfactions of the whole community are maximised.

Thus the motive of self interest embodied in the free market system maximises economic welfare by increasing the physical productivity of labour by adopting new techniques of production.

To maximise social welfare, Smith favours the increase in expenditure on such public works as highways, canals, bridges, harbours, etc. But he wanted that the greater part of expenditure on public works should benefit through toll taxes on their users and the remaining out of local revenue and general revenue.

According to Ricardo, a reduction in human effort per unit of output constitutes an improvement in welfare. Man-hours per unit of output are regarded as the measure of net national income. His

idea about welfare is based on the terms 'value' and 'riches'. By riches he means the size of physical output, more the riches, and more the real income.

On the other hand, 'value' varies inversely with the labour time required per unit of output. It is, therefore, an inverse index of the average productivity of labour and hence of economic welfare. Thus for Ricardo, welfare is a matter of minimizing human effort per unit of output.

JS Mill does not also specify about economic welfare. However, economists have interpreted his view on the basis of his objections to the Factory Acts. To Mill, a reduction in working hours, keeping wages constant would inevitably reduce output per man and lead to unemployment.

He did not approve of Ten Hours Bill of 1842 This Bill excluded working women from factories, although women were free agents like men. Despite this opposition to the Bill, he argued for the need of giving legal assistance by affording every individual (businessman) a guarantee that his competitors will pursue the same course without which he cannot safely adopt it himself.

Value judgment

A value judgement is an evaluative statement of how good or bad you think an idea or action is. A value judgement is often prescriptive, i.e. a normative view might be expressed that reveals certain attitudes or behaviors toward the world.

All government economic policies are influenced by value judgements, which vary from person to person, resulting in fierce debate between competing political parties.

Positive statements are objective statements that can be tested, amended or rejected by referring to the available evidence. Positive economics deals with objective explanation and the testing and rejection of theories. Positive statements ought to be value judgement free – but this is often hard to achieve because we all bring to discussion and debate a set of values of ideas.

Prior to its various concepts of social welfare had been given by different welfare theorists but they failed to provide a satisfactory solution to the problem of maximization of social welfare and measurement. Bentham talked of welfare in terms of 'the greatest happiness of the greatest number.'

Neo-Classical welfare theorists discussed the problem of social welfare on the basis of cardinal measurability of utility and interpersonal comparison of utility. Analysis of Pareto optimality maximizes social welfare by satisfying various marginal conditions of production, distribution and allocation of resources among products. But unfortunately they are not fulfilled due to the existence of various externalities and imperfections in the market. Moreover, Pareto optimality analysis fails to measure the changes in welfare resulting from any change which benefits one section of society and harms the other.

Compensation principle as given by Kaldor-Hicks-Scitovsky attempts to measure the changes in social welfare resulting from such economic changes which harm some and benefit others through hypothetical compensating payments.

Compensation theorists claimed to give a value-free objective criterion based on ordinal concept of utility but, this is based upon implicit value judgements and does not evaluate changes in social welfare satisfactorily.

By providing the concept of social welfare function Bergson and Samuelson have attempted to provide a new approach to welfare economics and have succeeded in rehabilitating welfare economics. They have put forward the concept of social welfare function that considers only the ordinal preferences of individuals.

They agree to Robbins' view that interpersonal comparison of utility involves value judgements but they assert that without making some value judgements, economists cannot evaluate the impact of changes in economic policy on social welfare.

Thus, according to them, welfare economics cannot be separated from value judgements. According to them, welfare economics is essentially a normative study. But the approach to study it must be scientific despite the fact that the use of value judgements in it is unavoidable.

Bergson-Samuelson Social Welfare Function:

Social welfare function is an ordinal index of society's welfare and is a function of the utility levels of all individuals constituting the society.

Bergson-Samuelson social welfare function can be written in the following manner:

$$W = W(U_1, U_2, U_3, \dots, U_n)$$

Where W represents the social welfare $U_1, U_2, U_3, \dots, U_n$ represent the ordinal utility indices of different individuals of the society. The ordinal utility index of an individual depends upon the goods and services he consumes and the magnitude and kind of the work he does. The important thing to note about social welfare function is that in its construction explicit value judgements are introduced.

