B.A. I[st] Year
ECONOMICS

Course Code : ECONA 102
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Principles of Microeconomics – II

Units: 1 to 20

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Course No. **ECONA102**

Course title: **Principles of Microeconomics – II**

Nature of Course: **DSC – II**

Number of credits: **6**

COURSE OUTLINE

Block	Description
I.	**Theory of a Monopoly Firm** Concept of Imperfect Competition; Monopoly: Features, short run and long run price and output decisions of a monopoly firm; concept of a supply curve under Monopoly; Comparison of Perfect Competition and Monopoly, Price Discrimination; Dumping; remedies for Monopoly: Antitrust laws, Natural Monopoly.
II.	**Monopolistic Competition and Oligopoly** Monopolistic Competition: Assumptions, short run and long run price and output determination under Monopolistic Competition, economic efficiency and resource allocation. Oligopoly: Assumptions, Oligopoly Models: kinked demand curve and price rigidity, cartels and role of government.
III.	**Market Failure and Factor Pricing** **Market Failure:** Market adjustment to changes in demand, efficiency of perfect competition; sources of market failure: imperfect markets, public goods, externalities, imperfect information; evaluating the market mechanism. **Factor Pricing:** Meaning and Types of Distribution. Marginal Productivity Theory of Distribution. Wages: Meaning and Types of Wages. Real and Nominal Wage. Theories of Wages (Classical and Modern).
IV.	**Factor Pricing** **Rent:** Concept of Rent. Ricardian Theory of Rent, Quasi Rent, Modern Theory of Rent. **Interest:** Classical Theory, Loanable Fund Theory and Keyne's Liquidity Preference Theory. **Profit:** Gross Profit and Net Profit. Theories of Profit: Dynamic Theory of Profit, Innovation Theory of Profit and Uncertainty Bearing Theory of Profit.

CONTENTS

Unit- 01

MONOPOLY

STRUCTURE

1.1 INTRODUCTION

Monopoly is said to exist when one firm is the sole producer or seller of a product which has no close substitutes. According to this definition, there must be a single producer or seller of a product. If there are many producers producing a product, either perfect competition or monopolistic competition will prevail depending upon whether the product is homogeneous or differentiated. On the other hand, when there are few producers, oligopoly is said to exist. A second condition which is essential for a firm to be called monopolist is that no close substitutes for the product of that firm should be available.

1.2 LEARNING OBJECTIVES

In this unit we will study the equilibrium conditions and price-output determination under monopoly form of market. After studying this lesson you will be able to:

- Know the meaning and features of monopoly
- Describe price and output determination in the short-run as well as in the long-run

- Differentiate between perfect competition and monopoly
- Understand various degrees of price discrimination
- Describe price and output determination under discriminating monopoly.

1.3 FEATURES OF MONOPOLY

From above it follows that for the monopoly to exist, following things are essential:

- **A Single Seller:** There is only one producer of a product. It may be due to some natural conditions prevailing in the market, or may be due to some legal restriction in the form of patents, copyright, sole dealership, state monopoly, etc. Since, there is only one seller; any change in supply plans of that seller can have substantial influence over the market price. That is why a Monopolist is called a Price Maker. (A Monopolist's influence on the market price is not total because the price is determined by the forces of Demand and Supply and the Monopolist controls only the supply).
- **No Close substitute:** the commodity sold by the Monopolist has a close substitute available for it. Therefore, if a consumer does not want the commodity at a particular price, he is likely to get available closely similar to what he is giving up. For example, there are chapters you have studied that the availability of substitute goods impact. The elasticity of demand for a product since the product has no close substitutes; the demand for a product sold by a monopolist is relatively inelastic.
- **Barriers to the entry of new firms:** There are barriers to entry into industry for the new firms. It may be due to following reasons:

  (i) Ownership of strategic raw material or exclusive knowledge of production

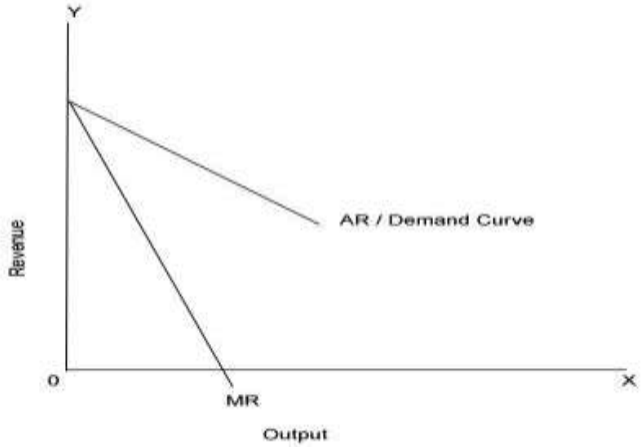
  (ii) Patent Rights

  (iii) Government Licensing

  (iv) Natural Monopolies

The implication of barriers to entry is that in the short run, monopolist may earn supernormal profit or losses. However, in the long run, barriers to entry ensure that a monopolistic firm earns only super normal profits.

- **Price Discrimination:** Price Discrimination exists when the same product is sold at different price to different buyers. A monopolist practices price discrimination to maximize profits. For example Electricity Charges in Delhi are different for Domestic users and Commercial and Industrial users.
- **Abnormal Profits in the Long run:** Being the single seller, monopolists enjoy the benefit of higher profits in the long run.
- **Limited Consumer Choice:** As they are the single producer of the commodity, in the absence of any close substitute the choice for consumer is limited.
- **Price in Excess of Marginal Cost:** Monopolists fix the price of a commodity (per unit) higher than the cost of producing one additional unit as they have absolute control over Price Determination.
- **Shape of the AR and the MR Curves under Monopoly**



The AR Curve faced by the Monopolistic is Downward Sloping as the Monopolist can increase sales by reducing price. If the AR Curve is declining, it implies that the MR is also declining at a faster rate.

9. Demand Curve facing the Monopolist: Since there is only one seller in the market, the AR Curve of a monopolist in nothing else but the Market Demand Curve for the product. The demand is relatively inelastic as there is only a single seller for the commodity and its product does not have close substitutes. The AR Curve faced by the Monopolistic is Downward Sloping as the Monopolist can increase sales by reducing price. If the AR Curve is declining, it implies that the MR is also declining at a faster rate.

Self-Check Exercise-1

Q.1 Discuss various features of Monopoly.

1.4 SOURCE AND TYPES OF MONOPOLY

The most important reason the economists generally find the source of monopoly is barriers to entry. Barriers to entry are legal or technical conditions that make it impossible or prohibitively costly for a new firm to enter a given market. The following five types of entry barriers have historically been associated with the presence of monopoly.

1) Control of inputs

Some firms acquire monopoly power from their overtime control over certain scarce inputs or raw materials that are essential for the production of certain other goods, e.g. bauxite, graphite, diamonds etc. such monopolies are often called ram material monopolies. The monopolies of this kind may also emerge because of monopoly over certain specific technical knowledge or technique of production.

2) Economies of scale

The technology of production for a product may be such that one large producer can supply the entire market at a lower per-unit cost than can several firms sharing the same market. In other words, the long run average cost curve for a single firm slopes downwards over the entire range of market output. Consequently to have more than one firm operating in such a market would be wasteful since production costs are

lowest if one firm supplies the entire output. In this situation the industry is natural monopoly.

3) Patents

Another source of monopoly power is the patent rights of the firm for a product or the production process. The exclusive right to use the productive technique or to produce a certain product granted by the government is called patents. Patents are granted to the inventor for a technique or product, and they amount to the legal right to a temporary monopoly. Such monopolies are called patent monopolies

4) Legal Restrictions

Some monopolies are created by law in public interests. Most of the state monopolies in the public utility sector, including postal, telegraph, generation and distribution of electricity, railways etc are public monopolies. The state may create monopolies in the private sector through license or patents. Such monopolies are called franchise monopolies.

5) Entry Lags

The time needed to enter the market can act temporarily to shield an existing producer from competition. Thus, the first firm to market some product will usually enjoy some monopoly position. If the product turns out to profitable, entry is likely to occur as rapidly as technological conditions permit.

Self-Check Exercise-2

Q.1 Discuss various Sources of Monopoly.

1.5 MONOPOLY EQUILIBRIUM

Determination of Price and Output Under Monopoly

A monopolist determines the price of a product to maximize profit. The monopolist reaches equilibrium when the level of output generates the highest possible total profit. In the short run, equilibrium can also occur when the firm minimizes its losses. Under a monopoly, price, output, and equilibrium are analyzed using two main approaches:

1.5.1 Total Revenue and Total Cost Approach

1.5.2 Marginal Revenue and Marginal Cost Approach

1.5.1 Total Revenue and Total Cost Approach

A monopolist achieves maximum profit by producing and selling the quantity of output where the difference between total revenue (TR) and total cost (TC) is the greatest. By adjusting prices or supply levels, the monopolist seeks the optimal output level where total profit is maximized. The equilibrium point is the level of output where profit is at its peak.

This concept can be better understood with the help of Figure 1.2. In the figure, the **TC curve** represents total cost, while the **TR curve** represents total revenue. The TR curve starts from the origin (O), meaning total revenue is zero when output is zero. However, the TC curve starts at point **P**, indicating that even if production stops, the firm still incurs fixed costs (represented by OP).

Total profit is depicted by the **TP curve**, which initially starts at **R**, showing that the firm experiences losses at the beginning. As production increases, total

revenue also rises. However, at lower levels of output, total revenue remains less than total cost, which is reflected in the RC segment of the TP curve, indicating losses.

At point **M**, total revenue becomes equal to total cost (TR = TC), meaning the firm neither makes a profit nor incurs a loss—this is known as the **break-even point** (also represented by point C on the TP curve). Beyond this point, when output increases further, total revenue surpasses total cost (TR > TC), and the TP curve slopes upward, indicating profit generation. When the TP curve reaches its peak at **point E**, the firm achieves **maximum profit**. The output level corresponding to this point, labeled **OQ**, is referred to as the **equilibrium output** since it yields the highest possible profit.

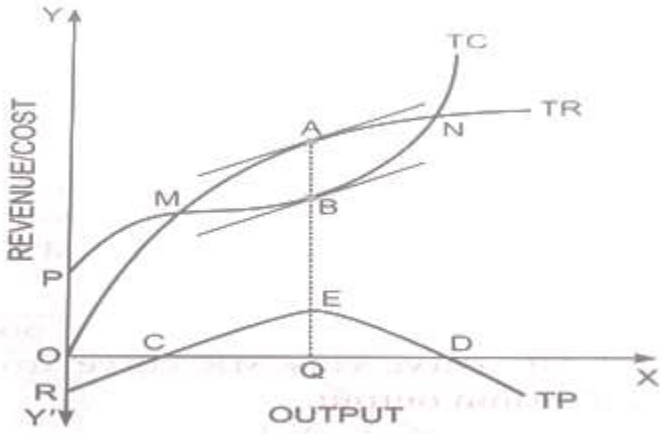


Fig. 1.2

If the firm produces more than the equilibrium output then the difference between TR and TC curves will narrow down and at point N both these curves will intersect each other, that is, total revenue will become equal to total cost. It means the profit of the firm will go on diminishing and at the said point the firm will be in no-profit and no-loss situation, as is indicated by point 'D' on TP curve. Thus, point 'N' is also called 'break-even' point. If the firm produces more than this, then TR will be less than TC and the firm will incur losses. In short, the firm will earn maximum profit at point E. In order to know the maximum profit of the firm, tangents are drawn to TR and TC curves. The points at which tangents are parallel, their distance is maximum. In the above figure, tangents are parallel at points 'A' and 'B' which also indicate maximum distance between TR and TC. In this situation, the firm will earn maximum profit as is clear from point E on TP curve. This approach of finding monopoly price and equilibrium is known as "Trial and Error Method', because in this method, the monopolist, by fixing different prices, calculates as to which particular price will yield him maximum profit and equilibrium position.

Note: With reference to Fig, when the gap between TR and TC is maximum, the slope of TR = slope of TC. Slope of TC implies MC and the slope of TR implies MR. So that where the gap between TR and TC is maximum, MR = MC.

1.5.2 Marginal Revenue and Marginal Cost Approach

In a monopoly, price determination and the equilibrium position can be understood through marginal revenue and marginal cost analysis. According to this approach, a monopolist reaches equilibrium when two key conditions are met: (i) marginal cost (MC) equals marginal revenue (MR), and (ii) the MC curve intersects

the MR curve from below. At this equilibrium point, the monopolist maximizes profit. This concept is illustrated in Figure 1.3, where the X-axis represents output, and the Y-axis represents revenue and cost. The marginal cost curve (MC), along with the average revenue (AR) and marginal revenue (MR) curves, are depicted. The equilibrium point, labeled as 'E,' occurs where MC equals MR, with the MC curve cutting the MR curve from below. The corresponding equilibrium output is denoted as OQ.

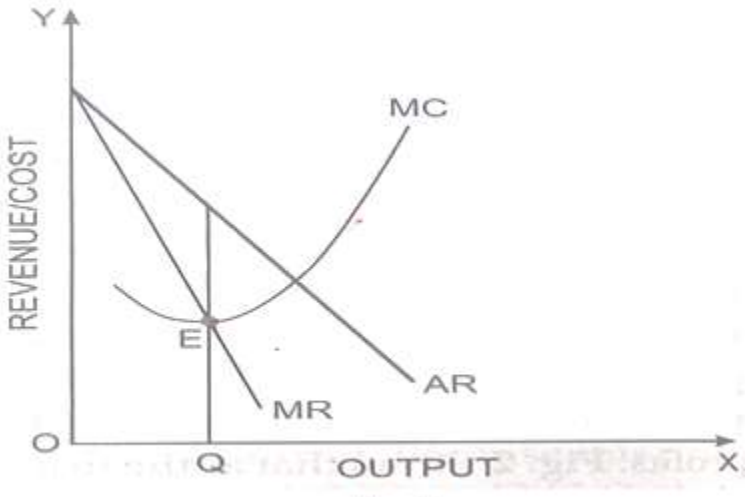


Fig. 1.3

Self-Check Exercise-3

Q.1 Discuss Total revenue and Total Cost approach and Marginal Revenue and Marginal cost approach.

Price, output and equilibrium determination under monopoly are studied with reference two time periods:

(i) Short Run/Period, and
(ii) Long Run/Period.

1.6 PRICE AND OUTPUT DETERMINATION UNDER SHORT RUN OR SHORT RUN EQUILIBRIUM

Short run refers to that period in which time is so short that a monopolist cannot change fixed factors, like machinery, plant, etc. Monopolist can increase his output in response to increase demand by changing his variable factors. No doubt fixed factors will also be utilised to their maximum capacity to increase the output. Similarly, when demand decreases, the monopolist reduce his output by reducing variable factors and by slowing down the intensive use of fixed factors, A monopolist will be in equilibrium when he produces that amount of output at which (i) marginal cost is equal to marginal revenue and (ii) marginal cost curve cuts marginal revenue curve from below.

A monopolist in equilibrium may face any of the three situations in the short period, (1) Super Normal Profit, (2) Normal Profit, and (3) Minimum Loss. These are described with the help of the following diagrams:

(1) Super Normal Profit: If the price (AR) fixed by the monopolist in equilibrium is more than his average cost (AC), then he will get super normal profits. The monopolist will produce upto the extent where MC MR. This limit will indicate equilibrium output. If the price of equilibrium output is more than average cost (AR > AC) then the monopolist will earn super normal profit. Super Normal Profit = AR > AC

As illustrated in Fig. 1.4, the monopolist reaches equilibrium at point E, where marginal cost equals marginal revenue. At this equilibrium, the monopolist produces OM units of output and sells them at a price of AM. This price exceeds the average cost, BM, by an amount equal to AB (i.e., AM - BM) per unit. Consequently, the monopolist's total supernormal profit in this scenario is represented by the area ABDC.

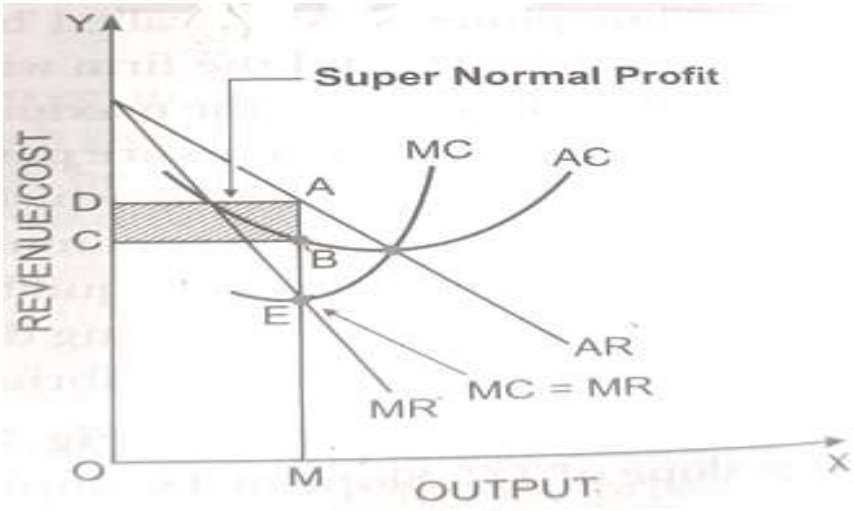


Fig. 1.4

(2) Normal Profit: If in the short run equilibrium (MC= MR), the monopolist price (AR) is equal to its average cost (AC), i.e., AR = AC, then he will earn only normal profit. Normal Profit = AR = AC

Equilibrium of the monopoly firm in the short run is shown in Fig. 5. In this figure, the firm is in equilibrium at point E, where MC = MR and OM is the equilibrium output. At this output, average cost (AC) curve touches average revenue (= AM) curve at point A. Thus, at point 'A' price OP (AM) is equal to the average cost (AM) of the product. Monopoly firm, therefore, earns only normal profit in equilibrium situation, as at equilibrium output is AC = AR.

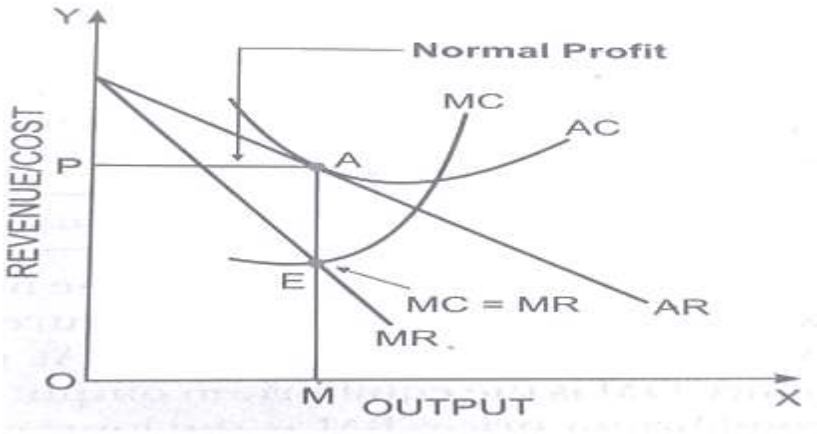


Fig. 1.5

(3) Minimum Loss: In the short run, the monopolist may incur loss also. If in the short run price falls due to depression or fall in demand, the monopolist may continue his production so long as the low price covers his average variable cost (AVC). In case the monopolist is obliged to fix a price which is less than average variable cost, then he will prefer to stop production. Accordingly, a monopolist in equilibrium, in the short period, may bear minimum loss equivalent to fixed costs. In this situation, equilibrium price (=AR) is equal to average variable cost (AVC) and the monopolist bears the loss of fixed costs. The monopolist will have to bear this loss even if he chooses to discontinue production in the short period. Thus, minimum loss = AR - AVC = AFC. Minimum Loss = AR-AVC

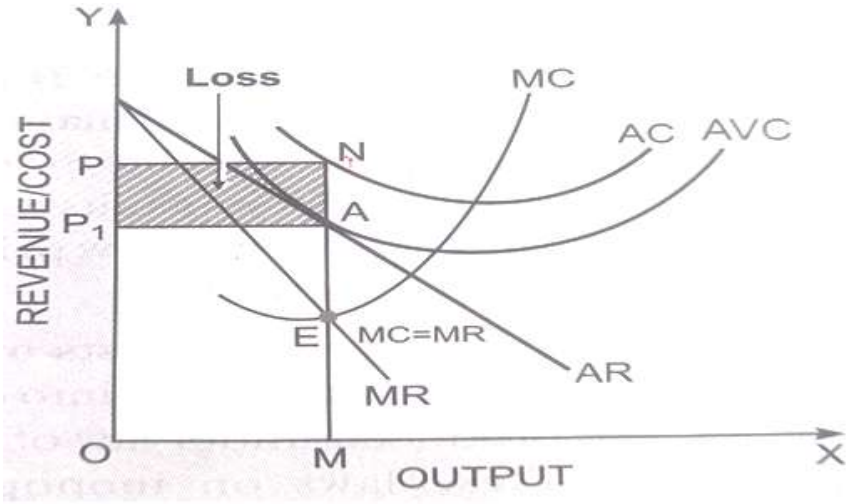


Fig. 1.6

This situation of equilibrium is expressed in Fig. . According to this figure, the monopolist is in equilibrium at point E, where MC = MR and produces OM output. The price of equilibrium output OM is fixed at OP, (AM). At this price, average variable cost (AVC) curve touches AR curve at point A. It means that the firm will get only average variable cost from the prevailing price. The firm will bear the loss of fixed costs or AN per unit. The firm will bear total loss equivalent to NAP, Pas shown by the shaded area. It will O P 1, he would loss to the equivalent posts obliged to fix a price lower than he would prefer to discontinue production.

1.7 **PRICE AND OUTPUT DETERMINATION UNDER LONG RUN OR LONG RUN EQUILIBRIUM**

In the long run, the monopolist will be in equilibrium at a point where his long run marginal cost is equal to marginal revenue (LMC = MR) In the long run, because of sufficiently long perm at the disposal of the monopoly can be varied and supply can be increased in response at the disposal of the monopoly short run, equilibrium price can be more than, equal to or less than the average cost, but in the long run, price (AR) is more than the long run average cost. If price is less than long run average costthe monopolist would like to close down the unit rather than suffer the loss. In the long run, a monopolist earns super normal profit. Monopoly firm in the long run is not contented with normal profit alone, as the firms under perfect competition do, rather it is in a position to earn super normal profit. Thus, in the long run the monopolist will fix the price in such a way as to earn super normal profit. Super normal profit refers to a situation where AR > LAC.

Super Normal Profit = AR > LAC

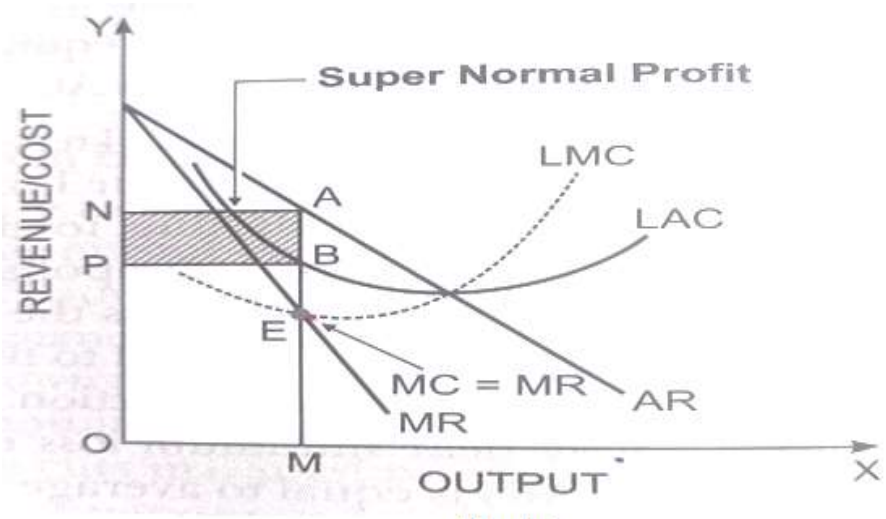


Fig. 1.8

Long run equilibrium of the monopolist is explained with the help of Fig. 1.8 . In this figure, point E indicates the equilibrium of the monopolist. At point E, MR = LMC hence OM is the equilibrium output and ON (= AM) is the equilibrium price. BM is the long run average cost. Price (average revenue) AM being more than long run average cost BM (AR > LAC) the monopolist will get super normal profit. Accordingly, the monopolist earns AB (=AM-BM) super normal profit per unit. His total super normal profit will be ABPN as shown by shaded area.

Self-Check Exercise-4

Q.1 Discuss with the help of diagram Short run and long run equilibrium of Monopoly.

1.8 SUMMARY

This unit discussed various aspects of price and output determination under monopoly. Monopoly is a market structure in which there is only single producer or seller of a product which has no close substitute. Contrary to perfect competition, monopolist is a price maker. Under monopoly the firm can earn supernormal profit even in the long run. A monopolist can practice price discrimination to enhance profits.

1.9 GLOSSARY

- **Market**: A market is any space where buyers and sellers maintain close contact, either directly or through intermediaries, such that price changes in one section influence prices in other areas.
- **Monopoly**: Existence of a single producer or seller which is producing or selling a product which has no close substitutes.
- **Equilibrium**: Condition when the firm has no tendency either to increase or to contract its output.
- **Profit:** Difference between total revenue and total cost.

1.10 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise-1

Ans. Q1. Please refer to section 1.3

Self-Check Exercise-1

Ans.Q1. Please refer to section 1.4

Self-Check Exercise-1

Ans.Q1. Please refer to section 1.5

Self-Check Exercise-1

Ans.Q1. Please refer to sections 1.6 1nd 1.7

1.11 REFERENCES/ SUGGESTED READINGS

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1.12 TERMINAL QUESTION

Q1. Explain the Price-output decision in a monopoly market?

Unit- 02

MONOPOLY-II

STRUCTURE

2.1 INTRODUCTION

Monopoly is s form of the market in which the only seller of a commodity has full control over its price. The term monopoly is derived from the Greek work monopolin which means exclusive sale. Thus, pure monopoly is a market structure in which a single firm is the sole producer of a product and for which there are no close substitutes. Since the monopolist is the only seller in the market, it has neither rivals nor direct competitors. Thus the seller of the commodity has full control over its price.

2.2 LEARNING OBJECTIVES:

After going through this unit you will be able to explain.

- Comparison of Monopoly and Perfect competition.
- Social cost of Monopoly.

2.3 MONOPOLY AND PERFECT COMPETITION: A COMPARISON

In general, monopoly price is higher than competitive price and monopoly output lower than competitive output. Monopoly and perfect competition are anti-poles of each other and they differ in following ways:

(1) Under competition, variation in output has no effect on price and thus, marginal revenue is equal to price. But if the monopolist wants to sell more, he must reduce price and, therefore, MR < P for every output level.

(2) Under competition a firm can sell as much as it likes at the current price. Therefore, the average revenue curve of the firm is a straight line parallel to the horizontal axis and it is perfectly elastic. But under monopoly the average revenue or demand curve is downward sloping and we have elastic demand (ep > 1). Equilibrium can occur with ep = 1, when total cost is constant and MC = 0.

(3) Monopoly price is higher than competitive price.

(4) Monopoly output is lower than competitive output.

(5) For competitive equilibrium the marginal cost curve must be strictly upward sloping. But monopoly equilibrium is possible with any shape of MC curve since demand curve is not horizontal. However, we cannot have any equilibrium when MC curve falls more steeply relative to MR curve (i.e. second order condition).

(6) Under perfect competition the firm in the long-run makes only normal profits but under monopoly the firm can get super normal profits even in the long-run.

(7) Since, even in the long-run, the monopolist's demand curve remains sloping downward, it cannot be tangent to average cost curve at of AC minimum. It implies that the firm will produce less than its optimum output level in the long-run.

(8) Monopolies are also likely to be inefficient and slow to introduce technological change. Pure competition forces each firm to be either efficient or perish.

Thus, the monopolist leads to an inefficient allocation of resources from the consumer's point of view. The monopolist restricts price to maximise his profit and holds price above marginal cost.

Self-Check Exercise-1

Q.1 Compare Monopoly and Perfect Competition.

2.4 MONOPOLY AND PERFECT COMPETITION : BASIC DIFFERENCES

Differences between monopoly and perfect competition can be made on the basis of the following:

(1) **Goals of the Firms**: A firm's objective, whether operating under perfect competition or monopoly, is to earn maximum profit. A firm that aims at maximising profit is called a rational firm.

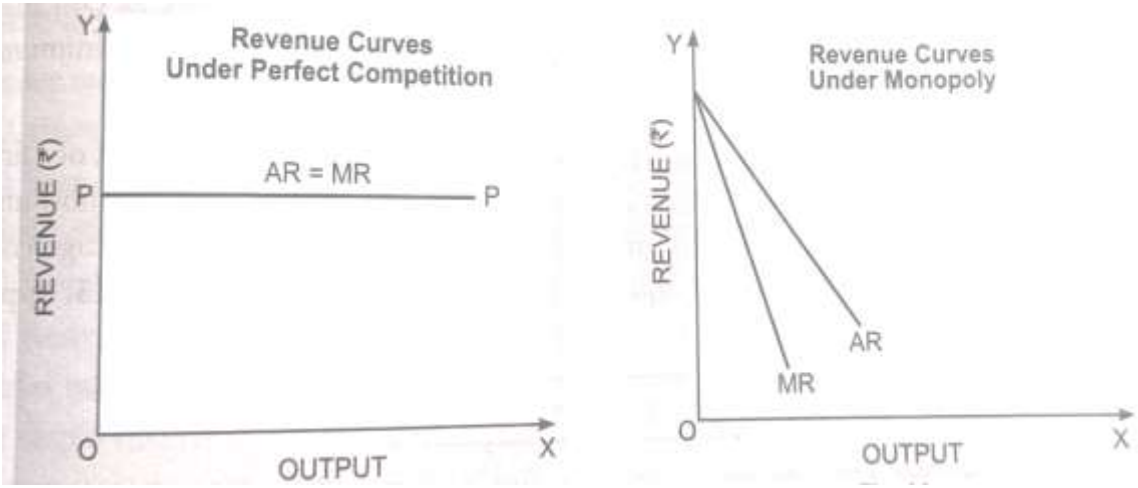
(2) **Nature of the Product**: Under perfect competition, it is assumed that all firms produce/sell homogeneous products. A monopoly firm may or may not produce homogeneous products. In case of monopoly, another main assumption is that the entire supply is made by one firm.

(3) **Number of Sellers and Buyers**: Under perfect competition there are large number of buyers and sellers of homogeneous product. No seller by changing his supply and no buyer by changing his demand can influence the price. Under perfect competition, a group of firms producing homogeneous products is called industry. On the contrary, under monopoly, there is only one seller and large number of buyers. Firm is also an industry under monopoly. The monopolist has full control over the entire supply of the product.

(4) **Entry of New Firms**: Under perfect competition, there is no restriction on the entry of new firms into and exit of the old firms from the industry. However, this entry or exit is not so simple in the short run. It is possible only in the long run. In case of monopoly, there is restriction on the entry of new firms. Because of monopoly situation, no new firm can enter the industry or market.

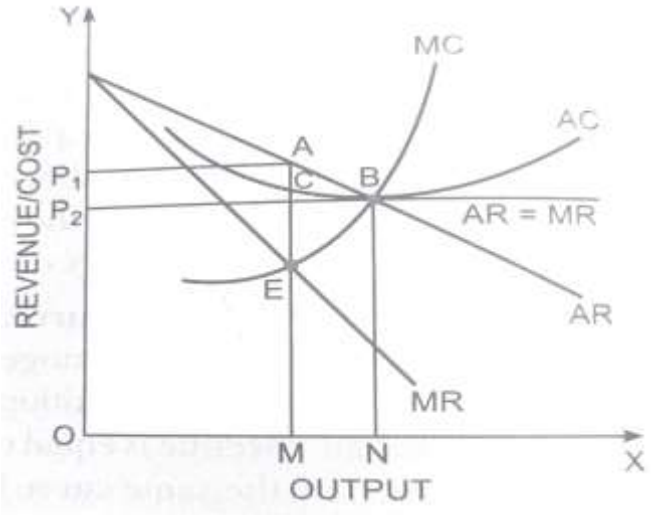
(5) **Nature of Demand Curve**: Under perfect competition, due to large number of firms and the assumption of homogeneous product, demand curve is perfectly elastic. It means that under perfect competition, average revenue (AR) curve is

parallel to X-axis. In this case average revenue is equal to marginal revenue. As is evident from Fig., AR and MR are shown by the same curve PP. In this situation, price of the product is determined by the industry and each firm has to accept that price. Firm, therefore, is a price taker. On the contrary, under monopoly, average revenue (AR) curve slopes downward. In this case, AR and MR curves are separate from one another as shown in Fig. and MR curve not only slopes downward, but is below AR curve. Monopolist is the price maker.



(6) **Implications regarding Decisions:** Under perfect competition, a firm can take decision only in respect of the quantity to be produced. It can, at the best, decide as to how much to produce at the price determined by the industry so as to be in equilibrium. A firm need not incur any selling cost by way of advertisement. On the other hand, a monopolist can determine either the quantum of output or the price, but even he cannot determine both. It is so because, when one of these two factors is determined then the other is also automatically determined. A monopolist has to spend a good deal on research and development. If he fears the entry of potential competitors, he may incur some selling costs on advertisement and publicity.

(7) **Comparison regarding Price**: In the long run, price under monopoly is higher than the price under perfect competition. It is so because, in the long run equilibrium of a firm under perfect competition, price is equal to minimum long run average cost, as shown in below Fig. In other words, under monopoly conditions, output is reduced from ON to OM and price is increased from OP2 to OP_1 as compared to perfect competition. It is clear from Fig. that under perfect competition a firm will be in equilibrium at point B and produce ON output at OP_2 price. On the other hand, under monopoly, price will be more than minimum long run average cost. With a view to earning super normal profit, a monopolist seeks to attain equilibrium before reaching minimum average cost. In other words, monopoly price is higher than minimum average cost. In Fig., point 'E' indicates equilibrium of the monopoly firm which produces OM output and sells the same at OP, price. Thus under monopoly, long run average cost is CM which is higher than the minimum average cost BN.



Comparison regarding Output: In case of long run equilibrium, output of a firm under perfect competition is more than a monopoly firm. In the long run equilibrium, a firm's long run marginal cost (LMC), marginal revenue (MR), long run average cost (LAC), average revenue (AR) are all equal to one another as shown by Fig. . Equilibrium point 'B' indicates that

$$MC = MR = AR = AC$$

Under perfect competition, therefore, the output will be ON. On the other hand, equilibrium output under monopoly will be OM, which is less than competitive equilibrium output ON. Accordingly, under monopoly equilibrium, price is more and output is less than under perfect competitive equilibrium.

(9) **Nature of Supply Curve**: In case of perfect competition, supply curve is uniquely determined. It is so because firstly, under perfect competition, all firms can sell as much quantity of the product as they like at the given price. Secondly, there is no price discrimination under perfect competition. In the short run, marginal cost curve above average variable cost is the supply curve and in the long run, marginal cost curve above average cost is the supply curve. On the other hand, under monopoly, supply curve is not uniquely determined. Marginal cost curve is not the supply curve of the monopolist there are two reasons for it: (i) A monopolist can sell different quantities at a given price or a given output at different prices, and (ii) A monopolist can indulge into price discrimination. It means a monopolist can charge different prices for the same product.

(10) **Comparison regarding Profit**: In the short run, a firm whether operating under perfect competition or monopoly, may earn super normal profit, or normal profit or incur losses. In the long run, a firm under perfect competitive equilibrium earns only normal profit. On the other hand, a monopoly firm under long run equilibrium continues to earn super normal profit.

(11) **Utilisation of Resources**: A firm under perfect competition makes optimum available resources. Firm produces optimum level of output and factors of production get use of proper reward on account of perfect mobility. On the contrary, in case of monopoly, the main objective of the monopolist is to maximise his profit. He achieves this objective by fixing high price per unit of

output and reducing the total quantity of output. Since the output is deliberately restricted in monopoly, there is no full utilisation of available resources.

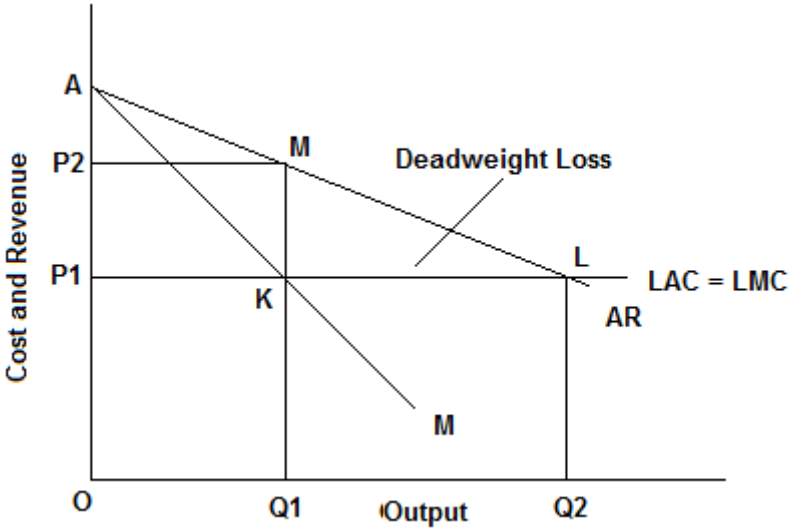
Self-Check Exercise-2

Q.1 What are basic differences between Monopoly and Perfect Competition.

2.5 SOCIAL COSTS OF MONOPOLY

Perfect competition is a market structure that promotes the efficient allocation of resources, prevents income redistribution, and pressures producers to minimize production costs. In contrast, a monopoly restricts output, redistributes income in favor of the monopolist, leads to higher production costs, and incurs unproductive expenses to maintain its market dominance.

Economists typically assess the welfare costs of a monopoly by examining its impact on higher prices and reduced output, which results in a loss of consumer surplus, often referred to as deadweight loss. When both monopoly and competitive industries operate under the same cost conditions, output in a perfectly competitive market is higher, while prices remain lower than in a monopoly. As a result, monopolistic firms are considered less efficient than those in perfect competition. Monopoly leads to social welfare losses and inefficiencies in resource allocation, as demonstrated below.



In a constant-cost industry where the long-run average cost (LAC) equals the long-run marginal cost (LMC), the revenue conditions are represented by the average revenue (AR) and marginal revenue (MR) curves. Under these conditions, a perfectly competitive firm produces output at OQ2, where LAC = LMC = AR, and sells it at a price of OP1. Conversely, a monopoly firm determines its output by equating its LMC with MR, resulting in an output level of OQ1 and a price of OP2.

The loss of social welfare is assessed in terms of the reduction in consumer surplus. Consumer surplus is the difference between the total utility that society gains from consuming a good and the total amount paid for it. In a perfectly competitive industry, society benefits from a total output of OQ2, for which it pays an amount represented by the area OP1LQ2. The total utility derived from this output is

given by the area OALQ2, making the consumer surplus equal to the area ALP1. However, in a monopolized industry, the equilibrium output is reduced to OQ1, and the price rises to OP2, leading to a reduction in consumer surplus. The lost consumer surplus is calculated as ALP1 - AMP2, which equals the area P2MLP1. A portion of this loss, represented by P2MKP1, is captured as monopolist profit, while the remaining MKL represents a deadweight loss to society, as it benefits no one.

Self-Check Exercise-3

Q.1 Discuss Social Costs of Monopoly.

2.6 SUMMARY

In this unit, we have discussed the comparison between the monopoly and perfect competition. A monopoly is a market structure that consists of a single seller or producer and no close substitutes whereas perfect competition is a market structure in which there is a large number of firms and consumers. It turns out that the efficiency of a market can have a lot to do with the number of firms and consumers in that market. Monopoly has various social cost to the society which has been discussed in this unit.

2.7 GLOSSARY

- **A monopoly** is a market structure that consists of a single seller or producer and no close substitutes.
- **Perfect competition** is a market structure in which there is a large number of firms and consumers. It turns out that the efficiency of a market can have a lot to do with the number of firms and consumers in that market.
- Social cost is the total cost to society. It includes private costs plus any external costs.

2.8 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 2.3

Self-Check Exercise-2

Ans.1 Please refer to section 2.4

Self-Check Exercise-3

Ans.1 Please refer to section 2.5

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2.10 TERMINAL QUESTIONS

Q.1 With the help of diagram discuss social costs of Monopoly.

Unit-03

PRICE DISCRIMINATION

STRUCTURE

3.1 INTRODUCTION

A monopoly firm may sometimes impose varying prices on different groups of consumers, a strategy known as price discrimination. This occurs when the same product is sold at different price points to different buyers. Due to its monopoly power, the firm has the ability to charge distinct prices to various consumers or consumer groups. Although the product remains essentially the same, it may exhibit slight variations. Therefore, price discrimination refers to the practice of setting different prices for similar goods based on the buyer. When a monopolist adopts this approach, it is referred to as a discriminating monopoly.

3.2 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Define Price Discrimination
- List different degrees of Price Discrimination and explain them
- Elucidate the concept of Dumping
- Explain the regulation of Monopoly

3.3 MEANING OF PRICE DISCRIMINATION

Price discrimination refers to a pricing strategy where different prices are charged to various groups of buyers without a corresponding difference in the cost of serving them. According to Stigler, price discrimination occurs when "technically similar products are sold at prices that are not proportional to marginal cost." Joan Robinson defines it as "the practice of selling the same product, produced under a single control, at different prices to different buyers."

For price discrimination to occur, a monopolist must sell in separate markets in such a way that prevents the transfer of goods from the lower-priced market to the higher-priced one. While price discrimination is commonly associated with monopolies, it is not exclusive to them. It can also be observed in other market structures, particularly when market imperfections exist. Many businesses apply price discrimination based on factors such as personal relationships, purchase volume, and the length of a buyer's association with the firm. However, price discrimination is not feasible in a perfectly competitive market, where demand is perfectly elastic. In such cases, sellers would always opt to sell in the market offering the highest price, leading to price equalization across markets. Therefore, price discrimination is only possible in markets with some level of imperfection.

Self-Check Exercise-1

Q.1 What is the Meaning of Price Discrimination?

3.4 CONDITIONS FOR PRICE DISCRIMINATION

For price discrimination to occur, three essential conditions must be met.

First, the seller must have a certain degree of monopoly power. Without this power, it would be impossible to charge different prices to different customers. Monopoly power enables the seller to control the supply of the product and differentiate between customer groups, setting varying prices accordingly. Under perfect competition, a uniform price prevails, preventing sellers from charging different prices to specific individuals or groups.

Second, the seller must be able to segment buyers into distinct groups or markets while preventing resale between them. This means that the separation between markets must be such that reselling is not economically viable. Factors such as geographical distance, high transportation costs, exclusive usage of the product, or lack of distribution channels can contribute to this separation. If resale is easy, price discrimination loses its effectiveness.

Third, the price elasticity of demand must vary across different consumer groups or sub-markets. In other words, demand sensitivity to price changes should differ among these segments. The ability to charge different prices is based on these variations in elasticity—lower prices are set for markets with more elastic demand, while higher prices are charged where demand is less elastic. If price elasticities are identical across markets, price discrimination would not be profitable.

The first two conditions are essential for price discrimination to take place, while the third condition ensures that the practice remains financially beneficial.

Self-Check Exercise-2

Q.1 What are the conditions of Price Discrimination?

3.5 DEGREES OF PRICE DISCRIMINATION

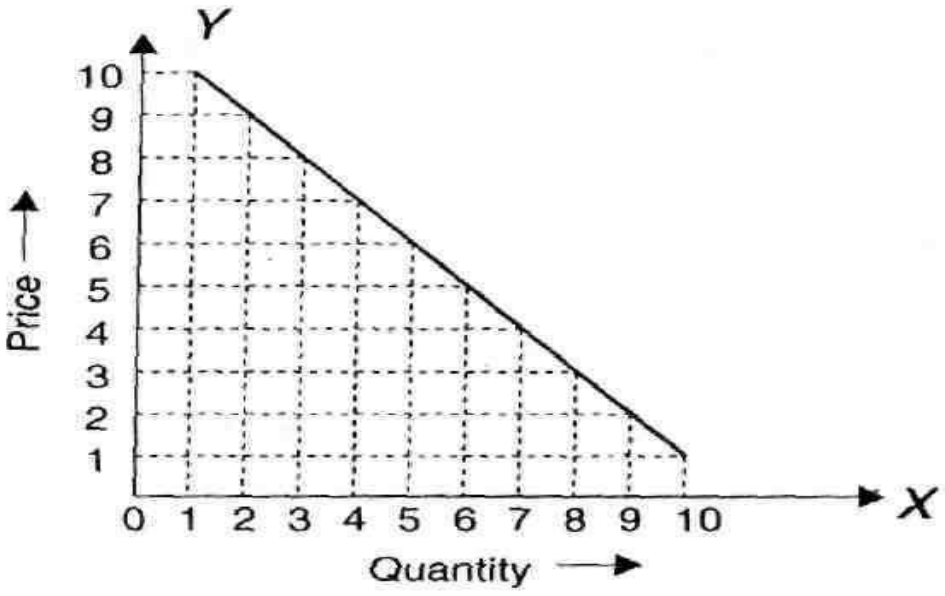
Prof. A.C. Pigou has distinguished between three forms of price discrimination, namely

1. First degree price discrimination

2. Second degree price discrimination

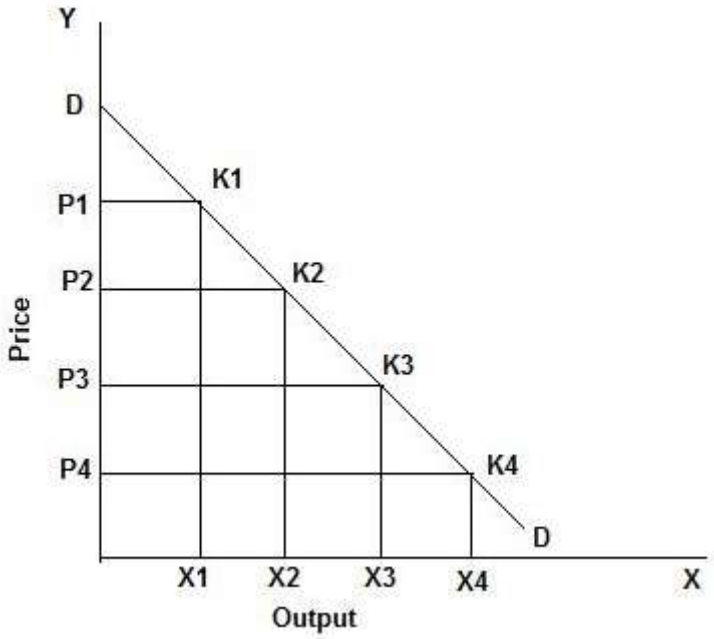
3. Third degree price discrimination

1. First degree price discrimination is the limiting case in which the monopoly firm charges a different price to each of its customers. It charges each customer the maximum price the customer is willing to pay for each unit bought rather than go without it. It is take it or leave it price discrimination. Thus, 'perfect' first degree price discrimination involves maximum possible exploitation of each customer in the interest of seller's profit. The monopolist would be able to extract the entire consumer's surplus from consumers. First degree price discrimination is possible only when the monopolist is in a position to know the price each buyer is willing to pay. That is, he must know the exact shape of each consumer's demand curve and be able to charge the highest price that each and every consumer would pay for each unit of the commodity. Even if it is possible, it would be probable be prohibitively expensive to carry out. Thus first degree price discrimination is not very common in the real world.



2. Second Degree Price Discrimination: More practical and common is second degree price discrimination. In the second degree price discrimination, the monopoly firm discriminate its customers according to quantities consumed. It works by charging different prices for different quantities of the same commodity or service .It is a situation of the firm charges customers' different prices according to how much they purchase. Thus, the second degree price discrimination is the practice of charging different prices per unit of the different quantities of the same good or service. By doing so, the monopolist will be able to extract part, but not all, of the

consumer's surplus. The second degree price discrimination is also called 'block pricing system'.



3. Third degree price discrimination: Third degree price discrimination is the practice of dividing customers into two or more groups and charging different prices to each group. Monopolist divides his customers into two more independent submarkets or groups and the price charged in each submarket depend upon the output sold in that market and demand conditions of that market. For simplicity assume that there are only two markets. To maximize profits, the monopolist must produce the best level of output and sell that output in the two markets in such a way that marginal revenue of the last unit sold in each market is the same. This will require the monopolist to sell the commodity at a higher price in the market with the less elastic demand.

Third degree price discrimination is the most common. Some of the examples are the lower fees that doctors charge low-income people than high-income for basically identical services, lower prices that airlines, trains, buses usually charge children and the elderly than other adults, the lower prices that producers usually charge abroad than at home for the same commodity, and so on.

Self-Check Exercise-3

Q.1 Discuss degrees of Price Discrimination.

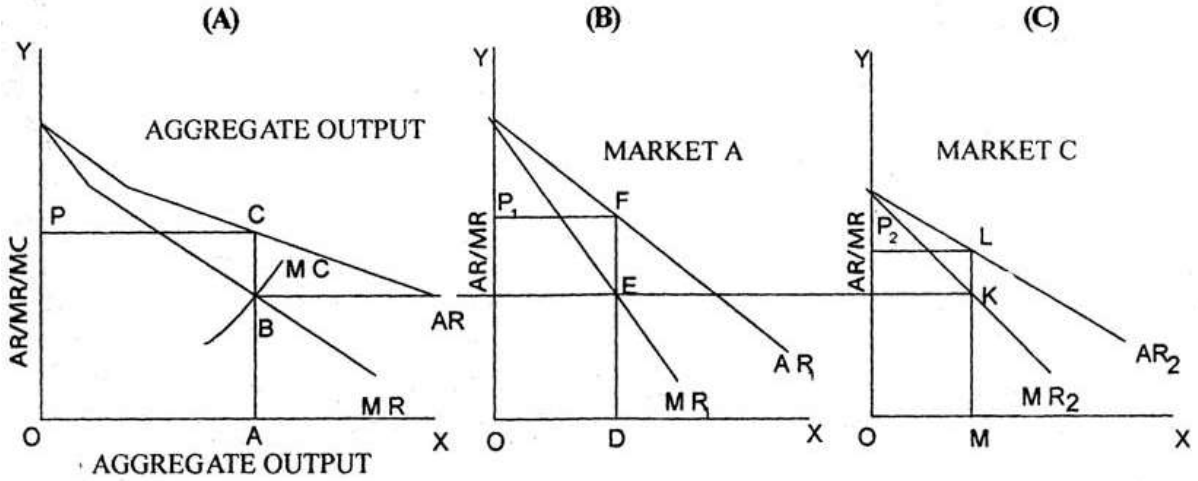
3.6 EQUILIBRIUM OF DISCRIMINATING MONOPOLIST

Under simple monopoly, a single price is charged for the whole output, but under price discrimination the monopolist will charge different prices in different sub markets. Therefore, the monopolist has to divide his total market in to various sub markets on the basis of differences in the price elasticity of demand in them. Whenever the monopolist finds that it is not only possible to separate markets for his product, but also the elasticity of demand in these markets are different, he indulges in price discrimination.

For the sake of convenience, let us explain the case when the total market is divided into two sub markets. In order to reach the equilibrium position, the

discriminating monopolist has to take two decisions. Firstly how much total output should be produced and secondly, how the total output should be distributed between the two submarkets and what prices he should charge in two submarkets. The same marginal principle will guide the decision of the discriminating monopolist to produce to produce total output as that which guides a perfect competitor or a simple monopolist. Thus, if the monopolist is able to sell his product in two separate markets, the condition for equilibrium implies that marginal revenue in the first and second market, that is, MR1 and MR2 should each be equal to the marginal cost (MR1=MR2=MC). The general condition of equilibrium will also be satisfied in this case as aggregate marginal revenue (AMR) will be equal to marginal cost. AMR is obtained by summing up laterally the marginal revenue curves of the sub markets. Consider the following figure.