Value judgements determine a form of the social welfare function; with a different set of value judgements, the form of social welfare function would be different. Value judgements are essentially ethical notions which are introduced from outside economics. The value judgements required to construct a social welfare function may be obtained through democratic process with voting by individuals or it may have to be imposed on the society in a dictation manner.

Whatever the case may be, the form of social welfare function depends upon the value judgements of those who decide about them since it expresses their views regarding the effect which the utility level of each individual has on the social welfare. In the words of Prof. Scitovsky. "The social welfare function can be thought of as a function of each individual's welfare which in turn depends both in his personal well being and on his appraisal of the distribution of welfare among all members of the community".

Since the value judgements required for the formation of social welfare function are not of the economist himself and instead they are introduced from outside economics they are not obtained through any scientific method.

In modern age of democratic governments people elect their representatives who constitute the Government. The political party in majority forms the Government and rules the country. The representatives' Government formed by the majority rule formulates various policies on the basis of value judgements and it is expected that all the policy decisions by the Government will aim at maximising social welfare rather than maximising the welfare of an individual or a particular section of the society.

Bergson and Samuelson expressed the view that all value judgements used to construct the social welfare function must be consistent which implies that if in a given situation A is preferred to B and B is preferred to C then A must be preferred to C. This is nothing new to the students of economics as this is the well know assumption of transitivity in social choice among various alternatives.

We can explain the social welfare function with the help of social indifference curves or welfare frontiers. Let us assume a society of two persons. In such a case social welfare function can be represented with the help of social indifference curves.

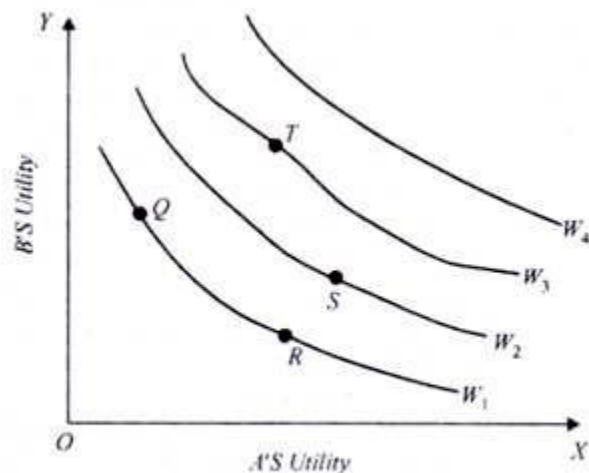


Fig. 42.1. Social Indifference Curves depicting Social Welfare Function

In Fig., the utilities of individuals A and B have been represented on the horizontal and vertical axes respectively. W1, W2 and W3 are the social indifference curves representing successively higher levels of social welfare. A social indifference curve is a locus of various combinations of utilities of A and B which result in an equal level of social welfare.

The properties of social indifference curves are just like that of individual consumer's indifference curves. Given a family of social indifference curves, the effect of a proposed change in policy on social welfare can be evaluated. In terms of Fig., any policy change that moves the economy from Q to T is an improvement.

The following features of the Bergson-Samuelson Social Welfare function are worth noting:

1. The Bergson-Samuelson social welfare function is based on explicit value judgements and involves interpersonal comparisons of utility in ordinal terms.
2. Bergson-Samuelson social welfare function, the maximum social welfare position is completely determined as a result of the introduction of value judgements regarding distribution of welfare among individuals.
3. The social welfare function is not based on any unique value judgements. Instead, any set of value judgements can be used by a welfare economist to construct a social welfare function. Thus, it is not any unique function but changes with the change in value judgements.
4. Once the social welfare function has been decided upon by value judgements, the maximisation technique is used to obtain the maximum social welfare position at which allocation of resources is Pareto optimum and also the distribution of goods and services is equitable. Thus, both efficiency and equity are achieved so that social welfare may be maximised.
5. Used along with the Pareto optimality analysis the concept of social welfare function enables us to find a unique optimum solution which combines economic efficiency with distributive justice.

A Critical Evaluation of Bergson-Samuelson Social Welfare Function:

The main aim of welfare economics has been to find an acceptable social welfare function which could measure the changes in social welfare resulting from a change in economic and non-economic variables. Bergson and Samuelson solved this problem by formulating a social welfare function which is based on explicit value judgements.