The discriminating monopolist will maximize his profits by producing the level of output at which the marginal cost (MC) curve intersects the aggregate marginal revenue (AMR) curve. Profit maximizing output is 0Q where AMR equal to MC. The discriminating monopolist will distribute the total output 0Q in such a way that the marginal revenues in the two submarkets are same to maximize his profit. Again, to be in equilibrium it is essential not only that marginal revenues in the two sub markets are same but that they should also be equal to the marginal cost of the whole output.



Self-Check Exercise-4

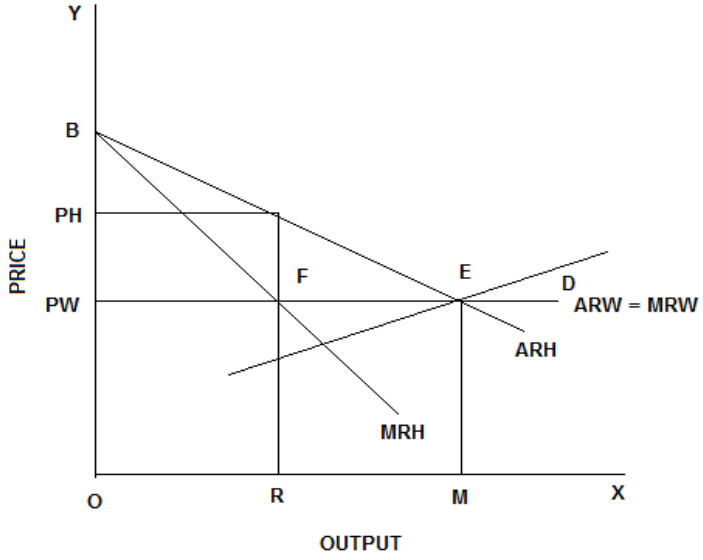
Q.1 Discuss Equilibrium of Discriminating Monopoly.

3.7 INTERNATIONAL PRICE DISCRIMINATION: THE CONCEPT OF DUMPING

Price discrimination can also be practiced between the domestic and the foreign market. International price discrimination is called dumping. This refers to the charging of a lower price abroad than at home for the same commodity because of the greater price elasticity of demand in the foreign market. By doing so the monopolist earns higher profits than by selling the best level of output at the same price in the both markets. The price elasticity of demand for the monopolist's product abroad is higher than at home because of the competition from producers from other countries in the foreign market, foreign competition is usually restricted at home by import tariffs or other trade barriers. These import restrictions serve to segment the market, that is, keep the domestic market separate from foreign market and prevent the re-export of the commodity back to the monopolist's home country, which would

undermine the monopolist's ability to sell the commodity at higher price at home than abroad.

Dumping can be categorized into three types: persistent, predatory, and sporadic. Persistent dumping occurs when a domestic monopolist consistently seeks to maximize overall profits by charging a higher price in the domestic market while offering a lower price internationally to compete with foreign producers, a practice known as international price discrimination. Predatory dumping involves temporarily selling a product at a price lower than its cost or below market rates in foreign markets to eliminate competition. Once rival producers are driven out, the company raises prices to capitalize on its newfound monopoly. Sporadic dumping happens occasionally when a company sells excess stock at a lower price internationally than domestically to clear an unexpected surplus without reducing domestic prices.



In a domestic market where the producer holds a monopoly, the average revenue curve (ARH) slopes downward. Conversely, in the global market, characterized by perfect competition, the demand curve is perfectly elastic, resulting in a horizontal average revenue curve (ARW), which coincides with the marginal revenue (MR) curve. The marginal cost (MC) curve represents the producer's cost structure.

The aggregate marginal revenue curve, denoted as BFED, is derived from the summation of MRH and MRW. The equilibrium output level, represented by OM, is determined where the MC curve intersects the aggregate marginal revenue curve at point E. This total output (OM) must be allocated between the domestic and global markets in a manner that ensures the marginal revenue in both markets is equal to each other and to the marginal cost.

As a result, OR will be sold in the domestic market at a price of OPH, while RM will be exported to the world market at a price of OPW. The total profit earned by the producer is represented by the area CEFB. Notably, the price in the global market is lower than in the domestic market. When a producer sells goods at a lower price internationally than in the home market, it is referred to as dumping.

Trade restrictions are implemented to counteract predatory dumping and protect domestic industries from unfair foreign competition. These measures, often in the form of antidumping duties, aim to neutralize price disparities. However, identifying the exact nature of dumping can be challenging, and domestic producers frequently advocate for protection against all forms of dumping. While persistent and sporadic dumping can adversely affect domestic producers, it benefits consumers by providing access to lower-priced goods, and these consumer gains may outweigh potential producer losses.

Self-Check Exercise-5

Q.1 Discuss the concept of Dumping.

3.8 REGULATION OF MONOPOLY

The regulation of monopoly is an important subject in theoretical and applied economic analysis. There are some undesirable aspects of the monopoly market which pave the way for its regulation. We already found that monopolist restrict output and raise price of their products. In this way the monopolist not only able to make supernormal profit and increase inequalities in distribution of income but also cause inefficiency in the allocation of resources of the society. The arguments which go against a private monopoly and hence its regulation are as follows.

a) Private monopolization of industries means concentration of economic power which is against the spirit of equity and equality in the society. Concentration of economic power is a source of feudalism and political dictatorship. So from the point of creation and distribution of wealth, a private monopoly is certainly evil.

b) A private monopoly often charges discriminatory prices and this way extracts major portion of consumer surplus from the consumers and thus reduces their welfare

c) A private monopolist pursues the objective of profit maximisation. For this, he charges high price for his products and produces less output as compared to a competitive producer. There is wastage of economic resources from the social point of view by not utilizing the production capacity fully.

d) Monopoly is inefficient type of market structure. There is a deadweight loss and transfer of consumer surplus from consumers to the monopolist. Due to this, monopoly market is inefficient from the point of view of society as a whole.

e) Monopoly firm may not bother for improvement of the technology and hence in the productivity. Even if it does so the benefits of such changes will not be passed to the consumers.

On account of all the above reasons, a private monopoly is an undesirable economic entity and hence should be regulated. There are several measures; some of which are listed below.

i. Regulation of prices and output levels by the government

ii. Creating antimonopoly legislations

iii. Putting taxes on monopolies

iv. Through nationalization of monopoly firms

Suppose in order to improve the allocation of resources or distribution of income, the government decides to regulate the price charges by the monopolist.

The government can impose a price ceiling at a level below the profit maximizing price. There are two types of pricing rules often proposed for price regulation of monopoly. Firstly, monopolist can be asked to operate a level of output for which marginal cost is equal to the price. This is known as Marginal cost pricing. But the problem with marginal cost pricing is that the monopolist may still earn abnormal profit if his average revenue exceeds average cost of production.

Secondly, those who want to regulate the monopoly to improve the distribution of income or to ensure that lowest possible price be charged from the consumers, they propose to adopt average cost pricing principle. According to average cost pricing, the maximum price should be fixed at which AR curve cuts AC curve. Thus the monopolist will be just covering his average cost of production. It should be noted that average cost includes normal profit or fair return on monopolist's capital investment.

Monopolies can also be regulated by using the instrument of taxation… if lump sum tax is imposed; it leads to an increase in fixed cost. But MC curve of the monopolist does not change. Hence the output and price remains unchanged. At the same time equilibrium level of profit of the monopolist will fall with the imposition of lump sum tax. The case of per unit tax is different. This causes an upward shift in the MC curve by an amount equal to the tax. The effect is that quantity produced declines and price increases.

Self-Check Exercise-6

Q.1 How Monopoly is regulated?

3.9 SUMMARY

In this unit, we studied about the price discrimination. Different degrees of price discrimination i.e. first degree, second degree and third degree price discrimination. After that we studied the concept of dumping and the regulation of Monopoly.

3.10 GLOSSARY

- **Monopolist:** Single seller of a product.
- **Price Discrimination**: It occurs when the same product is sold at more than one price that does not reflect a proportional difference in costs.
- **First Degree of Price Discrimination**: Firm is aware of each consumer's demand curve for the commodity and fixes the price accordingly.
- **Second Degree Discrimination**: Under this type of discrimination, differential prices are charged for different amount of goods and services.
- **Third Degree Discrimination**: The monopolist segregates the customers into different markets and charges different prices in each segment.

3.11 Answers to Self-Check Exercises

Self-Check Exercise-1

Ans.1 Please refer to section 3.3

Self-Check Exercise-2

Ans.1 Please refer to section 3.4

Self-Check Exercise-3

Ans.1 Please refer to section 3.5

Self-Check Exercise-4

Ans.1 Please refer to section 3.6

Self-Check Exercise-5

Ans.1 Please refer to section 3.7

Self-Check Exercise-6

Ans.1 Please refer to section 3.8

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3.13 TERMINAL QUESTIONS

Q1. Explain about price discrimination? How is price determined in a discriminating monopoly?

Q2. What do you understand by Dumping? Explain with diagram?

Unit- 4

ANTI-TRUST POLICY: REMEDIES FOR MONOPOLY

STRUCTURE

4.1 INTRODUCTION

We have studied how monopoly leads to inefficiency and loss to the society (in terms of lower output and higher prices) compared with perfect competition. Competition makes enterprises more efficient and innovative, and offers wider choice to consumers at lower prices. It enables optimum utilisation of available

resources. It is an empirically tested fact that competition leads to reduction in the price level and inspires the producers to find innovative techniques of production along with the innovative uses of the existing products. It is a globally recognised fact that competition promotes economic growth and economic welfare. Which is why the centrally planned economies are fast disintegrating to become a part of the competitive global system. Now the question is how can competition among firms be improved or how can the market power of the firms be limited? It can be done in a number of ways such as through enactment of anti-trust laws or declaration of competition policy and regulation of industries. The present chapter highlights the history of enforcement of anti-trust laws in India focusing on the Monopolies and Restrictive Trade Practices (MRTP) Act, 1969 and the Competition Act, 2002. A section is also devoted to analyse the concept of natural monopoly and the public policy towards monopoly and competition.

4.2 LEARNING OBJECTIVES

After going through this unit, you will be able to understand

- Anti-Trust Law and Competitive Policy.
- Features of MRTP ACT.
- Unfair Trade Practices.
- Natural Monopoly

4.3 ANTI-TRUST LAW AND COMPETITIVE POLICY

The concept of trust originated in the United States. A trust refers to a legal arrangement in which one party holds property for the benefit of another. In this structure, shareholders of independent firms transfer their stock in exchange for trust certificates, which grant them a share in the trust's overall profits. A board of trustees manages the trust as a monopoly, regulating production and determining prices. To curb the monopolistic influence of trusts, the U.S. Congress introduced legislation against them, known as anti-trust laws. The first such law, the Sherman Act, was enacted in 1890.

The Sherman Act declared any contract that restricted trade between states or nations illegal. Additionally, any attempt—whether successful or not—to establish a monopoly was deemed unlawful. Subsequently, in 1914, two more significant legislations were introduced: the Clayton Act and the Federal Trade Commission Act. The Clayton Act was designed to enhance the effectiveness of the Sherman Act, while the Federal Trade Commission Act led to the establishment of the Federal Trade Commission (FTC). This regulatory body was tasked with overseeing businesses engaged in interstate commerce and preventing unfair trade practices.

Competition policy comprises two key components. The first involves measures that encourage competition within domestic and national markets, such as trade liberalization, industrial licensing reforms, relaxed foreign investment regulations, economic deregulation, and privatization. The second component is legislation aimed at curbing anti-competitive business practices with minimal government intervention, known as competition law. However, competition law alone cannot foster a competitive market unless it is complemented by appropriate government policies. Conversely, government policies without legal enforcement mechanisms to prevent unfair competition would be inadequate.

In India, competition policy has evolved significantly through economic reforms and liberalization. This progress led to the enactment of the Competition Act, 2002, which facilitated the establishment of the Competition Commission of India (CCI) to oversee its implementation and enforcement.

Self-Check Exercise-1

Q.1 Discuss Anti-trust Law and Competitive Policy.

4.4 HISTORY OF ENACTMENT OF ANTI-TRUST LAW IN INDIA.

Before 1969, there was no anti-trust law in operation in India. The phase of market regulation in India started with the enactment of the Monopolies and Restrictive Trade Practices Act in 1969. The focus of the MRTP Act was on controlling monopolies and reducing economic concentration. However, with the passage of time and in tandem with economic progress, a need was felt to reframe the existing MRTP Act. Instead of curbing the monopoly power, the focus has now shifted to promoting and protecting competition. Accordingly, high level committee was set up under the Chairmanship of Mr. S.V.S. Raghavan to suggest a competition law that was in line with international practice. The Raghavan committee recommended for a new competition law. Accordingly, the Competition Act, 2002 was enacted. This Act replaced the MRTP Act. To enforce the Competition Act, 2002, the Government of India has set up CCI (Competition Commission of India). However, before we take up a detailed study of the provisions of Competition Act, 2002 and the role of Competition Commission of India, we will study in brief the description of MRTP Act with a view to formulate a historical perspective of regulating monopoly practices in India.

Self-Check Exercise-2

Q.1 Discuss History of Enactment of Anti-trust Law in India.

4.5 MAIN PROVISIONS/FEATURES OF MRTP ACT

Main provisions of MRTP Act were as follows:

(1) **Concentration of Economic Power**: Under MRTP Act, following four types of undertakings were to be regulated for curbing the Concentration of Economic Power.

(i) An undertaking which had asset size of 20 crore or more.

(ii) An undertaking, which along with its interconnected undertakings had asset size of 20 crore or more.

(iii) A dominant undertaking controlling 1/3 (one-third) or more of the total production/ supply of any goods and having assets of 1 crore or more.

(iv) A dominant undertaking along with its interconnected undertakings controlling 1/3 (one-third) or more of the total production/supply of any good and having assets of 1 crore or more.

Subsequently, following the Sachar Committee recommendations, the limit regarding asset size was raised to 100 crore in March, 1985. The New Industrial Policy 1991,further relaxed the provisions regarding asset size and it replaced asset-criteria with New Market-Share Criteria. It also exempted export-oriented units from MRTP Act.

(2) **Monopolistic Trade Practices (MTPs):** Monopolistic Trade Practices define dominant undertakings on the basis of 'Market-Share'. According to this criterion, an undertaking was considered as dominant, which by itself or along with inter-connected undertakings controlled not less than 1/4th of total goods/services produced/supplied in India. Monopolistic Trade Practices had the effect of:

(i) Increasing prices of goods or services to unreasonable level by limiting or reducing production, supply or distribution.

(ii) Unreasonably preventing or reducing competition by making cartels or by restricting the entry of new entrants in the market.

(3) **Inquiry into Monopolistic Trade Practices**: Inquiry into Monopolistic Trade Practices could be initiated on any of the following basis:

(i) Upon receiving a complaint from any trade association, any con consumer association. registered

(ii) Upon reference made by Central Government or State Government.

(iii) Upon own knowledge or information of the MRTPC (Monopoly and Restricted Trade Practices Commission).

(4) **Restrictive Trade Practices (RTPs):** Restrictive Trade Practices related to preventing or restricting competition in any manner by any business undertaking. The following categories of Agreements/Practices were considered as restrictive under MRTP Act:

(i) Any trade practice forcing the buyer to purchase some other product along with the product that the buyer wants to purchase. For example, forcing the buyer to purchase cooking gas stove (Chulha) on purchasing new connection of LPG cylinder. In this case trader is forcing the buyer to purchase gas stove.

(ii) Any agreement among traders/suppliers fixing minimum price of goods/services. These agreements were considered as obstacles in the free flow of goods in the market.

(iii) Any agreement related to allocation of total market area. Example, leading producers in an industry divide the total market area among themselves and mutually agree not to interfere in the market area of each other. Such agreement was deemed as restrictive as it prevented competition.

(iv) Any agreement which limited technical development. Example: agreement avoiding the use of any machinery or new method of production. Such agreements restrict the use of innovative technology.

(v) Any agreement to refuse to bid in any auction.

(vi) Any agreement limiting the output of any product. Such an agreement was deemed as restrictive as it limited the supply of a product in the market, causing a spurt in the price level.

(5) **Inquiry into Restrictive Trade Practices**: Inquiry into Restrictive Trade Practices couldbe initiated on any of the following basis:

(i) Upon receiving a complaint from any trade association, any consumer or registered consumer association.

(ii) Upon reference made by Central Government or State Government.

(iii) Upon application made by Director General of MRTP Act.

(iv) Upon own knowledge of the MRTPC. rootsh

All agreements broadly deemed as restrictive by the Act were to be registered with Director General of this Act. If after enquiry, MRTP Commission found that a particular trade practice was not in public interest or restricting or lowering competition, the related agreement could be declared as void. Appeal against the orders of MRTP Commission could be made only in the Supreme Court.

Self-Check Exercise-3

Q.1 Discuss Main Features of MRTP Act

4.6 UNFAIR TRADE PRACTICES (UTPS)

Provisions of Unfair Trade Practices were incorporated in MRTP Act on 1st August, 1984. These related to the protection of consumer interest. Unfair Trade Practices meant Deceptive Trade Practices as under:

(i) Falsely representing that goods/services are of a particular standard, quality, grade or model.

(ii) Falsely representing second-hand, renovated goods as new goods.

(iii) Falsely representing that goods have a particular sponsorship or approval.

(iv) Making false or misleading claim regarding usefulness of any product.

(v) Giving guarantee of the performance or shelf life of the product, not supported with a proper test

(vi) Making claims about the product without any documentation or support such as laboratory test.

(vii) Offering misleading discount schemes. Example: Offering higher discounts, while the price-tags are upmarked.

(viii) Offering free gifts on the purchase of product, even when cost of gift is covered in price of the main product.

(ix) Advertisements of food products, using words 'natural', 'cholesterol free', 'fat free' etc., gnibio unless these are not certified by Department of Food and Supplies.

(x) Holding contests if adequate disclosure is not made regarding exact number of prizes to be awarded, date of draw, the person in whose presence the draw is to be conducted, place of draw, etc.

(xi) Endorsement of a product by an eminent person if not supported with testimonies regarding truthfulness of the advertisement.

Self-Check Exercise-4

Q.1 What do you mean by Unfair Trade Practices?

4.7 MONOPOLIES AND RESTRICTIVE TRADE PRACTICES COMMISSION (MRTPC)

The MRTP Act led to the establishment of a permanent statutory body called MRTPC. It was a quasi-judicial body, having judiciary powers in controlling restrictive

trade practices and unfair trade practices. But, in case of monopolistic-trade-practices (MTPs) it only had recommendatory powers. In other words, MTPs were not decided by MRTPC but by the Central Government Appeal against orders of MRTPC could be made only in Supreme Court. This commission was headed by a Chairman and had two to eight members appointed by the Central Government. The chairman of this commission was to be a person qualifying to be a judge of Supreme Court or High Court. The members of MRTPC were to be well-acquainted with subjects like Economics, Law, Commerce, Accountancy, Industry and Public Administration. Every member was appointed for five years, but was entitled to re-appointment. No member could hold the office for a period exceeding ten years or on attaining the age of 65 years whichever occurred earlier. MRTPC could initiate enquiry on its own regarding MTPs, RTPs and UTPs. While making enquiry in RTPs and UTPs, it had powers of a Civil Court. The Commission could issue 'Cease and Desist Order', i.e., stopping a particular trade practice along with a warning of not repeating that in future.

Self-Check Exercise-4

Q.1 Write a short note on Monopolies and Restrictive Trade Practices Commission.

4.8 COMPETITION ACT, 2002

In the wake of economic reforms (1991) and a quantum jump in GDP growth, there was a shift in focus from curbing monopolies to promoting competition. In 1999, Government of India appointed a committee on 'Competition Policy and Law' under the chairmanship of Sh. S.V.S. Raghavan. This committee submitted its report in year 2000. Accepting its recommendations, the Competition Act, 2002 was passed. This Act extends to the whole of India, except the state of Jammu and Kashmir. It replaced the Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act). Accordingly, Competition Commission of India (CCI) was set up in place of Monopolies and Restrictive Trade Practices Commission (MRTPC). All the pending cases with MRTPC regarding Monopolistic Trade Practices (MTP) and Restrictive Trade Practices have been shifted to CCI. The pending Unfair Trade Practices (UTP) cases have been shifted to concerned consumer courts under the Consumer Protection Act, 1986. Government proposed certain amendments in the existing Competition Act in 2007 wherein provisions have been made for establishing Competition Appellate Tribunal (COMPAT) to hear appeals against the orders of the CCI.

4.8.1 Objectives of the Competition Act, 2002

(i) To prevent such practices which tend to curtail competition.

(ii) To promote competition in the markets.

(iii) To ensure freedom of trade in Indian markets.

(iv) To prevent abuse of dominant positions in the markets.

(v) To regulate combinations (acquisitions, mergers and amalgamation).

(vi) To create awareness and impart training about competition issues, ie., competitionadvocacy.

4.8.2 Major Provisions of the Competition Act, 2002

With a view to promoting healthy competition in the market, Competition Act, 2002 cmpowers CCI (Competition Commission of India): (i) to identify anti-competitive agreements by the producers/sellers and to declare them null and void (ii) to check whether dominant enterprises are abusing their dominance in the relevant market and (iii) to regulate business combinations(acquisitions, mergers and amalgamations). Let us attempt a brief description of these provisions in the Competition Act, 2002 as under:

(1) Anti-Competitive Agreements (Section 3)

All agreements which have adverse effect on competition in the relevant market in India are declared avoid. Anti-competitive agreements, as per the Competiton Act, 2002, are of two types, Le., horizontal agreements and vertical agreements. Agreements amongst the enterprises of persons (as defined in the Competition Act, 2002) operating in similar trade or business are called horizontal agreements and agreements amongst enterprises that operates at different levels of same production chain are called vertical agreements.

Following are horizontal anti-competitive agreements:

(i) Agreements which directly or indirectly determine purchase or sale price of the product.

(ii) Agreements which limit or control production, supply, technical development, investment, etc.

(iii) Agreements related to market-sharing by way of allocation of geographical area or type of goods or type of customers.

(iv) Agreements which manipulate the process of bidding.

Following are vertical anti-competitive agreements:

(v) Tie-in-arrangement, i.e., an agreement requiring purchaser of goods to purchase some other goods along with it.

(vi) Exclusive supply agreement, ie., an agreement restricting the purchaser not to purchase from any other seller/supplier, ie., the purchaser will buy goods from a particular supplier only.

(vii) Exclusive distribution agreement, i.e., an agreement restricting the supply of any good or allocate any area or market for the disposal or sale of the goods, i.e., the producer/supplier will sell all his goods at a particular area/market only.

(viii) Refusal to deal, i.e., an agreement that restricts the producer/seller from selling goods to a particular person or classes of persons or restricting purchasers from purchasing goods from a particular producer/seller or classes of producer/seller.

(ix) Resale price maintenance, i.e., an agreement to sell goods on the condition that the prices to be charged on resale by the purchaser will not be less than prices stipulated by seller.

(2) Abuse of Dominant Position (Section 4)Dominant position means the position of strength enjoyed by an enterprise in a relevant market in India which enables it to:

(i) operate independent of competitive forces.

(ii) affect its competitors or consumers in its favour.

Dominant position is decided keeping in view the market share of the enterprise, size ofresources of the enterprises, size of competitors, etc. There shall be abuse of dominant position, if anenterprise:

(i) imposes unfair condition and unfair price on purchase or sale of goods or services.

(ii) limits or restricts production, technical development.

(iii) denies market access to other enterprises.

Section 4 of the Competition Act, 2002 clearly states that no enterprise shall abuse its dominant position. Situation of dominant position is not per se anti-competitive but the abuse of dominant position is anti-competitive and therefore, against the interest of consumers and economy.

(3) Regulation of Combinations (Section 5 and 6)

Combinations include acquisitions, mergers or amalgamations.If any combination or merger is more than the prescribed asset, turnover threshold, then such combination will be scrutinized by Competition Commission of India. The combinations which cause or which are likely to cause appreciable adverse effect on competition in India shall be deemed as void.

Self-Check Exercise-5

Q.1 Write a short note on Competition Act 2002? Also discuss its main Provisions.

4.9 COMPETITION COMMISSION OF INDIA (CCI)

The Competition Commission of India (CCI) was established to implement the provisions outlined in the Competition Act, 2002. According to this Act, the Commission comprises a chairperson and a minimum of six members, all of whom are appointed by the Central Government. The chairperson and members must possess at least 15 years of expertise in areas such as international trade, economics, business, commerce, law, management, industry, public affairs, or competition-related matters. Each appointed individual serves a five-year term and is eligible for reappointment. However, no member can continue in office beyond the age of 65. Additionally, the Central Government holds the authority to remove the chairperson or any member from their position.

4.9.1 Powers and Functions of CCI

Powers and functions of CCI may be described under the following heads:

(1) Inquiry into Anti-Competitive Agreements and Abuse of Dominant Position (Sec. 19): The Commission can initiate inquiry relating to anti-competitive agreements, abuse of dominant position and combinations,

(i) on its own motion or

(ii) on receipt of any information from any person, consumer or their association or trade association.

(iii) on a reference made to it by Central or State Government.

If commission is of the opinion that there exists a prima facie (obvious) case, it shall direct the Director General to make detailed investigation. After receiving the

investigation report from the Director General, the commission will pass appropriate orders.

(2) Inquiry into Combinations (Sec. 20): In case the commission is of the prima facie opinion that the proposed combination will have appreciable adverse effect on competition, it may call upon the parties (in combination) to furnish all relevant information. The commission may pass the order that combination cannot be formed at all or it may suggest some modification in the combination. The decision of the commission will be final.