This function can incorporate the various economic and non-economic determinants of the welfare of individuals. In this function utility or welfare is conceived and measured in ordinal terms. Preferences or utilities of different individuals of the society and decisions about them are taken through a democratic method or by an authorised institution on the basis of its own value judgments. Even according to its bitter critic little, the concept of social welfare function is a brilliant theoretical construct which completes the formal mathematical system of welfare economics.

Pareto optimality analysis does not help us in providing a unique solution to the problem of maximising social welfare. As seen above, with the help of social welfare function we can measure the changes' in social welfare even when one individual becomes better off and another worse off by making some distributional value judgements in the form of social welfare function.

The Bergson- Samuelson's social welfare function incorporating explicit value judgements is an improvement over earlier attempts such as compensation principle advanced by Kaldor, Hicks and Scitovsky. However, economists have pointed out some important drawbacks in the concept of social welfare function.

Limited Practical Significance:

Little, Streeten and Baumol have pointed out that social welfare function is of limited practical significance. According to Little, the social welfare function can neither be used in a democratic state, nor even in a totalitarian one because in them there would be as many vague social welfare functions as there are individuals. Social welfare function, to quote Little is only "a formal device necessary to a perfectly general abstract system of 'welfare', which is devoid of any practical significance."

Welfare Economics: Compensation Principle

Pareto laid the foundation of the modern welfare economics by formulating the concept of social optimum which is based on the concept of ordinal utility and is free from interpersonal comparisons of utilities and value judgements. He aimed at formulating a value-free objective criterion designed to test whether a proposed policy change increases social welfare or not.

Pareto criterion states simply that an economic change which harms no one and makes someone better off indicates an increase in social welfare. Thus, this criterion does not apply to those economic changes which harm some and benefit others.

In terms of Edgeworth box diagram Pareto criterion fails to say as to whether or not social welfare increases as movement is made in either direction along the contract curve because it rejects the notion of interpersonal comparison of utility.

There is thus no any unique optimum position. This criterion does not tell us about changes in the level of social welfare if one move on the contract curve from one tangency point to another because such movement harms one and benefits the other. Thus, the analysis of welfare in terms of Pareto optimality leaves a considerable amount of indeterminacy, for there are numerous Pareto optimum points on the contract curve.

Kaldor-Hicks Welfare Criterion: Compensation Principle:

Economists like Kaldor, Hicks and Scitovsky have made efforts to evaluate the changes in social welfare resulting from any economic reorganisation which harms somebody and benefits the others. These economists have sought to remove indeterminacy in the analysis of Pareto optimality.

They have put forward a criterion known as the ‘compensation principle’ on the basis of which they claim to evaluate those changes in economic policy or organisation which makes some individual better off and others worse off. The ‘compensation principle’ is based on the following assumptions.

Assumptions:

1. The satisfaction of an individual is independent of the others and he is the best judge of his welfare.
2. There exist no externalities of consumption and production.
3. The tastes of the individuals remain constant.
4. The problems of production and exchange can be separated from the problems of distribution. Compensation principle accepts the level of social welfare to be a function of the level of production. Thus it ignores the effects of a change in distribution on social welfare.
5. Utility can be measured ordinal and interpersonal comparisons of utilities are not possible.

Given the above assumptions, a criterion of compensation principle can be discussed. Kaldor, Hicks and Scitovsky have claimed to formulate a value-free objective criterion of measuring the changes in social welfare with the help of the concept of 'compensating payments'.

Nicholas Kaldor was the first economist to give a welfare criterion based on compensating payments. Kaldor's criterion helps us to measure the welfare implications of a movement in either direction on the contract curve in terms of Edgeworth box diagram.

According to Kaldor's welfare criterion, if a certain change in economic organization or policy makes some people better off and others worse off, then a change will increase social welfare if those who gain from the change could compensate the losers and still be better off than before. In the words of Prof. Baumol, "Kaldor's criterion states that a change is an improvement if those who gain evaluate their gains at a higher figure than the value which the losers set upon their losses."

Thus, if any policy change benefits any one section of the society (gainers) to such an extent that it is better off even after the payment of compensation to the other sections of the society (losers) out of the benefits received, then that change leads to increase in social welfare. In Kaldor's own words, "In all case, where a certain policy leads to an increase in physical productivity and thus of aggregate real income, it is possible to make everybody better off without making anybody worse off. It is quite sufficient to show that even if all those who suffer as a result are fully compensated for their loss, the rest of the community will still be better off than before."

Prof. J.R. Hicks supported Kaldor for employing compensation principle to evaluate the change in social welfare resulting from any economic reorganization that benefits some people and harms the others. This criterion states that, "If A is made so much better by the change that he could compensate B for his loss and still have something left over, and then the reorganization is unequivocal improvement."

In other words, a change is an improvement if the losers in the changed situation cannot profitably bribe the gainers not to change from the original situation. Hicks have given his criterion from the losers' point of view, while Kaldor had formulated his criterion from gainers'

point of view. Thus the two criteria are really the same though they are clothed in different words. That is why they are generally called by a single name 'Kaldor-Hicks criterion'.

Pareto Criterion of Social Welfare:

The concept of Pareto optimum or economic efficiency stated above is based on a welfare criterion put forward by V. Pareto. Pareto criterion states that if any reorganisation of economic resources does not harm anybody and makes someone better off, it indicates an increase in social welfare. If any reorganisation or change makes everybody in a society better off, it will, according to Pareto, undoubtedly mean increase in social welfare.

Thus, in the words of Prof. Baumol "any change which harms no one and which makes some people better off must be considered to be an improvement."

Marginal Conditions of Pareto Optimality:

Pareto concluded from his criterion that competition leads the society to an optimum position but he had not given any mathematical proof of it, nor he derived the marginal conditions to be fulfilled for achievement of the optimum position. Later on, Lerner and Hicks derived the marginal conditions which must be fulfilled for the attainment of Pareto optimum.

These marginal conditions are based on the following important assumptions:

1. Each individual has his own ordinal utility function and possesses definite amount of each product and factor.
2. Production function of every firm and the state of technology is given and remains constant.
3. Goods are perfectly divisible.
4. A producer tries to produce a given output with the least-cost combination of factors.
5. Every individual wants to maximize his satisfaction.
6. Every individual purchases some quantity of all goods.
7. All factors of production are perfectly mobile.

Given the above assumptions various marginal conditions (first-order conditions) required for the achievement of Pareto optimum or maximum social welfare are explained below::

1. The Optimum Distribution of Products among the Consumers: Efficiency in Exchange:

The first condition relates to the optimum distribution of the goods among the different consumers composing a society at a particular point of time. The condition says: “The marginal rate of substitution between any two goods must be the same for every individual who consumes them both.”

The marginal rate of substitution of one good for another so as is the amount of one good necessary to compensate for the loss of a marginal unit of another so as to maintain a constant level of satisfaction. So long as the marginal rate of substitution (MRS) between two goods is not equal for any two consumers, they will enter into an exchange which would increase the satisfaction of both or of one without decreasing the satisfaction of the other.

This condition can be better explained with the help of the Edgeworth Box diagram. In Figure, goods X and Y, which are consumed by two individuals A and B composing a society are represented on the X and Y axes respectively. O_A and O_B are origins for A and B respectively.

I_{a1}, I_{a2}, I_{a3} and I_{b1}, I_{b2}, I_{b3} are the indifference curves showing successively higher and higher satisfaction of consumers A and B respectively. CC is the contract curve passing through various tangency points Q, R, S of the indifference curves of A and B.

The marginal rates of substitution (MRS) between the two goods for individuals A and B are equal on the various points of the contract curve CC'. Any point outside the contract curve does not represent the equality of MRS between the two goods for two individuals A and B of the society.

Let us consider point K where indifference curves I_{a1} and I_{b1} of individuals A and B respectively intersect each other instead of being tangential. Therefore, at point K marginal rate of substitution between two goods X and Y (MRS_{XY}) of individual A is not equal to that of B.

With the initial distribution of goods as represented by point K, it is possible to increase the satisfaction of one individual without any decrease in that of the other or to increase the satisfaction of both by redistribution of the two goods X and Y between them. A movement from K to S increases the satisfaction of A without any decrease in B's satisfaction.

From above it follows that movement from any point away from the contract curve to a point on the relevant segment of the contract curve will mean increase in social welfare. At any point away from the contract curve in the Edgeworth box, the indifference curves of the two individuals will intersect which will mean that MRS_{xy} of two individuals is not the same. And, as explained above, this indicates that through exchange of some units of goods between them, they can move to some point on the contract curve where the social welfare (that is, welfare of two individuals taken together) will be higher.