(3) Order by Commission for Anti-Competitive Agreements and Abuse of Dominant Position (Sec. 27): CCI may pass all or any of the following orders:

(i) discontinue anti-competitive agreements.

(ii) desist from abusing dominant position.

(iii) impose penalty to the maximum of 10% of the average turnover of last 3 years in case of abuse of dominant position and up to 3 times of average profit of last three years in case of anti-competitive agreements.

(4) Power to Grant Interim Relief (Sec. 33): The commission may grant temporary injunction restraining any party from carrying an unwarranted activity until the conclusion of inquiry initiated under this Act.

(5) Power to Discharge its Functions (Sec. 36): The CCI has powers of civil court under the Code of Civil Procedures, 1908, namely:

(i) summoning and enforcing the attendance of any person and examining him on oath.

(ii) requiring the production and presentation of documents.

(iii) receiving evidence on affidavits.

(iv) examination of witnesses or documents.

(v) review or rectification of its orders.

Briefly, CCI sees that no such business agreements are allowed to exist which tend to lower the spirit of competition in the market. It is to foster competition that the Competition Commission tries to impart dynamism to the forces of supply and demand, thereby directing the growth process to be welfare-oriented rather than profit oriented.

Self-Check Exercise-6

Q.1 Write a short note on Competition Commission of India? Also discuss its functions.

4.10 NATURAL MONOPOLY

A natural monopoly is a situation in which economies of scale are so pronounced that production becomes most cost efficient in case there is only one firm in the industry. In other words, in case of a natural monopoly, the industry harnesses economies of scale to such an extent that it finds single firm production of the good (or service) as the most efficient mode of production. Example: Railways in India. In terms of railway lines and other infrastructure, economies of scale of railways in India are so large that it is not viable for any other enterprise to compete with Indian railways. Scale of investment and scale of production with reducing

average cost is so large that it almost matches with the entire market demand for the product. Accordingly, natural monopoly also acts as a natural deterrent for the other producers to join the industry.

Self-Check Exercise-7

Q.1 Write a short note on Natural Monopoly?

4.11 PUBLIC POLICY TOWARDS MONOPOLY AND COMPETITION

Under monopoly there is a loss of consumer and producer surplus, leading to dead weight loss. Accordingly, various monopoly activities and cartels have been under the watch list of the government. In India, Competition Act, 2002 and other policy guidelines are used to discourage monopoly and instead promote competition. Besides this, various laws are used to direct the behaviour of firms towards optimum resource allocation.

There are three aspects of public policy to control the inefficiency of monopoly and market control:

(i) Direct government intervention to control the natural monopolies.

(ii) Direct government intervention to control the cartels and various price fixation agreements.

(iii) Direct government action to promote competitive conditions.

Self-Check Exercise-8

Q.1 Write a short note on Public Policy towards Monopoly and Competition?

4.12 SUMMARY

Existence of monopolies implies market power that enables producers to control price and consequently induces them to maximise profits by fixing high price and producing low output. Such a situation is an undisputed source of market failure and misallocation of resources. Consequently, in most countries the government intervenes to exercise direct or indirect control on natural monopolies. Direct control occurs when the government assumes ownership of natural monopolies, so that these are run as nationalised industries. Indirect control occurs when the private ownership is allowed but the government regulates monopoly firm's behaviour. Initially, countries like U.K. and India relied more on the first option, that is nationalisation of natural monopolies. Of late however, the focus has shifted from nationalisation to privatisation, and regulatory control on privately owned natural monopolies. Natural Monopoly may not survive in the Long Run: It seems to be a paradoxical statement that natural monopolies may not survive in the long run, in view of the fact that natural monopolies by definition are a long period concept. Natural monopoly means that, given the existing technology, there is a room for only one firm to operate profitably. But the fact of the matter is that in the long period, technology itself may change, and it may change so significantly that it becomes possible to achieve efficiency even at a lower level of output. This implies that more firms may jump into the fray breaking natural monopolies and creating an oligopolistic market structure. Indeed this has happened in case of IT industry. Prior to IT revolution only MTNL had natural monopoly in the area of tele-communication

in India. Now, Bharti, Reliance and Tata have also emerged as leading players in the market.

4.13 GLOSSARY

CCI sees that no such business agreements are allowed to exist which tend to lower the spirit of competition in the market. It is to foster competition that the Competition Commission tries to impart dynamism to the forces of supply and demand, thereby directing the growth process to be welfare-oriented rather than profit oriented.

4.14 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 4.3

Self-Check Exercise-2

Ans.1 Please refer to section 4.4

Self-Check Exercise-3

Ans.1 Please refer to section 4.5

Self-Check Exercise-4

Ans.1 Please refer to section 4.6

Self-Check Exercise-5

Ans.1 Please refer to section 4.7

Self-Check Exercise-6

Ans.1 Please refer to section 4.8

Self-Check Exercise-7

Ans.1 Please refer to section 4.9

Self-Check Exercise-8

Ans.1 Please refer to section 4.10

Self-Check Exercise-9

Ans.1 Please refer to section 4.11

4.15 REFERENCES/ SUGGESTED READINGS

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4.16 TERMINAL QUESTIONS

Q.1 Discuss in detail different remedies of Monopolies.

Unit-05

MONOPOLISTIC COMPETITION

STRUCTURE

5.1 INTRODUCTION

Perfect competition and monopoly are rarely found in the real world. Therefore, Professor Edward H. Chamberlin of Harvard University brought about a synthesis of the two theories and put forth, "Theory of Monopolistic Competition" in 1933. Monopolistic competition is more realistic than either pure competition or monopoly. It is a blending of competition and monopoly. "There is competition which is keen though not perfect, between many firms making very similar products". Thus monopolistic competition refers to competition among a large number of sellers producing close but not perfect substitutes.

5.2 LEARNING OBJECTIVES

In previous two units, we have studied price and output determination under perfect competition and monopoly. Here we will study the equilibrium condition under monopolistic competition. After studying this lesson you will be able to:

- Know meaning and features of monopolistic competition
- Describe assumptions made by Chamberlin in analysing firm's behaviour
- Describe price and output determination under monopolistic competition
- Explain Selling Cost

5.3 FEATURES OF MONOPOLISTIC COMPETITION

(i) **Numerous Sellers**: In a monopolistic competitive market, there are many sellers, none of whom dominate the market share. Since each firm contributes only a small portion of the total output, individual firms have limited influence over pricing. Every firm independently determines its own price and production strategy without considering the reactions of competitors, leading to a lack of interdependence among firms.

(ii) **Product Differentiation**: A key characteristic of monopolistic competition is product differentiation, meaning that products are not identical but vary in certain aspects. While these products serve similar purposes, they are not perfect substitutes for one another. Differentiation can arise from variations in quality, design, size, shape, color, packaging, fragrance, and durability. Firms may also tailor products to meet consumer preferences. Marketing strategies such as advertising and promotional campaigns play a crucial role in influencing consumer demand. Additionally, factors like store location, customer service, credit options, trademarks, and patents further contribute to product distinction. Well-known brands such as Kodak and Coca-Cola exemplify the impact of patent rights, while trademarks like Lux, Hamam, and Rexona help consumers distinguish products within a competitive market.

(iii) **Ease of Market Entry and Exit**: Firms operating in monopolistic competition can enter or exit the market relatively freely. Since these businesses are generally small and capable of producing close substitutes, new firms are encouraged to join the industry due to product differentiation. Over time, businesses that fail to sustain profitability may leave the market.

(iv) **Significance of Selling Costs**: Due to intense competition, firms engage in promotional activities to attract customers and boost sales. Selling costs, including advertising and marketing expenses, significantly influence pricing strategies in monopolistic competition.

(v) **Group Concept Instead of Industry**: Economist Edward Chamberlin introduced the concept of a "group" rather than an "industry" in monopolistic competition. Unlike an industry that comprises firms producing identical goods, a group consists of firms that manufacture similar but not identical products. This distinction recognizes the role of product differentiation in shaping competition.

(vi) **Demand Curve Characteristics**: In monopolistic competition, each firm controls only a small share of the total market. Since products are differentiated but serve as close substitutes, a price reduction generally leads to increased sales, while a price hike results in a loss of some customers.

However, such changes have minimal impact on the pricing strategies of rival firms. The demand curve in this market structure slopes downward to the right, indicating that demand is highly elastic but not perfectly elastic. Firms have some degree of pricing power due to product differentiation, leading to price variations among competitors.

(vii) **Imperfect Market Knowledge**: Buyers and sellers do not have complete knowledge of market conditions, including product prices, quality, and availability. This lack of perfect information can influence purchasing decisions.

(viii) **Price Variation Among Firms**: Unlike in perfect competition, where uniform pricing prevails, monopolistic competition allows different producers to charge different prices for their goods. These price variations stem from product differentiation and consumer perceptions of quality and brand value.

Self-Check Exercise-1

Q.1 Discuss various features of Monopolistic Competition.

5.4 PRICE-OUTPUT DETERMINATION UNDER MONOPOLISTIC COMPETITION

Since, under monopolistic competition, different firms produce different varieties of products, prices will be determined on the basis of demand and cost conditions. The firms aim at profit maximisation by making adjustments in price and output, product adjustment and adjustment of selling costs.

Equilibrium of a firm under monopolistic competition is based upon the following assumptions:

1. The number of sellers is large and they act independently of each other.
2. The product is differentiated.
3. The firm has a demand curve which is elastic.
4. The supply of factor services is perfectly elastic.
5. The short run cost curves of each firm differ from each other.
6. No new firms enter the industry.

5.5 INDIVIDUAL EQUILIBRIUM AND PRICE VARIATION

Based on these assumptions, each firm fixes such price and output which maximises its profit. Product is held constant. The only variable is price. The equilibrium price and output is determined at a point where the short run marginal cost equals marginal revenue. The equilibrium of a firm under monopolistic competition is shown in figure 5.1.

DD is the demand curve of the firm. It is also the average revenue curve of the firm. MC is the marginal cost of the firm. The firm will maximise profits by equating marginal cost with marginal revenue. The firm maximises its profit by producing OM level of output and selling it at a price of OP. The profit earned by the

firm is PQRS. Thus in the short run, a firm under monopolistic competition earns supernormal profits.

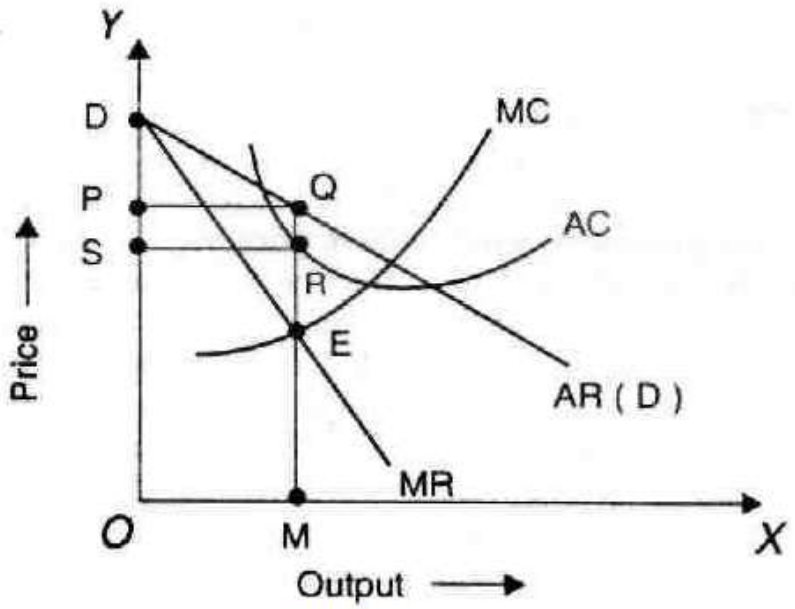

Fig. 5.1

In the short run, the firm may incur losses also. This is shown in figure 5.2. The firm is in equilibrium by producing an output of OQ. It fixes the price at OP. As price is less than cost, it incurs losses equal to pabc. Thus a firm in equilibrium under monopolistic competition may be making supernormal profits or losses depending upon the position of the demand curve and average cost curve.

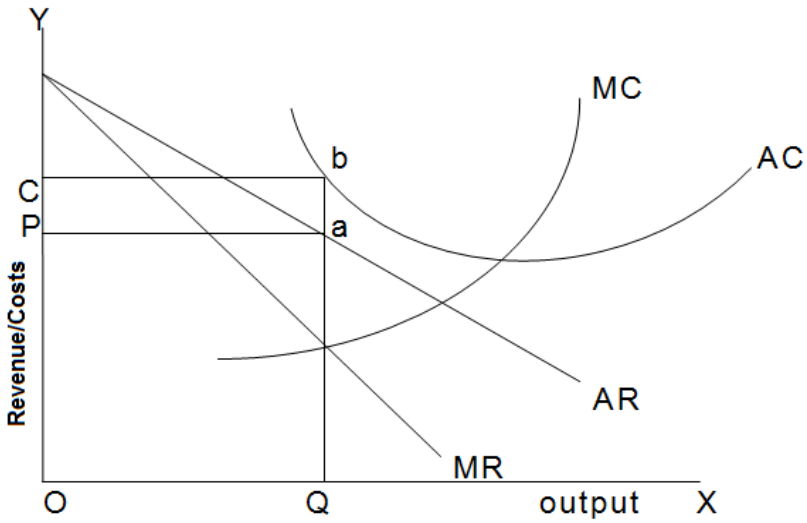

Fig. 5.2

5.6 GROUP EQUILIBRIUM AND PRICE VARIATION

Group equilibrium refers to price-output determination in a number of firms whose products are close substitutes. The product of each firm has special characteristics.

The difference in the quality of the products of the firms under monopolistic competition results in large variation in elasticity and position of the demand curves of the various firms. Similarly the shape and position of cost curves too differ. As a result there exist differences in prices, output and profits of the various firms in the group. For the sake of simplicity in the analysis of group equilibrium, Chamberlin ignores these differences by adopting infirmity assumption. He assumes that the cost and demand curves of all the products in the group are uniform. Chamberlin introduces another assumption known as 'symmetry assumption'. It means that the number of firms under monopolistic competition is large and hence the action of an individual firm regarding price and output will have a negligible effect upon his rivals. Based on these assumptions, short run equilibrium of a firm under monopolistic competition can be shown in Figure 5.3 (A).

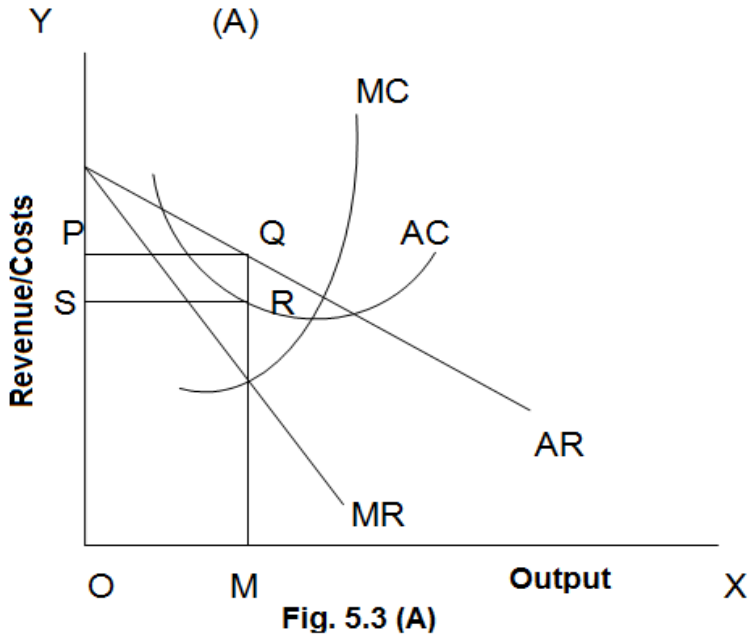

Fig. 5.3 (A)

Figure (A) represents short run equilibrium and figures (B) the long run equilibrium. In the short run, the price is OP and average cost is only MR. Hence there is supernormal profit equal to PQRS. But in the long run, as shown in figure 5.3 (B), the excess profit is competed away. MC = MR at OM level of output. LAR is tangent to LAC. Price is equal to average cost and there is no extra profit. Only normal profit is earned.

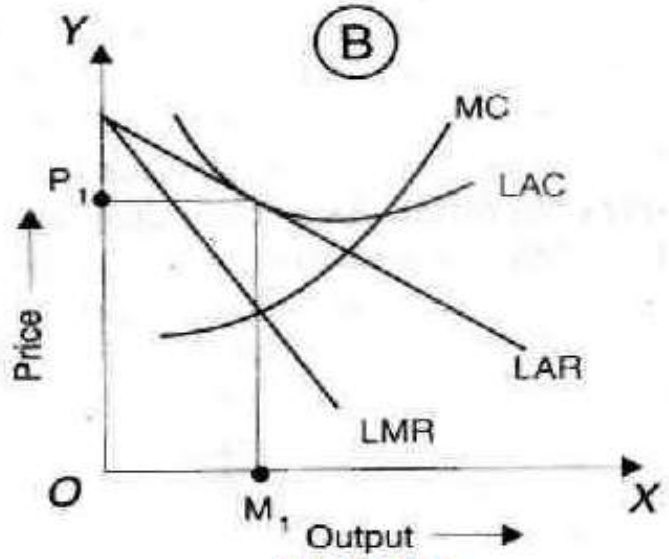

Fig. 5.3 (b)

Self-Check Exercise-2

Q.1 Discuss Price-Output Determination under Monopolistic Competition.

Q.2 Discuss Individual Equilibrium and Price Variation also discuss Group Equilibrium and Price Variation.

5.7 PRODUCT DIFFERENTIATION

While analysing the equilibrium of a firm with regard to the variation of the product we assume the price of product to be constant. The firm has to select among the various possible qualities and attributes of the product. An important characteristic of product variation is that it changes the cost curve and demand for the product. Therefore, the entrepreneur has to choose the product whose cost and demand are such as to yield maximum profit. Yet another feature of product variation is that product variation is qualitative and therefore, quantitative measurement is not possible.

Self-Check Exercise-3

Q.1 What do you mean by Product differentiation.

5.8 INDIVIDUAL EQUILIBRIUM AND PRODUCT VARIATION

The equilibrium of the firm under condition of product variation is shown in figure 5.4

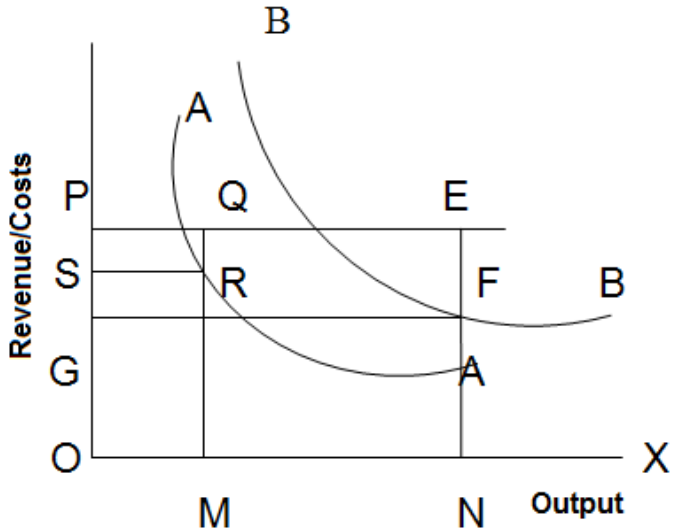

Fig. 5.4

AA is the average cost curve of the product A and BB is the average cost curve of the product B. The price of the product is OP. If OM quantity of the product A is demanded at the price of OP, the total costs are OMRS. The entrepreneur earns an abnormal profit equal to PQRS. If the Quantity demanded of the product B is ON, then the total costs are ONFG and the total profits made by the entrepreneur are GFEP. Since the product B yields greater profits than A, the entrepreneur will select the product B.

Self-Check Exercise-4

Q.1 Discuss Individual Equilibrium and Product Variation

5.9 GROUP EQUILIBRIUM AND PRODUCT VARIATION

It is assumed that the demand is uniform and the possibility of product variation is also uniform. The equilibrium adjustment of the product is shown in figure 5.5.

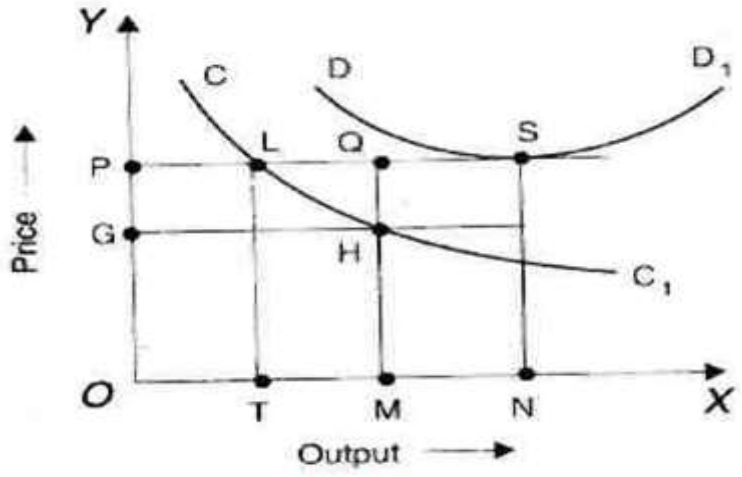

Fig. 5.5

CC1 is the average cost curve. If the quantity demanded is OM then the total cost is OMHG. The firm earns supernormal profits equal to GHQP. This supernormal profits should be wiped away to achieve group equilibrium. Attracted by the supernormal profits, new competitor may enter the group. The quantity demanded will come down to OT. Price will cover only cost of production. Besides, the adjustment in the number of firms, product improvement may also take place. When all entrepreneurs improve their product, cost will increase as shown by DD1 and become equal to the price at the point S.

Group equilibrium must satisfy the following conditions:

1. The average cost must be equal to price.

2. It is not possible for anyone to increase his profits by making further adjustment or improvement in his product.

Self-Check Exercise-5

Q.1 Discuss Group Equilibrium and Product Variation

5.10 SELLING COST AND PRICE DETERMINATION

Selling cost is another important factor which influences pricing under Monopolistic competition. Selling costs are costs incurred on advertising, publicity, salesmanship, free sampling, free service, door to door canvassing and so on. Selling costs are "the costs necessary to persuade a buyer to buy one product rather than another or to buy from one seller rather than another".

Under perfect competition, there is no need for advertising as the product is homogeneous. Similarly, under monopoly also, selling costs are not needed as there are no rivals. But under conditions of monopolistic competition, as the products are differentiated, selling costs are essential to increase sales. Chamberlin defines selling cost," as costs incurred in order to alter the portion or shape of the demand curve for a product".

Advertisement may be classified into two types: informative and competitive. Informative advertisement enables the buyers to know about existence and uses of the product. It also helps to increase sales of all firms in the group. Competitive advertisement refers to expenses incurred to increase the sales of the product of a particular firm as against other products.

The curve of selling cost is U-shaped, due to-the operation of the law of variable proportions. The curve of selling cost first falls, reaches a minimum point and then starts rising as shown in figure 6.6.

SC is the curve of selling costs. The total cost of selling OA units of the product is OAQS. At the minimum point of the selling cost curve i.e. at M, the selling cost is the minimum. Beyond the point M, selling cost increases. For instance, the average selling cost of OC is RC.

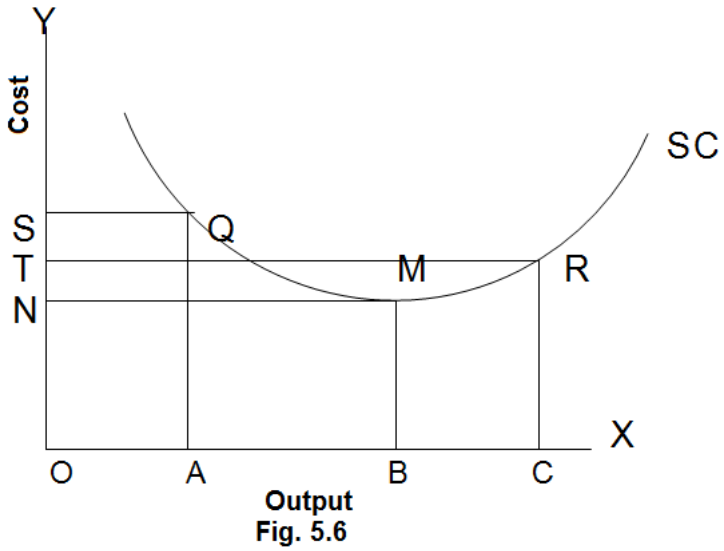

Fig. 5.6

Self-Check Exercise-6

Q.1 Write short note on Selling Cost and Price Determination.

5.11 EXCESS CAPACITY UNDER IMPERFECT COMPETITION

We saw that the firms under both perfect as well as imperfect competition earn normal profits in the long run by selling at a price equal to the long run average cost (LAC). However the difference is that while price under perfect competition equals minimum of LAC where output is larger, the price under imperfect competition is determined at a point where LAC is still falling. This means that the LAC is not minimized under imperfect competition at equilibrium. Minimization of LAC is called productive efficiency. So by not minimizing LAC and producing on the falling portion of LAC the imperfectly competitive firm produces less than competitive output by not utilizing its plant capacity. So imperfectly competitive firm is productive inefficient while competitive firm is productive efficient. This is also referred to as excess capacity of imperfect competition which is measured as the difference between output produced at the minimum point of LAC i.e. competitive output and the output produced at some point on the falling portion of LAC even though it corresponds to equilibrium between MR and MC under imperfect competition.

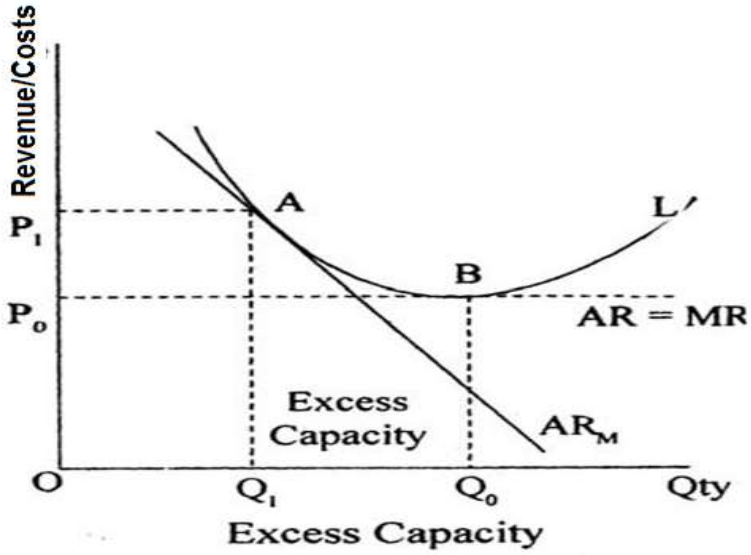

Fig. 5.7

In the fig. 5.7 the long run average cost curve is shown as LAC. Firm under imperfect competition produces at point A on LAC where LAC is still falling and tangent to its demand curve ARM. The output of imperfectly competitive firm is Q1. On the other hand a competitive firm produces Q0 at the minimum of LAC curve. The range AB on LAC curve showing the difference in output as Q0–Q1 is the measure of excess capacity.

Self-Check Exercise-7

Q.1 Discuss Excess Capacity under Imperfect Competition

5.12 PERFECT VS IMPERFECT COMPETITION: A COMPARISON

A horizontal AR/MR curve of an individual firm may be said to be the hall-mark of perfect competition. On the other hand, a downward sloping AR curve of an individual firm characterises all other market forms. The MR curve corresponding to a downward sloping AR curve is also downward sloping and lies below the former throughout. The differences in the equilibrium quantities (prices, output, MC/price relationship, etc.) under perfect competition and under other market forms arise because of the differences in the shapes of the AR and MR curves. Briefly these differences are the following.

(1) Equality of MC and MR determines the equilibrium of a firm under all market conditions. However under perfect competition, by definition, AR always equals MR. By implications, therefore, MC = MR = AR (price) in equilibrium. Thus, under perfect competition, price equals MC. On the other hand, under imperfect competition, MR being always less than AR (price), price is necessarily higher than MC as well as MR.

(2) Under perfect competition a single price prevails in the market and all firms equate their MCs with the market price. By implication, the MCs of all firms in the industry are equal. Equality of MCs ensures efficiency in the industry. However, under imperfect competition there is no single price ruling in the market and the AR and MR curves of different firms differ in their shapes and locations. Therefore, MCs of different firms are normally different. This is said to be an indicator of inefficient use of resources.

(3) Under perfect competition as well as under imperfect competition long-run equilibrium of a firm requires (1) MC = MR and (2) AC = AR. However, under perfect competition, by virtue of the identity between AR and MR, in long run equilibrium MC = MR (= AR) and AC = AR (=MR) necessarily implies that MC = MR = AR = AC. Thus, in long run equilibrium under perfect competition price (AR) equals MC as well as AC. MC equals AC only at the lowest point of the AC curve, therefore, under perfect competition in long-run equilibrium price of a commodity equals its minimum average cost. (You may recall under perfect competition in long run equilibrium the horizontal AR/MR curve becomes tangential to the U shaped AC curve necessarily at its lowest point).

Even though under imperfect competition (as under perfect competition) long-run equilibrium requires MC = MR and AC = AR. By virtue of the MR curve always lying below the AR curve, MC will necessarily be less than AC. MC is less than AC when the latter is falling. This implies that under imperfect competition long-run equilibrium will take place on the falling portion of the AC curve, In other words, in long run equilibrium under imperfect competition price will necessarily be higher than the minimum average cost.

(4) As explained above under perfect competition long-run equilibrium take place necessarily at the lowest point on the AC curve whereas under imperfect competition it takes place to the left of the lowest point on the AC curves. From this it follows that level of output under perfect competition will be optimum while under imperfect competition it will be less than optimum. In other words, under imperfect competition productive capacity is underutilized.

Self-Check Exercise-8

Q.1 Compare Perfect and Imperfect Competition.

5.13 SUMMARY

Under monopolistic competition there is a very large number of firms, but their product is somewhat differentiated. Hence the demand of the individual firms has a negative slope, but its price elasticity is high due to the existence of the close substitutes. Entry is free and easy in the industry. We have studied three models of monopolistic competition given by Chamberlin. The long-run equilibrium of the firm under monopolistic competition is defined by the point of tangency of the demand curve to the LAC curve. At this point MC = MR and AC = P, but P > MC. this lesson deals with monopolistic competition. We have studied its features, its price-output determination in an extensive manner. The concept of product differentiation in monopolistic competition is also discussed.

5.14 GLOSSARY

- **Selling Cost:** expenses incurred in the marketing and distribution of a product.
- **Product Differentiation:** A firm's product that is not identical to products of other firms in the same industry. Contrasts with homogeneous product.
- **Imperfect competition:** A market structure wherein individual firms exercise control over the price to a smaller or larger degree depending upon the degree of imperfection present in a case.
- **Monopoly:** Existence of a single producer or seller which is producing or selling a product which has no close substitutes.

5.15 Answers to Self-Check Exercise

Self-Check Exercise-1

Ans.1 Please refer to section 5.3

Self-Check Exercise-2

Ans.1 Please refer to section 5.4, 5.5 and 5.6

Self-Check Exercise-3

Ans.1 Please refer to section 5.7

Self-Check Exercise-4

Ans.1 Please refer to section 5.8

Self-Check Exercise-5

Ans.1 Please refer to section 5.9

Self-Check Exercise-6

Ans.1 Please refer to section 5.10

Self-Check Exercise-7

Ans.1 Please refer to section 5.11

Self-Check Exercise-8

Ans.1 Please refer to section 5.12

5.16 REFERENCES/ SUGGESTED READING

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5.17 TERMINAL QUESTIONS

Q1. Explain the key differences between perfect competition and monopolistic competition?

Q2. Explain the price and output determination of a firm under monopolistic competition?

Unit-06

MONOPOLISTIC COMPETITION-II

STRUCTURE

6.1 INTRODUCTION

According to Chamberlin, although in the long run firm tends to earn normal profit, yet there can be some more efficient firms in the industry (group) that continue to earn some excess profit. But it is only an exception, as in the long run firms earn only normal profit

Another interesting fact is noticeable in the Figure of Long run equilibrium of a firm in Monopolistic Competition is that the firm is not making full use of its capacity. In other words, production level is not optimum at equilibrium point. It is so because negative AR curve is not tangent to U-shaped LAC curve at its minimum point. In perfect competition, AR curve is a horizontal line parallel to X-axis, as such it touches LAC curve at its minimum point. But under imperfect or monopolistic competition, AR curve is of negative slope and so touches U-shaped LAC curve at a point which is a bit higher than the minimum, i.e, at point A as shown in this figure. Thus, under monopolistic competition long run average cost is neither as minimum at equilibrium point nor is the production optimum. Prof. Lipsey refers to this situation "excess capacity" theorem. It leads to the following conclusion.

(i) In spite of the negative demand curve as in monopoly, a firm operating under monopolistic competition earns only normal profit in the long run.

(ii) Price under imperfect competition is higher than under perfect competition and is more than the marginal cost.

(iii) Under imperfect competition, a firm has a tendency to show excess capacity in the long run.

(iv) Number of firms is large but they are incapable of making full use of their production capacity. As a result of it, level of production is always less than the optimum.

(v) Lack of optimum production means waste of scarce national resources.

6.2 LEARNING OBJECTIVES:

After going through this unit you will be able to understand

- Is Excess Capacity Wasteful?
- What is Non-Price Competition?
- What are Selling Costs?
- Comparison between Monopolistic competition and Monopoly
- Comparison between Monopolistic Competition and Perfect competition.

6.3 IS EXCESS CAPACITY WASTEFUL?

It is controversial whether excess capacity is wasteful or not, Some economists believe that excess capacity leads to overcrowding of the group. Since each firm produces smaller than optimum output more firms can exist under these circumstances than if there were no excess capacity. Thus, there is likely to be some overcrowding. It implies waste and inefficiency. Production is at higher cost than is necessary because each firm is producing on the negatively sloped portion of its average cost curve. Moreover firm's present capacity is not fully utilised. Consequently some economists believe it to be wasteful, pointing out that the same total output would be possible with fewer firms, each producing a larger output. This would lower the unit cost of production, since each firm would produce larger output at less average cost.

On the other hand, some economists like Kelvin Lancaster do not accept the argument that, monopolistic competition is necessarily wasteful. They are of the opinion that production of more differentiated products will better satisfy diverse tastes and accordingly, maximise consumer's satisfaction.

In this situation Lipsey has rightly pointed out, "The correct policy is not to reduce the number of differentiated products until each remaining product can be produced at its least cost output. Instead to maximise consumer's satisfaction the number of differentiated products should be increased until the gain in consumer's satisfaction from an increase in diversity equals the loss from having to produce each existing product at a higher cost." Thus, we may conclude that excess capacity is not necessarily wasteful.

Self-Check Exercise-1

Q.1 Is Excess Capacity Wasteful?

6.4 NON-PRICE COMPETITION

In order to maximise the profits, the firm may indulge in two types of competition, i.e., (i) Price competition, and (ii) Non-price competition. The price competition involves price cutting. It may not result in maximisation of profits, since the price cutting by one firm may compel the other firms to fall in line. Consequently the market-share for any firm will not increase. Thus, monopolistic competition is frequently characterised by competitive behaviour not involving price changes. On the other hand, they may restrict themselves to non-price competition.

It refers to an attempt to attract customers changing the quality of the product; changing the market place; intensive publicity services; free gift like spoon, calendar, ball-pen, glass tumbler etc. with the product, fancy packing, free home delivery etc. Thus, all the firms continue to indulge in a competitive race of attracting more and more customers by offering them different services and free gifts. In short, non-price competition is the competition through product differentiation.

Main aim of the firm even in case of non-price competition, is to maximise its sales and profit. Such a competition has favourable effect, so long as it meets the tastes and preferences of the customers. It helps the consumers to get a variety of goods at attractive terms. But, many a time non-price competition leads to cut-throat competition among the rival firms and the social cost of this competition becomes very high. Moreover under monopolistic competition free entry drives profits to zero in the long run. Nonetheless, firms can sometimes delay or reverse this process by further differentiating their product from those of other entrants.

Self-Check Exercise-2

Q.1 What is Non Price competition?

6.5 SELLING COSTS

In order to sell their products, firms under monopolistic competition have to spend a lot on advertisement and publicity. In Economics, the total amount of money spent on advertisement and publicity for pushing the sale of the product is called selling cost. The need for incurring selling costs is acutely felt under monopolistic competition only. In case of perfect competition, products of all producers are homogeneous. So, they do not feel the necessity of any advertisement. In case of monopoly, there is a single producer of the product. When a monopolist begins the production of a product, he may spend some amount on advertisement by way of information to the potential customers. Once the customers come to know of the product, expenditure on advertisement becomes superfluous. Under imperfect competition, it is not enough to give information about the product to the customers, rather they are to be reminded about the merits of the product again and again. Under monopolistic competition, therefore, selling costs are not merely informative but are essential for sales promotion and manipulation of demand. In short, sales promotion includes all those activities undertaken by a producer in order to increase the demand of his product. Selling costs, therefore, refer to those costs which are incurred to increase the sale of the product, e.g. expenditure on advertisement, publicity, salesmen, commission to retailers, gifts and concessions to customers, etc.

Assumptions of Selling Costs

Selling costs are based on two assumptions:

- Buyers' demand and taste can be changed; and

- Buyers do not have full knowledge about the different types of the product. Selling costs apprise the buyers of the conditions of the market, superiority of the product and similar other things. These costs help the firm increase the popularity of its product and attract new customers to it.

Self-Check Exercise-3

Q.1 What are Selling Costs?

6.6 DIFFERENCE BETWEEN SELLING COSTS AND PRODUCTION COSTS

There are fundamental differences between production costs and selling costs:

(i) Production costs are those costs which are incurred in order to make the commodity worthy of meeting the requirements of the customers. As a result of these costs commodity can satisfy the consumers. On the other hand, selling costs are those costs which help change habits and tastes of the consumers. Their main aim is to attract the customers to the products. In the words of Chamberlin, "Those costs made to adopt the product to the demand are costs of production, those made to adopt the demand to the product are costs of selling."

(ii) Production costs include such expenditure as production of the product, its transportation to the market, storage, delivery to the customers, etc. On the other hand selling costs include all kinds of expenses on advertisements in newspapers, magazines, announcements on the radio and TV, wall-posters, hoardings on the main squares, publicity in rail-coaches, buses, offices; commission to salesmen, prize contests, gifts, etc., and

(iii) The purpose of selling costs is to push the demand for the product while the purpose of production costs is to increase the supply of the product. Production costs lead to creation of utility, while selling costs create demand for the product.

In short, the basic difference between the two is that production costs are incurred with a view to meeting the existing demand for a commodity, whereas selling costs are incurred with a view to increasing the demand for the existing commodity.

Self-Check Exercise-4

Q.1 Discuss Difference between Selling Costs and Production Costs.

6.7 COMPARISON BETWEEN MONOPOLISTIC COMPETITION AND PERFECT COMPETITION

Comparison between monopolistic competition and perfect competition can be made on the basis of following:

(1) **Assumption regarding Product**: Under perfect competition it is assumed that all firms produce homogeneous products. Under monopolistic competition there is product differentiation. Goods produced by the firms differ in one way or the other. Because of this difference each firm is a monopolist of its own product.

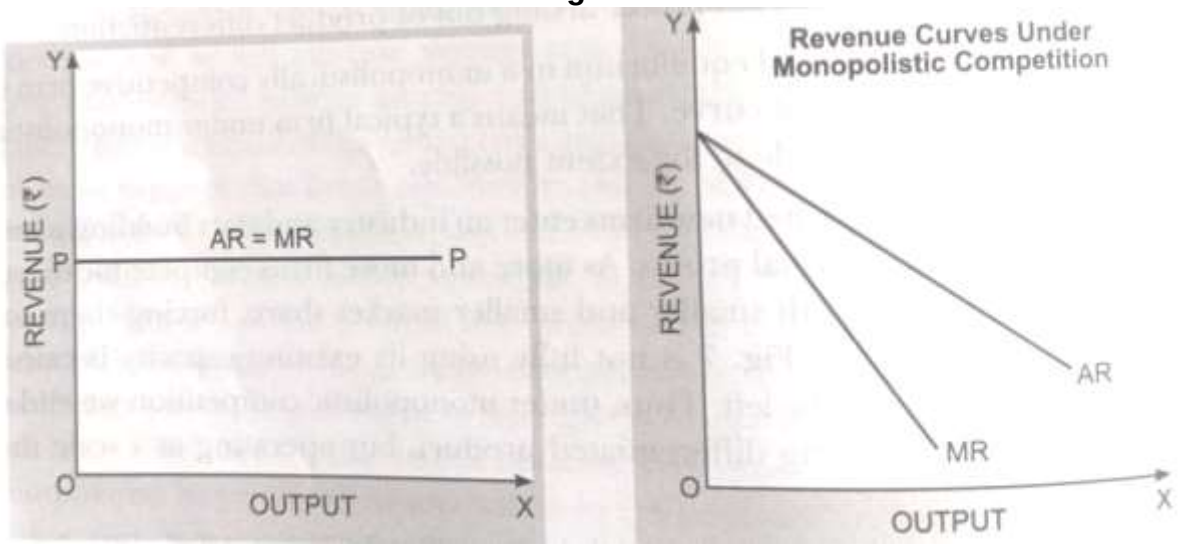
(2) **Assumption regarding Number of Buyers and Sellers**: Under perfect competition there are large number of sellers of homogeneous product. Group of such sellers constitutes industry. No seller by his individual actions can influence other sellers. Under imperfect competition, number of sellers is more

than one. Many such sellers are collectively called 'Group'. They produce differentiated products. In both these market situations, there are large number of sellers.

(3) **Assumption regarding Degree of Knowledge**: Under perfect competition it is assumed that buyers and sellers have perfect knowledge of the market conditions. On the contrary, buyers and sellers under monopolistic competition are not fully aware of the market conditions.

(4) **Assumption regarding Shape of Demand Curve**: Under perfect competition, due to large number of firms and homogeneous product, demand curve is perfectly elastic. It means, under perfect competition average revenue curve (demand curve) is parallel to X-axis. In this situation, average revenue is equal to marginal revenue. In Fig., AR and MR are represented by a single curve PP which is parallel to X-axis. In this situation, price of the product is determined by the industry and each firm has got to accept that price. Firm, therefore, is a price taker. On the contrary, under monopolistic competition, average revenue curve slopes downward as shown in Fig. 6.1. In this figure AR and MR curves are not only separate downward sloping curves but MR curve is below AR curve also. Under monopolistic competition, firm has limited control over the price, because of the availability of close substitutes in the market.

Fig: 6.1



(5) **Implications regarding Decisions**: Under perfect competition a firm can take decision only with regard to the quantity of output to be produced. It can only decide as to how much to produce at the price determined by the industry so as to be in equilibrium. A firm under perfect competition need not incur any selling costs. On the other hand, a firm under monopolistic competition can determine either the output to be produced or the price to be charged. When it determines one of the two factors the other is determined automatically. Firms operating under monopolistic competition have to incur good deal of selling costs. Selling costs are an important feature of monopolistic competition.

(6) **Implication regarding Condition of Maximum Profit**: According to marginal analysis decision regarding achievement of equilibrium position, both under

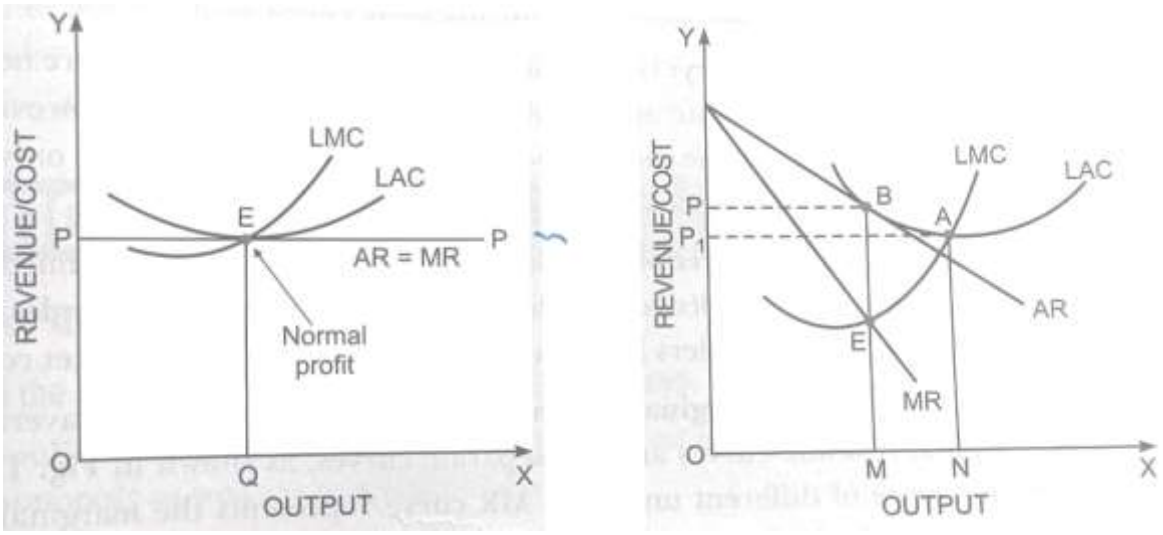
perfect and monopolistic competitions, can be taken on the basis of the following principle

Equilibrium → MR = MC

It proves that under both market conditions, position of equilibrium is achieved when output is produced up to a level where marginal cost is equal to marginal revenue.

(7) **Comparison regarding Price**: In the long run price under monopolistic competition is higher than perfect competition. It is so because in the long run equilibrium under perfect competition, price is equal to minimum long run average cost as shown in Fig. . At equilibrium point E, average revenue curve (price line) is tangent to LAC at its minimum point. On the contrary, under monopolistic competition, price is more than minimum long run average cost as shown in Fig. . Firm is in equilibrium at point E and OM is the equilibrium output. At the equilibrium output firm is getting normal profit; but its output is less and price is more than that of a firm under perfect competition in the long run. As shown in Fig. 14, price under perfect competition will be equal to minimum long run average cost, i.e., AN (= OP_1). On the contrary, under monopolistic competition price BM (= OP) is more than AN, i.e., minimum long run average cost.

Fig: 6.2



(8) **Comparison regarding Output:** Equilibrium output of a firm under perfect competition is more in the long runt than that of a firm under monopolistic competition. In case of long run equilibrium of a firm under perfect competition, long run marginal cost (LMC), marginal revenue (MR), long run average cost (LAC) and average revenue (AR) are all equal to one another, as shown in Fig. . That is,

LMC=MR = AR = Minimum LAC

On the contrary, under monopolistic competition in the long run equilibrium position, LAC is equal to AR, but AR is greater than MR and MC. That is, LMC = LMR, AR = LAC; AR > MR; AR > MC

That is why under monopolistic competition, price will be more and output less than under perfect competition. It is clear from Fig. 14 that under perfect competition, output will be ON whereas under monopolistic competition it will be OM.

(9) **Comparison regarding Profit**: In the short run a firm, whether in perfect competition or monopolistic competition, may earn super normal profit, normal profit or even suffer losses but in the long run, under both types of markets, a firm earns only normal profit. However, under monopolistic competition there can be some more efficient firms which continue to earn a little more profit than other firms, even in the long run.

Self-Check Exercise-5

Q.1. Discuss Comparison between Monopolistic Competition and Perfect Competition.

6.8 COMPARISON BETWEEN MONOPOLISTIC COMPETITION AND MONOPOLY

Monopolistic competition and monopoly can be compared on the basis of the following facts:

(1) **Assumption regarding Product**: Product of a monopolist may or may not be homogeneous. However, product differentiation is an important feature of monopolistic competition.

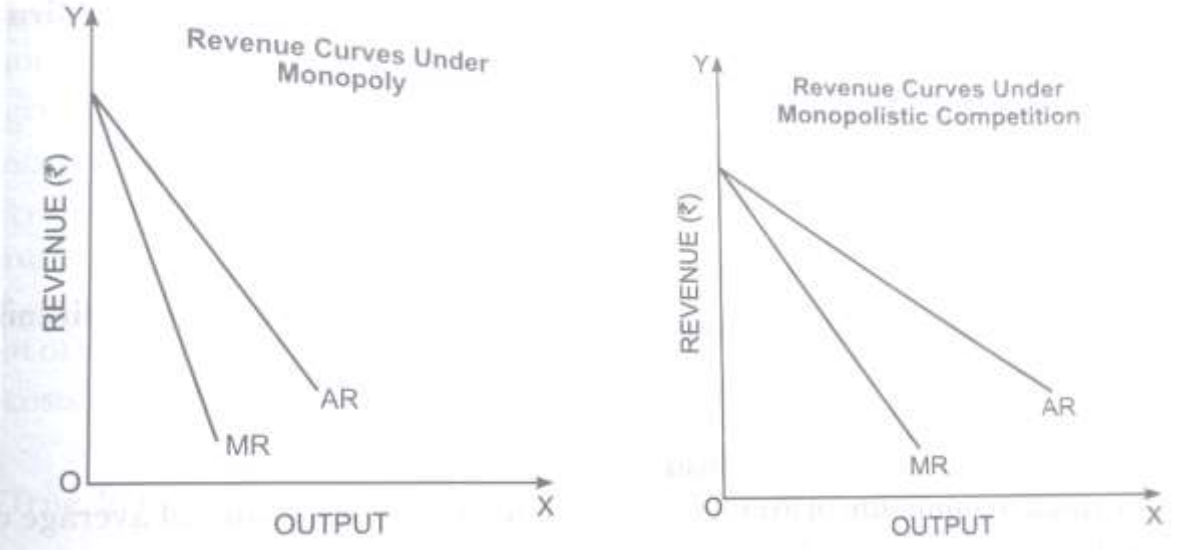
(2) **Assumptions regarding number of Sellers and Buyers**: In case of monopoly, there is only one seller and large number of buyers. Under monopolistic competition there are large number of buyers and sellers producing close-substitutes.

(3) **Assumption regarding Entry**: Under monopolistic competition there are no restrictions on the new firms to enter into and the old ones to leave the group. However, this entry and exit are not so easy in the short period. It is possible in the long run only. But under monopoly there are restrictions on the entry of new firms.

(4) **Assumption regarding Degree of Knowledge**: Under monopoly, it is assumed, that buyers and sellers have perfect knowledge regarding the market conditions. But under monopolistic competition, buyers and sellers have imperfect knowledge of the market conditions.

(5) **Different Average and Marginal Revenue Curves**: Under monopoly, average revenue and marginal revenue curves are two separate curves, as shown in Fig. 15. AR curve represents price of different units and MR curve represents the marginal revenue of different units. Both the curves are downward sloping, meaning thereby that if the monopolist intends selling more units, he will have to lower the price per unit.

Fig 6.3



(6) **Implications regarding Decisions**: A firm, whether operating under monopoly or monopolistic competition, can either fix the price or the output but it cannot fix both. A firm under monopolistic competition has to spend a lot on selling costs but a monopolist spends very little on selling costs and that, too, for the sake of information to the customers and not to attract them as in case of monopolistic competition.

(7) **Comparison regarding Profit**: In the short run, the monopolist and a firm under monopolistic competition, may earn super normal profit, normal profit and may even suffer losses; but in the long run whereas a monopolist earns super normal profit, a firm under monopolistic competition generally earns normal profit only.

In short, there are many similarities and dissimilarities under different conditions of m

Self-Check Exercise-6

Q.1 Discuss Comparison between Monopolistic Competition and Monopoly.