Since the slope of an indifference curve represents the marginal rate of substitution (MRS_{XY}) at any point of the contract curve, which represents tangency points of the indifference curves, MRS_{XY} of the two individuals are equal. Therefore, points on the contract curve represent the maximum social welfare.

However, a movement along the contract curve in either direction will make one individual better off and the other worse off since it will put one individual on his successively higher indifference curves and the other on his successively lower indifference curves. Thus, every point on the contract curve denotes maximum social welfare in the Paretian sense but we cannot say anything about the best of them with the help of Pareto criterion.

2. The Optimum Allocation of Factors: Pareto Efficiency in Production:

The second condition for Pareto optimum requires that the available factors of production should be utilized in the production of products in such a manner that it is impossible to increase the output of open firm without a decrease in the output of another or to increase the output of both the goods by any re-allocation of factors of production.

This situation would be achieved if the marginal technical rate of substitution between any pair of factors must be the same for any two firms producing two different products and using both the factors to produce the products.

This condition too can be explained with the help of Edge worth Box diagram relating to production. This is depicted in Fig. 39.4. Let us assume two firms A and B producing the same product by using two factors labour and capital. The available quantities of labour and capital are represented on X and Faxes respectively. O_A and O_B are the origins for firms A and B respectively.

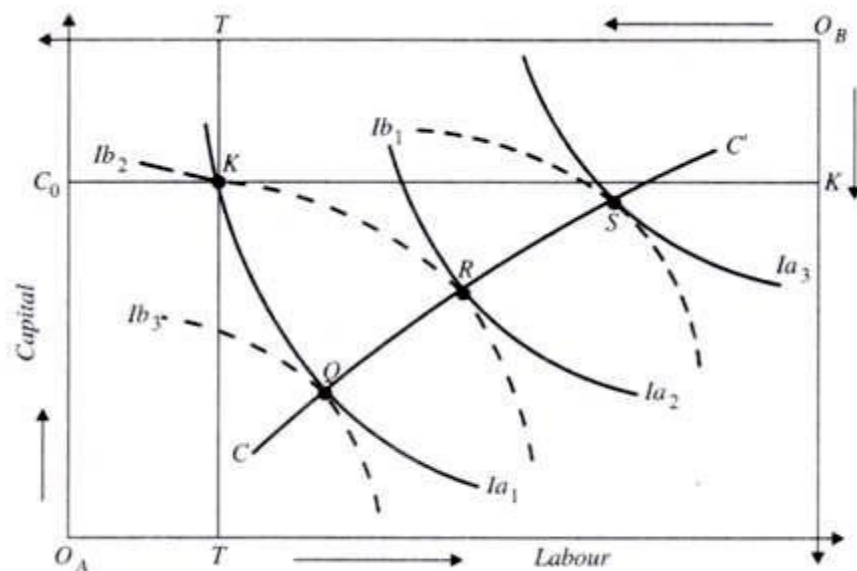


Fig. 39.4. The Optimum Allocation of Factors.

Isoquants I_{a1} , I_{a2} , I_{a3} and I_{b1} , I_{b2} , I_{b3} of firms A and B respectively represent successively higher and higher quantities of output which they can produce by different combinations of labour and capital. The slope of the isoquants, which are convex to the origin, represents the marginal rate of technical substitution (MRTS) between two factors.

MRTS of one factor for another is the amount of one factor necessary to compensate for the loss of the marginal unit of another so that the level of output remains the same. So long as the MRTS between two factors for two firms is not equal, total output of a product can be increased by transfer of factors from one firm to another.

In terms of the above diagram any movement from K to S or to Q raises the output of one firm without any decrease in the output of the other. The total output of the two firm's increases when through redistribution of factors between the two firms, a movement is made from the point K to the point Q or S on the contract curve.

A glance at Figure, it will reveal that movement from point K outside the contract curve to the point R on the contract curve will raise the output of both the firms individually as well as collectively. Therefore, it follows that corresponding to a point outside the contract curve there will be some points on the contract curve production at which will ensure greater total output of the two firms.

As the contract curve is the locus of the tangency points of the isoquants of two firms, the marginal rate of substitution of the two firms is the same at every point of the contract curve CC. It therefore, follows that on the contract curve at every point of which MRTS between the two factors of two firms is the same, the allocation of factors between the two firms is optimum.