6.9 SUMMARY

In monopolistic competition, numerous firms operate within the market, each offering a slightly differentiated product. As a result, individual firms face a downward-sloping demand curve, though the presence of close substitutes makes demand highly elastic. The industry allows for free and easy entry. This topic explores three models of monopolistic competition as proposed by Chamberlin. In the long run, a firm reaches equilibrium when its demand curve is tangent to the long-run average cost (LAC) curve. At this equilibrium point, marginal cost (MC) equals marginal revenue (MR), and average cost (AC) equals price (P), though price remains higher than marginal cost. This lesson provides an in-depth analysis of monopolistic competition, covering its key characteristics, price and output determination, and the role of product differentiation.

6.10 GLOSSARY

- **Selling Cost:** expenses incurred in the marketing and distribution of a product.
- **Product Differentiation:** A firm's product that is not identical to products of other firms in the same industry. Contrasts with homogeneous product.
- **Imperfect competition:** A market structure wherein individual firms exercise control over the price to a smaller or larger degree depending upon the degree of imperfection present in a case.

6.11 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 6.3

Self-Check Exercise-2

Ans.1 Please refer to section 6.4

Self-Check Exercise-3

Ans.1 Please refer to section 6.5

Self-Check Exercise-4

Ans.1 Please refer to section 6.6

Self-Check Exercise-5

Ans.1 Please refer to section 6.7

Self-Check Exercise-6

Ans.1 Please refer to section 6.8

6.12 References/ Suggested Readings

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6.13 TERMINAL QUESTIONS

Q.1 Discuss in detail comparison between monopolistic competition and Monopoly and also between monopolistic competition and perfect competition.

EQUILIBRIUM UNDER OLIGOPOLY

STRUCTURE

7.1 INTRODUCTION

We have seen how price and output are determined under the two limiting types of markets, pure competition and monopoly, as well as under an intermediary market that goes by the name of monopolistic competition. The latter is a market form which is closer to pure competition despite the monopolistic elements present in it. Now we shall analyze the determination of price and output under a market form which is nearer to monopoly than to pure competition despite the element of competition found in it. This is the market form that is described as oligopoly.

7.2 LEARNING OBJECTIVES :

After reading this unit, you will be able to explain as 10 :

- What do you understand by an Oligopoly Market.
- What is Cournot's Models.
- What is Bertrand's Model
- What is Edge Worth's Model.
- What is Chamberlin's Model.

- What is Kinked Demand Curve Model.

7.3 OLIGOPOLY

Oligopoly is a market form in which there are few firms producing a homogeneous or a differentiated product and freely competing among themselves. The number of firms is so small that a change in the output and price of one is bound to influence the total conditions of the 'industry' and therefore to provoke a of the price-output policies of the rival firms which, in turn, may provoke a further change in the policy of the first firm and such a chain reaction goes on till a new equilibrium is attained. Thus, we find that there is a great degree of inter-dependence of firm's policies which are likely to be determined through a series of moves and countermoves.

In view of what has been said above, the problem of price output determination under oligopoly becomes too intricate to admit of a simple solution. It is generally believed that output and price are indeterminate under oligopoly, that is to say, there is no unique solution to the equilibrium problem under oligopoly. While under pure competition and monopoly, even under monopolistic competition, the individual firm can disregard the behavioural reaction of the rival firms to its own price-output policy, it cannot do so under oligopoly. The individual firm, under pure competition, can sell as much or as little as it likes at the going price over which it has no control so it need not bother about the behavioural reaction of rival firms to its own policy for it will be zero. The monopolist too need not bother about such a reaction because, be definition, there is no direct rival to him.. Under monopolistic competition too, the individual firm may not bother about the behavioural reaction of rival firms, for any adverse effect of a policy move made by it will be widely distributed, as there is a very large number of rival firms and therefore, the impact of the adverse effects on any one rival will be so small that most of them may not react at all to a policy move made by another. Under oligopoly, the number of firms being small any move made by one of the firms is bound to provoke a counter-move by the rival firms. Therefore, an oligopolistic firm has to make some assumption with regard to the possible behaviour reaction of the rival firms to any move adopted by it in order to arrive at the decision how much to produce and what price to charge. The solution of the equilibrium problem under oligopoly, therefore, rests on the behavioural assumptions that one makes. A change in the behavioural assumptions changes the solution. It is due to this that output and price are said to be indeterminate under oligopoly. This fact is conspicuously reflected in the bewilderingly large number of models of oligopoly. We shall discuss them here in brief.

Since practically all the modern models of oligopoly have developed from the classical models of Cournot, Bertrand and Edgeworth we shall firstly, have a look at them.

Self-Check Exercise-1

Q.1 What do you mean by Oligopoly?

7.4 COURNOT'S MODEL

Augustin Cournot was perhaps, the first economist to analyze the problem of equilibrium under duopoly which is only a special case of oligopoly. His model is based upon the following explicit or implicit assumptions; (1) There are only two producers (whom we may call A and B producing a homogeneous commodity; (2)

They have identical constant costs which are assumed to be zero (Cournot's example is the mineral water having no costs); (3) Both the producers perfectly know the total demand curve for their commodity; (4) The demand curve is a straight line; (5) There is free competition between the producers; (6) Both the producers seek to maximize their profits (7) and the crucial assumption with regard to behaviour reaction is that each of them assumes that whatever he might do to his own output of the next plan period his rival will stick to the output he is currently producing.

Let us suppose that the total demand curve for the commodity is AB in Fig. 7.1 Since it is assumed that whatever be the level of output of either of the two producers the cost remains constant at zero, the AC = MC curve will coincide with X-axis for either of them. Now let the producer A enter the market first.

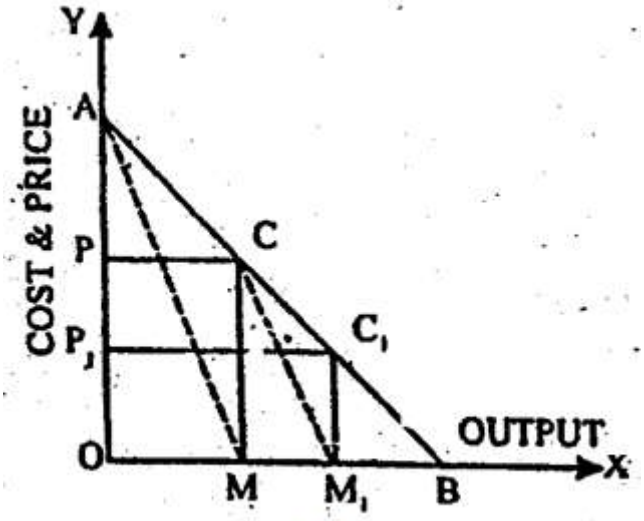

Fig. 7.1

He will act as a monopolist, the whole market is open to him alone. So he looks upon the total demand curve AB as his own demand curve (AR-curve). To maximize his profit, he will produce and sell OM quantity at which his marginal revenue is zero therefore, equals his marginal cost. This is one half of the free competition output OB.

Now enters B. He assumes that A will- stick to his output OM which being sold at the price OP. So only the half of the market is open to B it is that half which is not being supplied by A. Therefore, the demand curve facing B is CB. He acts as a monopolist in this part of the market. To maximize his profit he produces that output at which his marginal revenue curve. CM_1 meets the X-axis so that his MR equals his MC. His output is MM_1-1/4 of the competitive output OB.

The total output is now OM_1 and the price is OP_1. There is now a counter-move by A on the assumption that B will stick to his output MM_1 1/4 OB. So he believes that now 3/4 OB is open to be supplied by him and under the demand and supply conditions assumed and depicted in Fig. 13.1 he will produce 1/2, 3/4, i.e. 3/8 of the competitive output OB. This implies a reduction in his output by 1/8th of the competitive output OB. This move by A will provoke a new move by his rival B who will now see that 5/8 of the market is open to him. So his profits will be maximized if he produces 1/2. 5/8 i.e. 5/16 of the competitive output OB. This implies an increase in B's output by 1/16 of the competitive output OB. The moves and counter-moves will go on infinitely till the equilibrium is attained:

In equilibrium, which will come about through an infinite series of moves and counter moves the total output of the industry will be $\left(1-\frac{1}{2}+\frac{1}{4}-\frac{1}{8}+\frac{1}{16}-\text{-------}\infty\right)$ OB which will sum up to OB = 2/3 (OB). So we can say that the equilibrium output of the industry will be 2/3 of the competitive output.

The output of A will be $\left(1-\frac{1}{2}-\frac{1}{8}-\frac{1}{32}-\text{-------}\infty\right)$ OB which works out to be $\left\{1-\left(\frac{1}{2}+\frac{1}{8}+\frac{1}{32}-\text{-------}\infty\right)\right\}$ OB = $1-\frac{\frac{1}{2}}{1-\frac{1}{4}}(\text{OB})=\frac{1}{3}(\text{OB})$

The output of B will be $\left(\frac{1}{4}+\frac{1}{16}+\frac{1}{64}-\text{-------}\infty\right)$ OB which too works out to be $\frac{\frac{1}{4}}{1-\frac{1}{4}}(\text{OB})=\frac{1}{3}$

Thus, we see that in Cournot's model, *equilibrium output of the industry under duopoly is 2/3 of the competitive output and this is equally divided between the two producers. The output under duopoly is greater than under monopoly and consequently price under duopoly is less than under monopoly.*

Cournot's of duopoly can be easily extended to cover number of firms, through the formula that the equilibrium output will be $\frac{n}{n+1}$ of the competitive output which will be equally shared by all firms, where *n* in the formula represents the number of the firms. For example, if there are three firms, the equilibrium output will be $\frac{3}{3+1}$ of competitive output and each *of* the three firms will produce 1/4 of the competitive output.

Self-Check Exercise-2

Q.1 Discuss Cournot's Model.

7.5 BERTRAND'S MODEL :

Cournot presented his model of duopoly in 1838. About half century later, another French economist, Joseph Bertrand presented a different model in which it was sought to be demonstrated that the equilibrium output and price under oligopoly are the same as under pure competition. As it was explained in the beginning, the difference between the conclusions of Cournot's model and Bertrand's model is due to the difference in the underlying assumption with regard to the behavioural reaction of the duopolistic producers in the two models.

In Bertrand's model we have all the assumptions of Cournot's model except the last (No 7) of them. In place of it the assumption in model is that producer assumes that whatever he might do to his price, the other will stick to his own price.

Let A enter the market first. Since he is all alone in the market as a seller he will charge the monopoly price and supply the monopoly output to maximize his profit. In terms of Fig. 7.1 he will sell OM quantity and charge OP price. Now B enters the market and assuming that A will stick to his price OP in spite of what he may do fix the price lower than OP. All the buyers will switch over to B because the commodity is homogenous. Now comes the reaction from A who, assuming that B will stick to his price, will lower his own price below that of B, which will provoke B to make a further cut. The logical result of this type of behaviour reactions is a price war between the two. Ultimately, equilibrium will be attained when price is reduced to

zero under our assumption of zero constant costs. In terms of our Fig. 7.1 the total output will be equal to the competitive output OB and the price will equal the competitive price that equals average cost (which is zero in our example). This total output is likely to be equally divided between the two firms or for that matter among all the firms making up the oligopolistic industry.

Self-Check Exercise-3

Q.1 Discuss Bertrand's Model.

7.6 EDGEWORTH'S MODEL:

The third classical model is Edgeworth's model. It is a model in which there is no stable equilibrium but, instead there are perpetual oscillations of prices. Edgeworth's assumptions are the same as those of Bertrand inclusive of the behaviour reaction assumption. The results of his model are different from those of Bertrand's because he introduced an additional assumption, namely, that the combined output capacity of the two producers is less than the competitive output.

In Fig. 7.2 OX and OX' represent the constant zero costs of A and B respectively with the constraint that A's maximum output capacity is OA and B's maximum capacity is OB, DD_1 is demand curve facing A and DD_2 is the demand curve facing B.

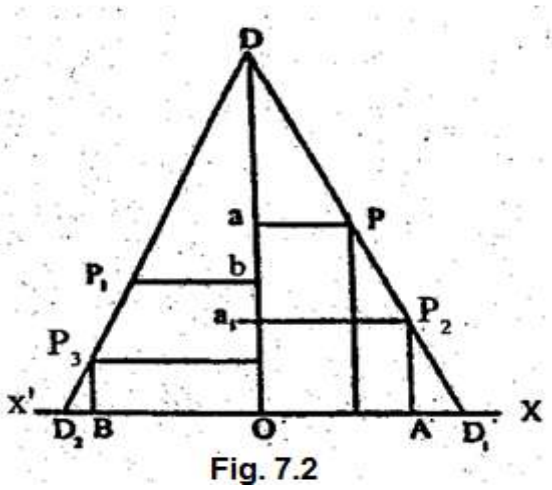

Fig. 7.2

A is the first to enter the market and fixes his price at the monopoly level P and supplies Pa quantity. B joins in and assuming that A will stick to the price P regardless of the price that he himself charges, fixes the price at a relatively lower level at which he is able to sell his capacity output OB =p_1b, and thus encroaches upon the market of A. But A retaliates, assuming that B will stick to his price P_1, by reducing the price below P_1 to P_2 such that he is able to sell the whole of his capacity output, OA=P_2a_1. Thus in this model too there is a price war, but unlike in Bertrand's model there is no end to price war in Edgeworth's model. Sooner or later, one of the producers will lower the price to a level at which the demand in his own market will equal his capacity output. For example, this may come about when B's price is lowered to the level P_3 at which B is able to sell his capacity output OB in his own individual market. But this is not a position of stable equilibrium. A, seeing that B has done his worst to the price and that his own individual market is unencoached by B, may again fix the price at P_1 which will provoke B to raise his own price to a level like P_1. Thus, the whole process of price-cutting starts again dragging the price down to

P_3 and then pulling it back up to P again. There are perpetual oscillations in price. The three models explained above clearly show that there is no unique equilibrium under oligopoly.

One basic weakness of all the three models discussed above is the implicit assumption that the oligopolistic firms in these models do not learn from their experience. In spite of the fact that their behaviour reaction assumptions are repeatedly falsified, they never bother to revise them in the light of their experience. They are assumed to be so shortsighted that they never recognize their mutual dependence.

Self-Check Exercise-4

Q.1 Discuss Edgeworth's Model.

7.7 CHAMBERLIN'S MODEL

Chamberlain has provided us with another model of oligopoly in which the producers are assumed to recognize their mutual dependence. When the number of firms is small as in the case under oligopoly, each firm can easily see that any price cut made by it will be immediately followed by the rival firms for the adverse effect of a price cut by it will not be widely distributed and, hence, its impact on the rival will not be negligible. Therefore, it is reasonable to assume that the oligopolists belonging to a given group or 'industry' will recognize their mutual dependence and will, therefore, be able to perceive that any price cut made by any one of them will push his sales not along the more elastic sales curve dd' but along the less elastic DD' in Fig. 7.3. This may prevent them from engaging themselves in a price war. On the other hand, they may very well fix the price at the monopoly level, on the assumption that their cost curves are identical and such that they when added together, will become identical with the cost curves of the single monopolist. The total output, then will equal the 'monopoly' output which under the above assumption, will be equally shared by all the firms. It is to be noted that the monopoly arrangement in this case is not the result of any collusion among the firms. It comes about as a result of the oligopolist's intuition or experience gained through an earlier price war.

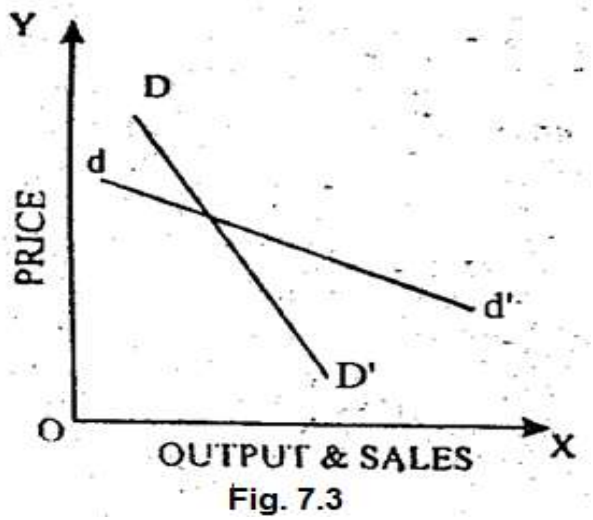

Fig. 7.3

Taking into account this fourth model too, we can conclude that under oligopoly equilibrium is indeterminate; it can lie anywhere between the monopoly price and monopoly output and the competitive price and competitive output.

As already pointed out the three. classical models referred to above have an implicit assumption that the oligopolists do not learn from their experience. Chamberlin's model does not make this assumption. But it shares, with the classical models and a number of modern models, another common weakness: all these models are based on the assumption of perfect knowledge and they rule out uncertainty. As soon as we introduce uncertainty into a model of oligopoly, the analysis of equilibrium becomes still more complicated. This has led some mathematical economists, particularly Von Neumann and Morgenstern to suggest that the laws governing oligopolistic behaviour resemble not the laws of physics, from which the technique of equilibrium analysis has been borrowed but the laws governing the outcome of games and wars which implies a number of strategies and counter strategies.

Some other economists have suggested that since fighting out oligopolistic wars in real life, is full of uncertainty, it is very likely to prove a futile struggle. The realization of this truth may induce the oligopolist to abandon the quest for maximum profit. We had earlier seen that there is not very sound reason why a monopolist should always seek to maximize his profit. But it is mainly the analysis of oligopoly that has led economists to doubt the realism and relevance of the profit maximizing assumption. It is suggested that, under oligopoly at least, the firms are likely to prefer a relatively leisured life to the strains of oligopolistic wars, provided an oligopolist is earning 'satisfying' profits, which may be any level of profits that is able to satisfy him. This suggests that prices and output, particularly prices, under oligopoly would tend to be rigid: they tend to be sticky at the ruling levels. Their rigidity or stickiness may be accounted for probably by the fact that the oligopolist might be earning at these levels of prices what they regard to be 'satisfying' profits. Due to the uncertainty with regard to the behaviour reaction of the rival firms, they are afraid to experiment with price-output changes.

Self-Check Exercise-5

Q.1 Discuss Chamberlin’s Model.

7.8 "KINKY" MODELS/KINKED DEMAND CURVE MODEL

The rigidity or stickiness of oligopoly prices have been explained with reference to what have come to be known as 'Kinky' models of oligopoly. In these models the sales curve or average-revenue curve of an oligopolist is a 'kinked' one like the curve dAD' in Fig. 7.4 the kink developing at the ruling price OP. Such a curve shows that the demand for the oligopolist's product is highly elastic at prices above the ruling price OP (dA portion of dAD'. curves is relatively flat) and it is rather inelastic at prices lower than the ruling price (AD' portion of dAD' is relatively steep). This type of kinked' sales curve implies the behavioural assumption that an oligopolist expects any price cut by him to be immediately retaliated with a similar price cut by his rivals so that he cannot expect his sales to increase sufficiently in response to a cut in his price to make it worth while. He expects that any price increase made by him will not be imitated by the rival producers so that he expects his sales to fall proportionately more than the rise in price. Thus he feels it very risky

to experiment with a change in his price. It is due to this reason that prices tend to be rigid under oligopoly.

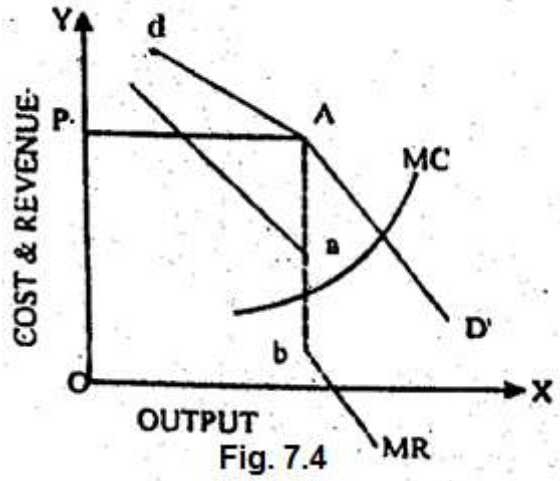

Fig. 7.4

However, the above model tells us why prices tend to be rigid at the ruling level. But it does not tell us how the ruling level itself is determined. There are various hypotheses about it. The level of the ruling price might be determined by the level of 'satisfying' profits. Or, it might be fixed by the 'leader' firm and will not change until the 'leader' firm decides to change it. Still another explanation is that prices under oligopoly are set according to the principle which is referred to by the alternative names of 'Full-Cost' Principle, 'Normal Cost' Principle, "Average-Cost" Principle and the 'mark up' Principle. This principle is claimed to have been founded on empirical investigation. According to the authors of this principle (Hall and Hitch, P.W.S. Andrews Barback) a typical real-world firm fixes its price not as a result of fine calculations of its marginal costs and marginal revenue, as the conventional theory implies, but through a rule of thumb involving the following considerations: The average d direct cost of output, which is the cost of the variable factors employed, is found out. To this is added a "costing margin" which covers (i) indirect costs or the costs of the "fixed" factors and (ii) the normal profit that is calculated with reference to the industry as a whole. The average direct costs in this hypothesis are believed to be constant, for the empirical investigations are believed to show that over ranges of output actually worked by firms, these costs do not change. The "costing margin" or "market-up" once it is calculated on some basis, also remains constant despite variation in the demand for its product, provided the prices of direct and indirect factors do not change.

However, the 'Kinky' model does not necessarily imply that profits are not maximized. Look at Fig. 7.4. The MR curve therein is the marginal revenue curve when dAD' is the average revenue curve. The MR curve has a discontinuity gap ab which is due to the sudden change in the elasticity of demand from just above the 'kink' to just below it. If the cost conditions of the firm are such that its MC curve- cuts the MR curve through the discontinuity gap ab, the profit maximizing price for it, also must be OR. The 'Kink' sales curve drawn in Fig. 7.4 is obtuse-angled. Paul Sweezy has suggested that such a curve is relevant to periods of depression when aggregate demand is too inadequate to make it possible for firms to sell their outputs easily. The firms face difficulties in selling their outputs as there develop "buyer's markets." Within such an environment it is a. reasonable assumption to make that any price. cut by one firm will be almost immediately retaliated with similar price cut

by the rival firms, while any price increase made by one will not be followed by the others. It is this assumption which gives us an obtuse angled 'Kinky' sales curve like the dAD' curve in Fig. 7.4 above. According to Sweezy, during periods of boom and prosperity, the 'kinky' sales curve is likely to be reflex-angled with its portion above the 'kink being less elastic than that below the 'kink'. The assumption underlying the reflex-angled 'kinky' sales curve is that any price increase by one firm will be imitated by the rival firms, while a price cut by one will not be imitated by others. This may happen in booms, when aggregate demand is usually ahead of the aggregate supply, in consequence of which 'sellers' markets" develop. Since there is no difficulty for a firm' in selling its output, a price cut by any one will not be followed by others, hence for prices lower than the going price, the demand will be elastic. But a rise in the price of one will tempt others to follow suit, hence for prices higher than the going price the demand will be inelastic. This implies a reflex-angled 'kinky' sales curve of a firm.

Self-Check Exercise-6

Q.1 Discuss Kinked demand curve Model.

7.9 SUMMARY

The term "duopoly" originates from two Greek words: "Digo," meaning few, and "pollen," meaning to sell. In an oligopoly, a market structure characterized by a small number of sellers, the products offered may be either homogeneous or heterogeneous. Oligopoly is also referred to as limited competition, incomplete monopoly, multiple monopoly, and the theory of games.

A key feature of an oligopoly is price rigidity, meaning that once a price is set, it tends to remain stable over time. The first economist to introduce the concept of an oligopoly was Augustin Cournot, a French economist, who proposed the Cournot model in 1838. According to this model, each seller assumes that their competitor's output remains unchanged. In contrast, the Bertrand model suggests that each seller assumes their competitor's price remains constant.

The theory of the kinked demand curve, which explains price stability in oligopolistic markets, was developed independently and nearly simultaneously by R.L. Hall and C.J. Hitch in England, and Paul M. Sweezy in the United States, around 1939.

7.10 GLOSSARY

The Cournot Model illustrates that firms in oligopoly markets determine their output levels simultaneously and independently. The interaction between an oligopolistic firm's profit-maximizing output and its competitor's production level is known as the oligopoly output reaction curve, as it represents how firms respond to changes in their rival's production decisions.

In contrast, the Bertrand Model emphasizes price competition rather than output adjustments. According to this model, Bertrand Equilibrium occurs when no firm can increase its profits by altering its price. The relationship between a firm's profit-maximizing price and the competitor's pricing decisions is represented by the oligopoly price reaction curve, which illustrates how firms adjust their pricing strategies in response to competitors.

The Sweezy Model proposes that in an oligopoly, firms tend to match price reductions by competitors but do not follow price increases. This behavior leads to

price rigidity, where prices remain stable over extended periods in some oligopolistic markets. The reason behind this price stability is the concept of a kinked demand curve, which reflects different elasticities for price increases and price decreases, causing firms to be reluctant to change prices frequently.

7.11 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise -1

Ans.1 Refer to Section 7.3

Self-Check Exercise -2

Ans.1. Refer to Section 7.4

Self-Check Exercise -3

Ans.1 Refer to Section 7.5

Self-Check Exercise -4

Ans.1 Refer to Section 7.6

Self-Check Exercise -5

Ans.1 Refer to Section 7.7

Self-Check Exercise -6

Ans.1 Refer to Section 7.8

7.12 REFERENCES/ SUGGESTED READINGS

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7.13 TERMINAL QUESTIONS

Q.1. Why are price and out-put said to be indeterminate Under oligopoly?

Q.2 Critically examine Sweezy's kinded demand curve model.

Unit-08

OLIGOPOLY MODELS-I

STRUCTURE

8.1 INTRODUCTION

Price Leadership refers to a particular form of oligopoly in which one of the firms is informally accepted as the leader by all the other firms belonging to a given industry or "group". The leader firm sets the price and the other firms who behave as "followers" accept that price as a datum and then adjust their individual outputs in a manner so as to maximize their individual profits.

But the question is which firm it is that will act as the leader and will be accepted as such by the other firms which will act like the followers. Depending on the answer to this question, different models of price leadership have been formulated a couple of which we shall describe here below.

8.2 LEARNING OBJECTIVES

After reading this unit, you will be able to explain :

- What is price Leadership.
- Price Leadership by a Low-cost firm and by a Dominant firm
- What is Barometric Price Leadership
- Different Models of Oligopoly.

A lot of work has been done in the area ' of determination of equilibrium under oligopoly. Consequently there is quite a large number of oligopoly models available in the literature on the theory of oligopoly. In the preceding lesson we discussed a few of the earliest ones. In the lesson we shall explain some of the more important subsequent models.

We had pointed out in the preceding lesson that Chamberlin had presented a model of oligopoly in which the firms were assumed to recognize their mutual dependence, on account of which they did not engage themselves in oligopolistic price wars in that model. On the contrary, learning from either past experience or intuition or common sense, the firms which recognize their mutual dependence would behave collusively, that is, instead of competing with one another they would reach some sort of open agreement not to compete with one another. Such a state of affairs in the world of oligopoly is referred to as "collusion" and such oligopolies are referred to as "collusive oligopolies." When the collusion or the agreement among the oligopolistic firms belonging to a particular "group" or "industry" not to compete but to collaborate is one and the details of such a agreement are formally specified as in the case of cartels for example the oligopoly is described as organized collusive oligopoly. Where such an agreement is not open and formalized but tacit and informal, the oligopoly is described as unorganized collusive oligopoly. We shall first, examine a couple of models of unorganized collusive oligopoly in the form of Price-Leadership Models. It is because unorganized collusive oligopoly usually takes the form of price-leadership.

8.3 PRICE LEADERSHIP BY A LOW-COST FIRM

One of the possible as well as plausible answer to the above question that the leadership role will be adopted by a firm which has the lowest costs of production. Even when there may be some tacit understanding among the oligopolistic firms regarding the sharing of the market, it is more than probable that if their cost conditions differ, the firm with the lowest costs will tend to act as the price leader. It will set the price which will be accepted by the other firms.

We shall explain this case as is usual with the help of a duopoly model for the sake of simplicity. So we assume two firms. A and B, of which A's cost curves are lower as well as somewhat to the right, compared to the cost curves of B as shown in Fig. 8.1 on next page. We may also assume the commodity to be homogenous. A further simplifying assumption is that the aggregate demand curve for the commodity is a rightward falling straight line like the line DD' in our Fig. 8.1. The curve Dd which lies midway between the aggregate demand curve DD' and Y-axis is the individual demand curve facing each individual duopolist on the assumption that the commodity being homogeneous, each will have one-half share of the total market.

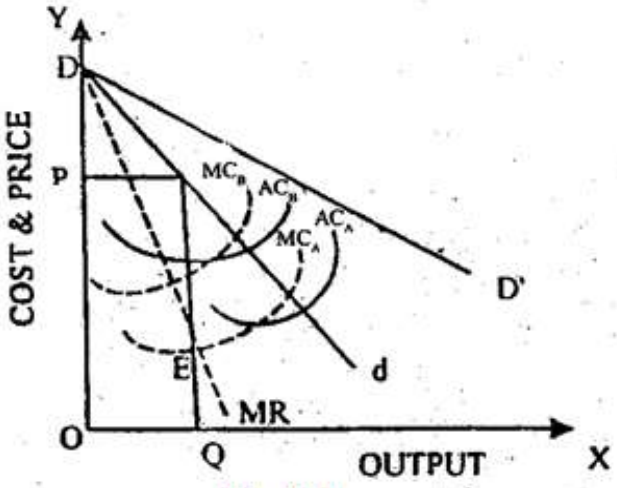

Fig. 8.1

Since A's cost curves indicated in our diagram above by the subscript A are lower, it will behave as a price-leader and B is bound to accept it as the price-leader, it is because if B does not accept it as the price-leader and refuses to behave as a follower, there will take place price-cutting competition. Since A's cost curves are lower than those of B, A's striking power will be greater and it is bound to win the price war, if it breaks out. Therefore it is not in the interest of B to provoke a price-war. So B will in its own self-interest, accept to become the follower and let A act as the leader.

A on its part, will fix such a price which brings in to it the maximum profit. This objective, as you know, is attained, when it produces and sells such an output at which its individual marginal cost equals its marginal revenue. In our Fig. 8.1 above the line Dd represents the individual demand curve or sales curve which, as you should be knowing, is also its average revenue curve. The dotted falling straight line MR is its marginal revenue curve which cuts its marginal cost curves MC_A at E Hence A, the leader, produces the output OQ and fixes the price OP. B who acts as the follower will accept this price and under our simplifying assumptions, will also produce OQ output because the total demand for the commodity will be double of OQ at this price in this simple case. This output and price maximize the profits of A but not of B, if we take into account the cost and demand conditions only. The cost conditions of B are such that its profits will be maximized (where its marginal cost curve MC_B cuts the MR line) at a smaller output and a higher price.

In this simple model, if we relax the assumption of only two firms and make it say three, while continuing to assume that A's costs are the lowest, the situation will remain the same except that the individual demand or sales or average revenue line Dd of our Fig. 8.1 will shift to the left to a position indicating the individual share of each firm to be one third of the total market. Price will be fixed by A, who acts as the leader, at the level which maximizes his individual profits. The other two firms will accept that price, though it does not maximizes their individual profits and share the market equally with the leader.

However, if the commodity is not homogenous but is differentiated, even then it is most probable that A whose costs are the lowest will act as the leader and fix a price which maximizes his own individual profits. If the product of each firm is a very close substitute of those of the others, there is great likelihood that each firm will charge the same price as the one set by the leader. But in this a little complicated model, a single uniform price is not inevitable. The total market in this case will not be equally shared. However, whenever the leader, due to some change in circumstances, changes the price, the other firms will follow suit.

Self-Check Exercise-1

Q.1 Discuss Price Leadership of a low cost Firm.

8.4 PRICE LEADERSHIP BY A DOMINANT FIRM

Fritz Machulp; in his book. *The Economic of Setters Competition,* has presented a model of price leadership which is different from the model described and explained above. In this model it is assumed that there is one firm which is relatively very large in size compared to the other firms which are very small sized firms. It is obvious that the large firm has many advantages of large size and moreover, due to its large size and the other firms being very small sized, the large

firm would be supplying a very substantial portion of the total supply. The other firms which are small-sized will be supplying individually a more or less insignificant portion of the total market supply. In other words, the large firm has the major share in the total market, while the individual market share or the other firms is insignificantly small. Under this assumption it is natural that the large firm will dominate the market. Hence such a firm is said to be the dominant firm.

Due to its dominant share in the total market, it assumes the role of the price leader and the other smaller firms become the followers. The dominant firm fixes the price which is accepted as a datum by the smaller firms and they try to adjust their outputs according to the price set by the dominant firm which acts as the price-leader. However, in this model the process of determination of price by the leader dominant firm is different from that of the model which we discussed above.

In this model, the demand curve facing the leader firm (which is also its sales and average revenue curve) is derived in a some complicated way. The dominant firm in this model fixes the price and let the other firms produce and sell what they want to and are able to do. Any demand in the market which is left out unsatisfied by the follower firms will be met by the leader dominant firm. The dominant firm will estimate the amount of demand left out unsatisfied by the follower firms at different possible prices of the commodity which can be supplied by the dominant firm. This price- quantity schedule linking different amounts of demand for the commodity left out by the follower firms to be taken over and supplied by the dominant firm at the different prices of the commodity will yield the demand curve of the dominant firm. We can explain this mechanism of the derivation of the leader dominant firm's demand curve with the help of the diagram of Fig. 8.2.

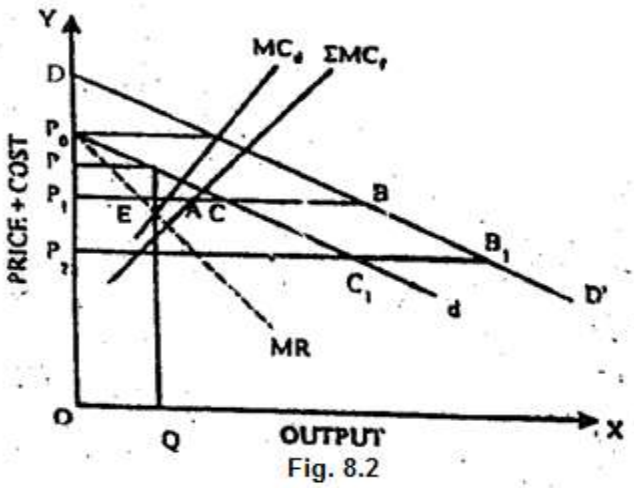

Fig. 8.2

In Fig. 8.2, DD' is the aggregate demand curve. The aggregate supply curve of the follower firms is derived by summing up horizontally the individual marginal cost curves of all the follower firms. Therefore the curve $\sum MC$, in our diagram of Fig. 8.2 represents this aggregate supply curve of the follower firms. Supposing the price is fixed at P_0 the whole market demand at this price will be met by the follower firms, because $\sum MC_1$ intersects the market demand curve DD' at this price. Nothing is left out for the leader dominant firm to take over and supply. So at price P_0, the demand for the dominant firm's output is zero. But at prices, lower than this there is a gap between $\sum MC_1$, and the market demand curve DD'. At price P_1 this gap is AB which equals P_1C This is the left out market demand after the follower firms have produced and supplied their individual profits maximizing outputs. Therefore, the dominant firm

can sell at price P_1 the quantity P_1C. Similarly, the gap between the market demand and the aggregate supply of all the follower firms taken together at price P_2 is A_1B_1 which equals P_2C_1. By joining points like P_0, CC_1 etc, we get the demand curve P_0d which will be the demand curve facing the dominant firm. The dominant firm will fix its own output and price by considering this demand curve P_0d in conjunction with its marginal cost curves which, in our Fig. 8.2, is MC_d. The curve MR in this diagram is the marginal revenue curve of the dominant firm when its demand curve or which is the same thing, its average revenue curve is P_0d. The dominant firm will be maximizing its profits at that price-output combination where its marginal cost equals its marginal revenue. This takes place at point E where its marginal cost curve MC_d and marginal revenue curve intersect, Thus the leader dominant firm is in equilibrium when it fixes the price OP and produces and sells OQ output. The remaining share of the market will be left to the follower smaller firms, each of which will adjust its output taking the price OP fixed by the dominant firm as a datum like a firm operating in a perfect market.

Self-Check Exercise-2

Q.1 Discuss Price Leadership of a Dominant Firm.

8.5 BAROMETRIC PRICE LEADERSHIP

There is yet another model of unorganized price leadership. In this model the leader firm is not necessarily either the lowest cost firm or the dominant firm. On the other hand, it is a firm which is described as the barometric firm that is accepted as the leader by all the other firms in a given "industry" as regards determining the price of the commodity. A barometric firm is that firm in a given "industry" which most approximately reflects the conditions governing the "industry" as a whole. It may or may not be the dominant firm and it need not be the lowest-cost firm, because such a firm is likely to be more of an exception than a firm truly representing the cost conditions of the "industry" as a whole. In this model price of the commodity will be fixed by this firm and the other firms follow the lead given by this firm.

Moreover, in this model it is not necessary that one and the same firm will be accepted as the barometric firm. A firm which most approximately reflects like a barometer the overall conditions prevailing in the "industry" at a given time may over a long period or even earlier lose this status in the dynamic world. Its place may be taken by some other firm which represents over all conditions of the "industry" with regard to primarily, costs and demand more accurately due to the changed circumstances. The price once set by the barometric firm will tend to be sticky unless the conditions in the "industry" change. When the change takes place the barometric firm will reset the price and the other firms will also revise their prices accordingly.

If the oligopoly is differentiated oligopoly, the commodity will not be homogeneous. On the contrary, the firm will be producing and selling differentiated products. In that case, there will be a cluster of prices or structure of prices in the industry. When the barometric firm revises its price, the other firms who follow the lead given by the barometric firm will also revise their prices accordingly maintaining the overall price structure. When the barometric firm raises its price, all other firms will also raise their prices by more or less the same percentage thus maintaining the relative prices of the products they are producing and selling. Similarly when the barometric firm lowers its price due to the changed conditions in the industry, the other firms will also lower their prices accordingly maintaining the price differentials

as regard the individual products of the firms which are differentiated from one another.

Self-Check Exercise-3

Q.1 Discuss Barometric Price Leadership

8.6 BAUMOL'S SALES MAXIMIZATION HYPOTHESIS

We had observed in the preceding lesson just before beginning the exposition of the kinky models of oligopoly that it was mainly the analysis of oligopoly that led economists to doubt the realism and relevance of the assumption of profit maximizing behaviour of firms in the traditional neo-classical economics. Therefore this assumption derived from a particular interpretation of rational behaviour has been sought to be displaced with alternative assumptions with regard to the objective of a firm specially in the context of the oligopolistic environment.

One of these alternative hypotheses has been presented by W.J. Baumol in his book Business Behaviour, Value and Growth. His contention is that an oligopolist firm in real world tends to maximize sales rather than profits. And, the emphasis on sales maximization in his model is not because it may be helpful in attaining its other objectives such as having a high operational efficiency or profits. In his opinion sales maximization is an end in itself for the oligopolists firm..

However, it should be noted that by sales maximization Baumol, does not mean maximizing sales in terms of physical units of the output of the firm. By sales he means the sales revenue that is sales in terms of the revenue (money income) that the firm earns from its Therefore his hypothesis is more unambiguously also termed as the Revenue Maximization Hypothesis. Moreover, he also stresses that an oligopolist firm does not aim at obtaining the maximum sales revenue in absolute terms. Rather it seeks to maximize its sales revenue under a constraint. This constraint is in the form of a minimum level of profits which it must obtain. A less than absolute maximum of sales revenue is consistent with the objective, provided it brings in at least that minimum level of profits while the absolute maximum sales revenue fails to do that.

In brief Baumol's Sales Maximization Hypothesis may be stated as follows: An oligopolist firm seeks to maximize the money value of its sales (total revenue) under the constraint' that its profits should not fall short of some given minimum level. The sales maximization hypothesis can be explained vividly with the help of the following diagram.

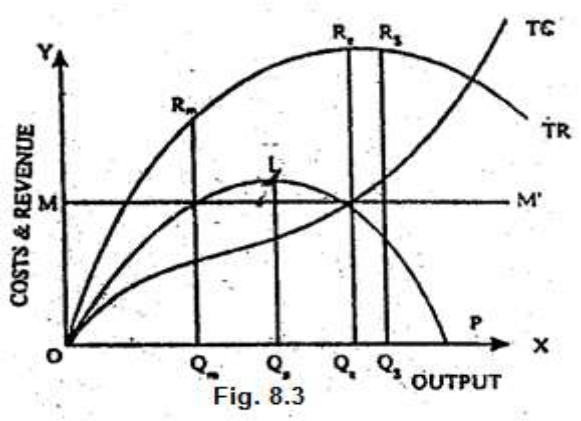

Fig. 8.3

In Fig. 8.3 above TR is the sales (total revenue) curve of the oligopolist firm. It has a positive slope up to the point RS which is the point of maximum sales revenue. Beyond this point the sales curve TR has negative slope showing decreasing sales revenue with increasing output. TC curve is the firm's total cost curve. OLP curve is the profit curve showing the profit at each level of output. It also increases with increase in output up to a point (point L in our Fig. 8.3) after which it starts decreasing. MM' line is the profit constraint indicating the minimum profit that the firm must earn.

Now, if the objective of the firm had been to maximize its profits as it is assumed in the traditional neo-classical theory, the firm would have produced Q_p output corresponding to the highest point L on the profit curve OLP. On the other hand, if the objective of the firm had been to maximize sales revenue without any constraint, it would have produced Qs output corresponding to the highest point RS on the sales (total revenue) curve TR. But according to Baumol's hypothesis, sales or (revenue) maximizing the objective of an oligopolist firm, is not maximizing sales without any constraint but to maximize sales under a profit constraint. This constraint in our example is shown by the line MM' which means that the firm must not earn less than the minimum level of profits indicated by this profit constraint line MM' (i.e. OM level of profits). Hence, the firm's Equilibrium output cannot be Qs, even though at this output the total sales revenue (Rs) is the maximum. It is because at this output the profit is' less than the minimum desired OM. The constraint is not satisfied at this level of output, Qim output, on the other hand, satisfies the constraint but the sales revenue at this output is only Rm. But at output Qe the sales revenue Re is much greater than and at the same time, it meets the profit constraint also, because at this output the profit equals OM. Hence the firm's equilibrium output is Qe. And the slope of the straight line joining the equilibrium sales revenue point Re with the origin Ọ will give us the equilibrium price= $\frac{R_e}{Q_e}$.

A key part of Baumol's model is the profit constraint flow is its level determined? And more importantly why this constraint? Baumol has answered these very relevant questions by pointing out that the management of an oligopolist firm has to aim at earning some minimum level of profits, because it needs funds for the growth of the firm and their profits provide internal resources to that end. Moreover, they are also necessary in order to attract potential buyers of its stock when new shares are issued to gather funds for expansion. In addition to it, some minimum profits would also be necessary so that the firm's shareholders remain satisfied. These factors explain the existence of the profit constraint. As regards the determination of its level, the strength of these very factors will determine it.

Self-Check Exercise-4

Q.1 Discuss Baumol’s sales Maximization Hypothesis.

8.7 SUMMARY

There is not much of active price competition in digopolistic markets. There are occasionally price wars among firms which are due to the failure of communication channels among firms. Usually, prices are stable in an oligopolistice market. Competition among firms is, therefore, for increased market share of the produce. The olisopolistic firms know that they try to increase their market share through price cut. Competition among them will lead to an unabated fall in price and

all of them would be losers in the process. Thus, instead of competing through price, they resort to non-price competition.

8.8 GLOSSARY

- **Price leadership:** Under price leadership, prices are determi8ned by the leader and other firms follow these prices. Price leadership is of four types.
- **Barometric Price Leadership-** Here prices are fixed by wisest producer who has experience regarding market.
- **Dominant Price Leadership-** In this form prices are fixed by the largest firms.
- **Aggressive Price Leadership-** It is also known as exploitative price leadership. In this type of leadership, prices are determined by the dominating firm and It also forces other firms to follow its prices.
- **Effective Price Leadership-** In this type of Leadership fixed prices are accepted by these firms which have same cost conditions and less elastic demand.

8.9 ANSWERS TYO SELF-CHECK EXERCISES

Self-Check Exercise -1

Ans.1 Refer to Section 8.3

Self-Check Exercise -2

Ans.1. Refer to Section 8.4

Self-Check Exercise -3

Ans.1 Refer to Section 8.5

Self-Check Exercise -4

Ans.1 Refer to Section 8.6

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8.11 TERMINAL QUESTIONS

Q1. Explain and comment on Marris’s Model of Oligopoly?

Q2. Explain Baumol's contribution to the theory of oligopoly?

Unit-09

OLIGOPOLY MODELS-II

STRUCTURE

9.1 INTRODUCTION

There is no general theory which can explain price and output determination in all kinds of Oligopoly situations. Thus, it is said that price and output under oligopoly is indeterminate. It is mainly due to interdependence of the firms. The price of a commodity is determined by its demand and supply . In Monopoly and Competition firms make decisions and take action without considering how these actions will affect other firms and how, in turn, other firm's reactions will affect them. Thus, they have definite demand curves. We cannot use the downward sloping curve because oligopolist is not monopolist. We cannot use a horizontal demand curve because oligopolist is not a perfect competitor. We can say nothing about the demand curve of an oligopolist unit.

9.2 LEARNING OBJECTIVES

After going through this unit you will be able to understand

- About Behavioural Model.
- About Williamson's Managerial Model.
- About Simon's Satisfying Model.
- About Marris's Model.

9.3 BEHAVIOURAL MODEL

R.M. Cyert and J.C. March, in their work, *A Behavioural Theory of the Firm* (1963), have presented a different approach to the analysis of oligopoly. This approach is based on the empirical investigations into the actual world behavioural of

the firm. That is why this approach is described as the behavioural approach and the model presented by them is known as the Behavioural Model.

The first important point made out in this model is that contrary to what is assumed in the conventional theory, the real-world firms do not seek to maximize anything neither profits nor sales nor even utility. It should be kept in mind that the model of Cyert and March is the model of modern type corporate firms which is the typical form of business organization in the present-day oligopolistic business world. In these types of firms, they point out, decisions are taken not by a single entrepreneur but by a complex group described by them as an organizational coalition which is comprised of managers, shareholders, workers, customers etc., whose interests may conflict with each other. Therefore, the firm does not have a single goal of profit maximization or of sales-maximization or any other such single goal. Rather the corporate firms have multiple goals such as (1) the production goal, (2) the inventory goal, (3) the sales goal, (4) the market- share goal, and (5) the profit goal. Each one of these goals is particularly associated with the interests of some group or the other comprising the organizational coalition. However, it is the profit goal which is ultimately related with the- firm's output decisions.

Cyert and March point out that all these goals must be satisfied, though there is an implicit system of priorities among these goals. Further these goals are recognized to be not harmonious at all times. On the contrary, conflicts among them often arise, but they are resolved within the firm through a process of persuasion and accommodation and also through, side payments which may be in monetary or, non-monetary forms. The organizational coalition which is the decision making authority is in fact a coalition of conflicting interests. If there are resources with the firm to meet the demands of all the constituents of this coalition, the coalition is viable, otherwise not. When the firm lacks adequate resources to meet the demands of all constituents, there is according to Cyert and March, an organizational slack in the firm which is the difference between the total resources of the firm and the total necessary payments. The organizational slack consists in payments to the constituents of the coalitions in excess of what is required to maintain the organization. This slack, according to Cyert and March, is a stabilizing factor. The firm is able to acquire excess resources when external environment is favourable as in boom times in order to meet the revised demands of the constituents On the other hand, when the external environment is unfavourable as during depressions, the organizational slack serves as a cushion.

Now, the question is what implications of the model has for the price-output behaviour of the corporate firm. In order to bring out these implications Cyert and March have devised a simplified behavioural model of duopoly. In this model each duopolistic firm is assumed to have only three objectives related to profits, production and sales which in turn, implies three basic decisions related to price, output and sales effort. According to this model of Cyert and March, each duopolistic firm estimates demand and production costs and then determines its level of output and price. If this price-output decision fails to bring in the aspired level of profits, the firm then searches for ways to reduce costs and it also re-estimates demand. If deemed necessary it will also lower its profit goal.

In the original model as put forth b Cyert and March in their joint work, Behavioural Theory of the Firm, the authors employed the technique of multiple regressing analysis in order to find out the degree sensitivity of the duopolistic firm's

behaviour to change its internal parameters. In a later work Theory of the Firm, authored jointly by Cyert and Cohen, another behavioural model employing the technique of simulation process to explain the same general problems was presented.

The model of Cyert and March threw up the following conclusions. Price is highly sensitive to (i) factors which cause variations in the size of the organizational slack, (ii) the possibility of reducing costs on the sales effort, and (iii) adjustment of the profit goal in the light of the actual profit goal achievement. The behavioural models of Cyert and March and of Cohen and Cyert underline the close relationship between costs and profits of the oligopolistic firms of the corporate firm type. The price-output level is discovered to be highly sensitive to the factors influencing costs. These models conclude that corporate oligopolistic firms adjust their costs of production and sales effort and consequently prices in response to the changes in the external (market) environments. In this, the behavioural theory of the firm differs from the traditional neo-classical theory in which such an adjustment in costs is not visualized.

Self-Check Exercise-1

Q.1 Write a short note on Behavioural Model.

9.4 WILLIAMSON'S MANAGERIAL MODEL

Various managerial models have been presented in recent time. The models of Baumol, Cyert and March, and Cohen and Cyert all belong to this category. The common point of departure in these models is that they abandon the hidden assumption of the traditional theory of the firm, namely, that the price-output and other related decisions are taken by a single entrepreneur or a couple of partners who not only own the firm but also control the firm's business. This model of the firm may fit the old forms of business organization such as single entrepreneur firm or even partnership firms where ownership and control are in one and the same hands. But the traditional model does not fit the modem corporate type of business firms in which ownership and control do not go together but where control is separated from ownership. Ownership of the corporate firms rests with the shareholders who are large in number and also widely dispersed. Control of the business of such firms rests with the managers. Price-output and other related decisions are not taken by the shareholders who own the firm but by the managers who control the activities of the corporate firms.

In the light of the basic transformation of the nature of the firm, the assumption of the profit-maximizing behaviour of the firm in the context of the modern corporate firms is no longer valid. is another common feature of all managerial models of large firms, which generally are oligopolistic, that all of them have done away with the assumption of profit maximizing bahaviour of the firm. The manager's objectives are not the same as the owners. While the latter may be legitimately assumed to have profit maximizing goals, such an assumption would be invalid in the case of the former.

According to Williamson, managers who control the corporate firms are not motivated by the profit-maximizing desire but their policies are motivated by their own self- interest, the fulfillment of which yields them utility. They therefore seek to maximize not profits but their own utility function. However, as in Baumol's model which is also a type of managerial model, there is a similar constraint in Williamson's

model also. The managers are assumed to maximize their utility function subject to the constraint that the post tax profits of the firm should be adequate enough to pay satisfying dividends to the shareholders as well as to pay for economically necessary investments (which are different from what Williamson categorizes as the manager's discretionary investment expenditure).

If the managers are assumed to maximize their utility function, it is pertinent to ask what the determinants of this utility function are. Williamson mentions four important factors in this regard. They are as follows:

(i) **Manager's Salaries And Other Monetary Perquisites** which the managers get from the firm. This is indeed the most important factor as it determines the manager's private expenditure which in turn, determines the level of their standard of living. But the rewards which the managers get for their work in the corporate firms that they manage are not confined to their salaries and other monetary perquisites only.