When the allocation of factors between the two firms is such that they are producing at a point on the contract curve, then no re-allocation of factors will increase the total output of the two firms taken together.

But it is worth mentioning that there are several points on the contract curve and each of them represents the optimum allocation of labour and capital as between the two firms. But which one of them is best cannot be said on the basis of Pareto criterion because movement along the contract curve in either direction represents such factor reallocation which increases the output of one and reduces the output of another firm.

3. Optimum Direction of Production: Efficiency in Product Mix:

This condition relates to the pattern of production. The fulfillment of this condition determines the optimum quantities of different commodities to be produced with the given factor endowments. This condition states that “the marginal rate of substitution between any pair of products for any person consuming both must be the same as the marginal rate of transformation (for the community) between them.” According to this condition, for the attainment of maximum social welfare goods should be produced in accordance with consumer’s preferences. Let us explain this with the help of Fig.

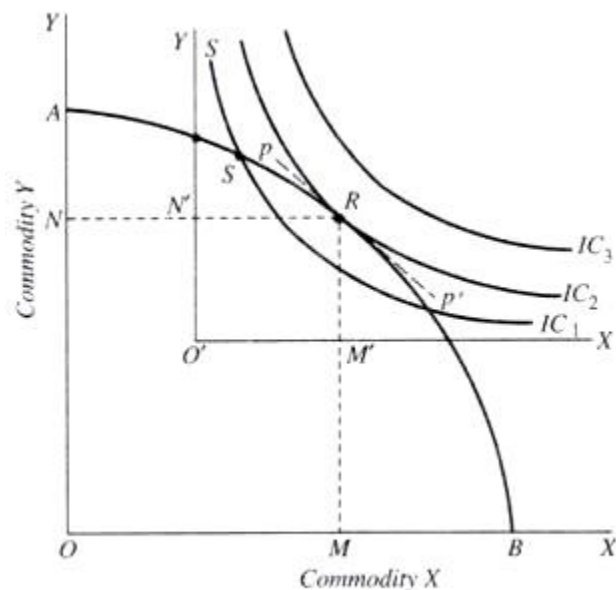


Fig. 39.5. *Optimum Direction of Production : Optimum Product Mix.*

In Fig., commodities X and Y have been represented on the X and Y axes respectively. AB is a community's transformation curve between any pair of goods X and Y. This curve represents the maximum amount of X that can be produced for any quantity of Y, given the amounts of other goods that are produced and fixed supplies of available resources.

IC₁ and IC₂ are the indifference curves of a consumer the slope of which at a point represents the marginal rate of substitution between the two goods of the consumer. The MRT' of the community and MRS of the consumer are equal to each other at point R at which the community's transformation curve is tangent to the indifference curve IC₂ of a representative consumers, Point R represents optimum composition of production in which commodities X and Y are being produced and consumed in OM and ON quantities.

This is because of all the points on the community's transformation curve, point R lies at the highest possible indifference curve IC₂ of the consumer. For instance, if a combination of goods X and Y represented by S is being produced and consumed, the consumer would be at a lower level of welfare because S lies on his lower indifference curve IC₁ which intersects the community's transformation curve instead of being tangential to it.

As a result, at point S, MRS_{XY} of the consumer is not equal to the MRT_{XY} of the community. With the situation at S there is a possibility of moving the consumers to a higher indifference curve by changing the direction (i.e. composition) of production i.e. by increasing the production

of X and reducing the production of Y. Thus, the optimum direction of production is established at point R where community's transformation curve is tangent to the indifference curve of a consumer in the society.

Suggested Readings:

1. Paul A, Samuelson: Micro Economics
2. A. Koutsoyiannis: Modern Micro Economics
3. C.S Barla: Advanced Micro Economics
4. N.C.Ray: An Introduction to Micro Economics
5. Hal R. Varian: Micro Economic Analysis
6. Dominick Salvatore: Micro Economic Theory
7. H.L. Ahuja: Modern Micro Economics
8. M.L. Seth: Micro Economics
9. T.R.Jain&A.S.Sandhu: Micro Economics
10. Amit Sachdeva: Micro Economics
11. Richard G.Lipsey: An Introduction to Positive Economics