(ii) **The Size of Staff:** Another important factor which determines the utility function of the managers is the number of staff working under them. The status of a manager is generally perceived to be associated with the size of the staff working under his control. The degree of power a manager enjoys is also related directly with the size of the staff that he controls. This gives him added satisfaction or utility. Moreover, his salary and other monetary rewards are also positively linked with the size of the staff he controls. All this makes this factor an important determinant of the manager's utility function.

(iii) **Management Slack** is another determinant of manager's utility function. The "management slack" refers to those non- essential perquisites such as large expense account, luxurious cars, lavishly furnished offices as well as houses which are not at all necessary for efficiently and effectively discharging the duties of manager but which, nevertheless, the manager receives from his firm. This obviously increases the manager's utility.

(iv) **The Magnitude of the Discretionary Investment Expenditure** that a manager controls is another important source of utility to him. The magnitude of this discretionary investment expenditure enhances the power and control of the manager on the firm. It gives him power to direct the flow of new investment by the firm and thus to influence and control the future growth of the firm.

Taking into account all the factors explained above, Williamson has formalized his Utility Maximization Model as follows:

Since there is a very direct relationship between the size of the a manager controls and his salary and other monetary perquisites, therefore Williamson clubs together the first two of the determinants of utility of manager which we mentioned above. Having done that he makes a manager's utility a function of three variables writing his utility function as follows:

$U=U(S, M, L_D)$

where U is the utility of the manager,

S is the money expenditure on staff

M is the management slack,

and I_D is the discretionary investment that the manager commands.

The above utility function of the manager is his objective function which he seeks to maximize under the constraint of a certain minimum level of profits which are adequate to satisfy the shareholders as well as to provide for economically necessary investment which is not included in the "discretionary investment" mentioned earlier.

As regards the price, it is, in Williamson's model, the function of output, the expenditure on staff and a demand shift parameter. This function, therefore, can be written as follows:

$P = P(X,S,e)$

where x stands for the level of output in a period

S stands for the expenditure on staff

and e stands for the demand shift parameter

The model, as observed by Cohen and Cyert, indicates that compared to a profit- maximizing firm, the utility maximizing firm of the managerial model of Williamson will have a "higher staff expenditure and more management slack". But "No general statement can be made about the relative output levels for the two firms."

It has also been observed that under the conditions of perfect competition, Williamson's model retains the results of profit maximization model of the firm. But, under conditions of oligopoly or monopoly, Williamson's utility maximizing firm will have greater expenditure on advertising, managerial perquisites (managerial slack) which will increase the cost of the firm which, in turn, will push up the price. On the other hand, when under oligopoly or monopoly conditions, the demand falls. Williamson's utility maximizing firm will tend to reduce its expenditure on staff advertisement and managerial luxuries, thus reducing its costs and pushing down the price. In this it resembles the Cyert and March model.

Self-Check Exercise-2

Q.1 Write a short note on Williamson’s Managerial Model.

9.5 SIMON'S "SATISFYING" MODEL

Among the behavioural models of the firm that have been presented in recent times, one particular variation of it is the so-called "satisfying" model presented by H.A. Simon, first, in his, 1955 paper, "A Behavioural Model of Rational Choice" and later on elaborated in his subsequent work.

Like all behavioural models this model too discards the assumption of profit maximizing behaviour of a firm. Simon argues that most psychological theories indicate that rational men do not seek to maximize but, instead, seek to "satisfy". From this he deduces that firms, instead of maximizing profits, tend to attain satisfying profits, that is that level of profits which would keep them just

Simon relates satisfying to the firm's "aspiration level" which, according to him, is based on its goal as well as past experience. Moreover, the Firm's view of uncertainties, which are very acute in an oligopolistic environment, also influences its aspiration level. If it can be easily attained, it will revise this level upward. If, on the other hand, if finds it too difficult to achieve its aspiration level, it will revise this level

downward. The firm will be in a sort of equilibrium when it is able to determine the satisfying aspiration level through experience.

The process of finding out the satisfying aspiration level runs, according to Simon; more or less as follows. When the actual performance of the firm falls short of the aspiration level, it will not immediately revise down the aspiration level. It will first start what he describes as the firm's search activity. Search activity refers to the firm's efforts to find out and put into action the ways of improving the firm's efficiency performance in order to achieve the given aspiration level. However, he asserts that there is a limit to this search activity of the firm, for this activity is not costless. Since the search activity has a cost; the firm will try to balance this cost with the expected gain from the search activity. When the search activity in this process of evaluation of its costs and benefits proves to be unpractical, further search activity will be abandoned and the aspirations level will be revised downward till the firm is able to discover the satisfying level of its aspirations. Therefore, argues Simon, rational firms do not aim at maximizing their profits, they just aim at satisfying profits or profit rate.

Self-Check Exercise-3

Q.1 Discuss about Simom’s Satisfying model.

9.6 MARRIS'S MODEL

An alternative managerial model has been presented by R.L. Marris in his The Economic Theory of Managerial Capitalism (1964). He starts his work referred to above by highlighting the fact that entrepreneurship in the modern corporation had been taken over by transcendent management whose functions differ in kind from those of the traditional subordinate or "mere manager". Emphasizing the importance of the fact of separation between ownership and control in the modern corporate firm, in which ownership rests with the stockholders while the control is in the hands of professional managers, he argues that it is by no means obvious that action intended to maximize the utility of a company's stock- holders is consistent with maximizing the utility of the action-takers, i.e. of the management. Therefore, as in other managerial models of the firm. Marris also abandons the profit- maximizing behaviour assumption of the neoclassical theory which is relevant to the traditional single-owner firm but is irrelevant in the context of the corporate firm. He advances the hypothesis that the management of the modern corporate firm seeks to maximize the rate of growth of the firm.

However, he holds that the management seeks to maximize the rate of growth of the firm not without a constraint. The constraint visualized in his theory of the firm is in the form of "the threat of takeover" by the "raiders" as well as in the form of the "classical" loyalties to shareholder's welfare. Since shareholders welfare, is ultimately related to the dividend rate and appreciation of the shares in the stock market, the profit objective is not eliminated in this model. Only the profit maximizing objective as distinct from the profit objective as such is displaced.

Marris in his model, tries to "determine the connection between desired and/or expected growth rate, on the one hand, and the likely demand-price for the shares, on the other." He achieves this with the help of a 'steady state model in which under certain assumptions the firm's sales, profits, assets and dividends grow at a common, constant annual percentage rate until such time as either the policy changed or the environment changed or both changed. However, it does not mean that there is a unique steady-state' path with a given growth rate. On the contrary, it

is possible to choose from alternative steady-state paths, each with a different, though constant, growth rate. If we further assume that it is the expected path of dividends which ultimately determines current stock-market value it then becomes possible to postulate that in choosing a growth rate, the firm in effect, will be influenced by the fact that accelerating the growth rate of the firm will also lead to a higher valuation ratio (that is stock market value expressed as a ratio of total net assets). If it indeed does not a conflict between the growth objective and shareholders' welfare objective wilt arise.

On Marris's own admission, his theory in The Economic Theory of Managerial, Capitalism seems to have been unnecessarily complicated." In a later work. The Corporate Economy (1971), authored jointly with Wood, a simpler model was advanced. The important point to note is that his model visualizes the conflict between the growth objective and the shareholder's welfare. As he observes, given the profitability of the existing activities... the faster the desired growth of the firm, the less the amount of cash available for dividends.

In fact, increase in the desired growth rate of the firm affect the two basic elements in the demand price for a share in opposite ways. Increase in the expected growth rate of the dividend increases the value of a given current dividend, but devoting of more resources to growth decreases the current dividend itself. "It is possible" observes, Marris "that the latter effect may outweigh the former through the whole range of positive growth rates." This model does not indicate implications for price determinations under oligopoly as such.

Self-Check Exercise-6

Q.1 Discuss about R. Marris's model.

9.7 SUMMARY

Non price competition refers to the efforts on the part of one duopolistic firm to increase its sales by some means other than a price reduction. Some other means are advertising, product differentiation and customer service. These, in turn, include publicity, sales promotion and personal selling, product Quality, brand name and packaging, service agreement, warranty, guarantee, selling on credit, instalment selling etc. Thus non-price competition involves efforts by an oligopolist to differentiate his product from that of his rivals by establishing real or imaginary difference in the minds of consumers through the Quality of the product, its technological level, and through service, marketing and promotional means.

9.8 GLOSSARY

- **Independent Pricing:**

  (a) If an oligopoly has homogenous product, pricing by Individual firm is not definite. There may arise a price war or price rigidity.

  (b) If an oligopoly has heterogonous product then every firm enjoys monopoly power and attains maximum profits.

- **Collusive Pricing**: All Firms in an oligopoly market could benefit. If they formally or informally come together and set prices to maximise in industry profits. A group of competitors operating under a formal over agreement is called cartel. If an informal covert agreement is reached, the firms are said to be operating in collusion.

9.9 ANSWERS TYO SELF-CHECK EXERCISES

Self-Check Exercise -1

Ans.1 Refer to Section 9.3

Self-Check Exercise -2

Ans.1. Refer to Section 9.4

Self-Check Exercise -3

Ans.1 Refer to Section 9.5

Self-Check Exercise -4

Ans.1 Refer to Section 9.6

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9.11 TERMINAL QUESTIONS

Q1. Explain and comment on Marris Model of Oligopoly?

Q2. Explain Baumol's contribution to the theory of oligopoly?

Unit-10

MARKET FAILURE

STRUCTURE

10.1 INTRODUCTION

Market failure arises when goods and services are not allocated efficiently. This occurs when the price mechanism fails to consider all associated costs and benefits in the production or consumption of a good. As a result, the market may either overproduce or underproduce the good, preventing an optimal allocation of resources. Understanding market failure requires examining the factors that contribute to it. Since markets are inherently imperfect, most do not function flawlessly and often require some form of intervention.

Market failure takes place when the quantity of a product demanded by consumers does not align with the quantity supplied. In essence, it describes situations where individual decision-making leads to negative outcomes for society as a whole. When supply and demand fail to reach equilibrium, the market cannot operate efficiently.

10.2 LEARNING OBJECTIVES

After going through this unit, you will be able to understand

- Firstly The meaning of market failure
- Secondly the principal reasons why markets fail to produce efficient outcomes?
- And why might the government intervene in the market's allocation of resources?

10.3 MEANING OF MARKET FAILURE

When the free market fails to achieve a socially optimal allocation of resources towards the production of a particular good or service. In other words when the quantity of a product demanded by consumers does not meet the quantity

supplied by suppliers, the market fails, and equilibrium is not achieved. Equilibrium is the delicate balance when there are enough goods and services at the right price to meet the demand by consumers.

Complete and partial market failure

Complete market failure occurs when the market simply does not supply products at all - we see "missing markets"

Partial market failure occurs when the market does actually function but it produces either the wrong quantity of a product or at the wrong price.

Self-Check Exercise-1

Q.1 What is the meaning of Market Failure?

10.4 CAUSES OF MARKET FAILURE

The economy is efficient only under certain circumstances or conditions. There are six important conditions under which markets are not efficient. These are referred to as market failures, and they provide a rationale for government activity. Let's explore several causes for market failures.

(i) Externalities

There are numerous instances where the actions of an individual or a firm impact others, either by imposing costs without compensation or by providing benefits without receiving a reward. A common example is environmental pollution. For instance, if I drive a vehicle without a pollution control device, I contribute to air pollution, which affects the well-being of others. Similarly, when a chemical factory discharges waste into a nearby river, it imposes additional costs on downstream users, who may need to invest significant resources to purify the water for safe use.

One of the primary reasons for market failure is the presence of externalities, which can be either positive or negative. Externalities arise when market activities influence third parties who are not directly involved in the transaction. In simple terms, an externality refers to the unintended effects—either beneficial or harmful—that result from the production or consumption of goods and services. Market failures occur because equilibrium prices often fail to account for the full social costs or benefits of a product. While economic equilibrium is intended to strike a balance between consumer benefits and production costs, significant externalities can distort this balance, leading to inefficiencies.

A positive externality occurs when the production or consumption of a good generates additional benefits for society. A classic example is public education. While education directly benefits students and schools, it also contributes to broader social advantages, such as a more informed workforce, higher tax revenues, reduced crime rates, and greater societal stability. These positive spillover effects are often not considered when individuals make educational choices, leading to lower-than-optimal consumption of education.

Conversely, a negative externality arises when third parties suffer harm due to shifts in supply or demand. This happens when producers do not bear the full costs of their activities, resulting in overproduction. For example, secondhand smoke negatively affects non-smokers' health, even though they do not partake in smoking. Another example is industrial pollution—factories that emit pollutants into the air or water create environmental damage, yet the associated costs are borne by society

rather than the producers themselves. If these negative externalities were factored into pricing, production levels would decline, leading to a more socially efficient equilibrium.

To address externalities, policymakers often intervene in markets to either encourage beneficial activities or discourage harmful ones. For instance, subsidies, grants, and access to affordable education are used to promote sectors with positive externalities. On the other hand, governments impose regulations, taxes, and penalties to curb activities that generate negative externalities, such as pollution. However, a significant challenge in policymaking is accurately measuring the impact of externalities to implement effective interventions.

By acknowledging and addressing externalities, governments can work toward creating more efficient markets that reflect the true social costs and benefits of economic activities.

(ii) Imperfect Markets

Efficiency tends to be higher in perfectly competitive markets but declines when market distortions or imperfections arise. A monopoly, for instance, occurs when a single supplier dominates the market, potentially leading to market failure by restricting the supply of goods or services.

Consider the case of waste management in large cities. If a single company is responsible for garbage disposal, it effectively holds a monopoly. Should the company fail to fulfill its duties, the city could become overwhelmed with waste, negatively impacting residents who bear the consequences of the disrupted supply.

In a monopoly, equilibrium is initially established at point E, where the private marginal cost (PMC) curve intersects the marginal revenue (MR) curve from below. The monopolist supplies an output of OQ1 at a price of OP1. However, if the production process results in air pollution, regulatory authorities may impose a tax (TE) on the firm. This pollution tax functions as a fixed cost for the monopoly, shifting the social marginal cost curve, which then intersects the marginal revenue curve at a new equilibrium point, e.

The monopolist increases the price of his product from OP_1 to OP_2 and restricts output to OQ_2 and thereby reduces consumers' surplus to $Q_2 MLQ_1$ (= $OQ_1 LP_1 – OQ_2 MP_2$). In fact, $Q_2 MLQ_1$ is the social cost of OQ_2 output. But the net loss to society is $Q_2 MLQ_1 – TE$= eMLT, the shaded area in the figure.

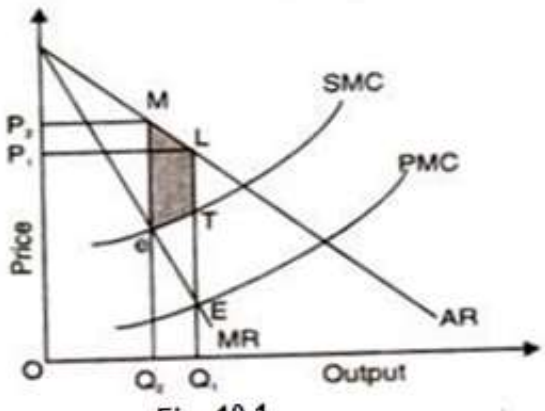

Fig. 10.1

3. Public Goods

There are some goods that either will not be supplied by the market or, if supplied, will be supplied in insufficient quantity. For example, national defense. Let's take a public street lamp. While the street light serves a purpose, the number of people utilizing it does not affect the demand for its luminous glow. One step further, it is in no business's interest to illuminate every dark corner if there is no real benefit. The free riders benefit because they enjoy lighted streets without paying for the service.

These are called pure public goods. They have two critical properties. First, it costs nothing for an additional individual to enjoy their benefits: formally, there is zero marginal cost for the additional individual enjoying the good. It costs no more to defend a country of one million and one individual than to defend a country of one million; The costs of a lighthouse do not depend at all 'On the number of ships that sail past it Secondly, it is in genera! difficult or impossible to exclude individuals from the enjoyment of a pure public goods.

In short, Public goods are goods, whose total cost of production does not increase with consumption. They cause market failure because a market doesn't truly exist for these products. The market failure results from three smaller causes. Non-excludability means that the public benefits from the goods without paying for them. Non-rival consumption means that each person enjoys the goods without taking away from another person's enjoyment of the same good. And non-reject ability says that people cannot reject the good.

4. Asymmetric Information

Perfect competition assumes that producers and consumers have perfect information regarding market behaviour. But according to Joseph Stiglitz, “In the real world, there is asymmetric (incomplete) information due to ignorance and uncertainty on the part of buyers and sellers. Thus they are unable to equate social and private benefits and costs.”

Suppose a producer introduces a new antipollution device in the market. But it is very difficult for him to predict the current demand of his product. On the other hand, consumers may be ignorant about quality and utility of this anti-pollution device. In some cases, information about market behaviour in the future may be available but that may be insufficient or incomplete. Thus market asymmetries, fail to allocate efficiently.

5. Common Property Resources

Another reason for market failure is the presence of common property resources. When resources are commonly owned and freely accessible, individuals may exploit them without considering the impact on others, leading to inefficiency and waste. Open access to such resources is a key factor contributing to their overuse.

A common example is fishing in a lake. While anyone can catch and consume the fish, no single individual holds exclusive ownership rights. This characterizes a common property resource as non-excludable (available for everyone) and non-rivalrous (no one has sole control over it). The lake serves as a shared resource for all fishermen.

When one fisherman catches more fish, the available stock for others decreases. However, this reduction is not considered a personal cost by the individual fisherman, even though it imposes a cost on society. Since no regulations limit access or fishing activities, excessive exploitation occurs. As a result, the overuse of the resource leads to negative externalities for others.

This phenomenon, known as the tragedy of the commons, arises when shared resources are depleted due to unregulated usage, ultimately reducing overall social benefits. When property rights are undefined, poorly enforced, or entirely absent, social costs exceed private costs, leading to market failure.

6. Unemployment, Inflation and Disequilibrium

Perhaps the most widely recognized symptoms of market failure are the periodic episodes of high unemployment, both of workers and machines, that have plagued capitalist economies during the past two centuries. Though these recessions and depressions have been greatly moderated in the period since World War II, perhaps partly because of government policies, the unemployment rate still climbed over 10 per cent in current times; that is low, however, compared to the Great Depression, when unemployment reached 24 per cent in the United States'. Most economists take the high levels of unemployment, inflation and disequilibrium as prima facie evidence that something is not working well in the market, To some economists, high unemployment, inflation and disequilibrium is the most dramatic and most convincing evidence of market failure.

Self-Check Exercise-2

Q.1 What are the different causes of Market Failure?

10.5 Market Failure and Government Intervention

Governments intervene in various ways to correct market failures. Historically, the preference had been for correction via legislation, but increasingly correction is sought by influencing prices and knowledge. To overcome this market failure, the government can try and reduce demand by taxing the good. However, this may cause government failure. Government failure occurs when government intervention results in a more inefficient allocation of resources. For example, taxes will cause administration costs; the government may have poor information about how much to tax and demand may be very inelastic.

To overcome under consumption of positive externalities, the government could subsidise these goods e.g. trains, buses and education. However, government failure could result again. Subsidising companies may encourage them to be more inefficient, because they can rely on state funding. Also, subsidising firms is costly and the govt may have poor information about who and how much to subsidise. To overcome market failure in agriculture, the Government has given farmers minimum prices. But this has encouraged over supply. Therefore, it has been very costly to implement.

Monopoly leads to market failure because firms are in a position to increase prices at the expense of the consumer and be more inefficient. To prevent an increase in Monopoly power, the Competition Commission can block mergers; however, some mergers could have benefits e.g. economies of scale and more research and development. If the govt blocked all mergers this may be harmful to the economy. The government tries to combat these inequities through regulation,

taxation, and subsidies. Most governments have any combination of four different objectives when they intervene in the market.

(i) Maximizing Social Welfare

In an unregulated and inefficient market, cartels and similar entities can exercise monopolistic control, increasing barriers to entry and hindering infrastructure development. In the absence of regulation, businesses may generate negative externalities without accountability. This scenario results in resource depletion, restricted innovation, and reduced trade along with its associated advantages. Government regulation serves as a means to counteract these challenges effectively.

Another instance of government intervention aimed at enhancing social welfare relates to public goods. Certain non-excludable yet depletable resources, such as public parks, lack individual ownership and assigned pricing, making them accessible to all. Consequently, these resources are prone to overuse and depletion. To prevent this, governments step in to ensure their sustainable management and availability.

(ii) **Macro-Economic Factors**

Governments take action to reduce the adverse effects of natural economic fluctuations. Recessions and inflation are inherent aspects of the business cycle but can significantly impact citizens. To mitigate these challenges, governments employ measures such as subsidies and monetary policy adjustments, aiming to lessen the economic burden on the population.

(iii) Socio-Economic Factors

Governments also intervene in markets to promote economic equity. Through taxation and welfare programs, they seek to redistribute financial resources from wealthier individuals to those in greater need. Other forms of market intervention driven by socio-economic considerations include labor laws that protect specific groups and regulations on product manufacturing to safeguard consumer health and well-being.

Self-Check Exercise-3

Q.1 What is the role of a Government in case of a Market Failure?

10.6 SUMMARY

In this unit, we explored the concept of market failure, which occurs when resources are not allocated efficiently, leading to an imbalance in the supply of goods and services. This happens when the price mechanism does not fully account for all the costs and benefits associated with the production or consumption of a good. As a result, the market either overproduces or underproduces certain goods, deviating from the socially optimal level. Some key reasons for market failure include:

- Positive and negative externalities: Externalities arise when the production or consumption of a good affects a third party. Positive externalities generate beneficial spillover effects, while negative externalities impose costs on others.
- Insufficient provision of public goods: Public goods are those whose availability does not diminish with increased consumption. Since individuals may rely on

others to provide these goods and still benefit from them without paying, this leads to the free rider problem, resulting in underproduction.

- Underconsumption of merit goods: Merit goods, such as education, healthcare, and sports facilities, are underconsumed despite their positive externalities, as society considers their consumption beneficial.
- Excessive consumption of demerit goods: Demerit goods, like cigarettes, alcohol, and gambling, are overconsumed due to their negative externalities, which harm individuals and society.
- Abuse of monopoly power: In imperfect markets, monopolies may limit output to maximize profits, restricting access to essential goods and services.

10.7 GLOSSARY

- **Market failure:** An economic term that encompasses a situation where, in any given market, the quantity of a product demanded by consumers does not equate to the quantity supplied by suppliers. This is a direct result of a lack of certain economically idle factors, which prevents equilibrium. Market failure results in allocative inefficiency, where too much or too little of goods or services are produced and consumed from the social optimum.
- **Public goods :** are non-rivalrous and non-excludable
- **Private goods:** are rivalrous and excludable
- **Demerit goods:** are considered to be undesirable for consumers, but are over provided by the market. Creates external costs.
- **Merit goods:** are held to be desirable for consumers, but are under provided by the market
- **Free rider problem:** occurs when people can enjoy the use of a good without paying for it
- **Common access resources:** resources that are not owned by anyone, do not have a price and are available for anyone to use without payment. They are rivalrous and non-excludable
- **Asymmetric information:** refers to situations where buyers and sellers do not have equal access to information and results in misallocation of resources. Can go both ways.
- **Positive externalities:** where one individual's actions confer a benefit upon others.
- **Negative externalities:** where one individual's actions impose a cost on others.

10.8 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise -1

Ans.1 Refer to Section 10.3

Self-Check Exercise -2

Ans.1. Refer to Section 10.4

Self-Check Exercise -3

Ans.1 Refer to Section 10.5

10.9 References/ Suggested Readings

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10.10 Terminal Questions

Q1. What do you understand by Market Failure? Explain different causes for market failure?

Unit-11

DEMAND AND SUPPLY OF FACTORS

STRUCTURE

11.1 INTRODUCTION

The total output of an economy is the result of the joint productive efforts of the various factors of production; land, labour, capital and enterprise. This total output ultimately gets distributed among the factors that contributed to its production in the form of wages, rent, interest and profit. The purpose of the theory of distribution is to explain the principles that govern this distribution. The distribution of total product depends on how the various factors are priced in the market. Thus, pricing of the various factors of production is the subject matter of the theory of distribution.

There are two aspects of the factorial distribution of national income; (i) determination of the per unit prices of the different factors and (ii) the division of the national income as between the different factors, i.e., absolute and relative shares of different factors in national income. The first question is essentially a micro-economic problem concerning the determination of equilibrium at the level of an individual firm or an industry. The second question concerns the factorial distribution of income at the level of the economy and, therefore, forms part of macro analysis. Thus, we have micro and macro theories of distribution. In the present set of lessons we are concerned only with the micro theories of distribution i.e., the question of factor-price determination.

Just as the price of any commodity is determined by the interaction of the forces of supply and demand, similarly the price of a factor is determined by the interaction of the forces of supply and demand for it. The theory of distribution is, thus, a special case of the theory of price determination discussed in the earlier set of lessons. However, the supply and demand for factors exhibit some peculiarities which have to be taken into account while considering the pricing of particular factors. Herein lays the justification for a separate theory of factor price determination. Let us first examine the demand for and supply of factors in some detail.

11.2 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- Explain the Demand for factors
- Elucidates the Supply of Factors

11.3 THE DEMAND FOR FACTORS

11.3.1 The Nature of the Demand for a Factor

Why does a producer demand a factor? The demand for a factor is derived (or indirect) and not direct demand. The demand for a commodity is direct in the sense that it directly satisfies some human want, The demand for a factor, on the other hand, is not direct in this sense. A factor is demanded not for its own sake, but simply because it can contribute to the production of some commodity demanded by the consumers. For example, a farmer pays rent for the use of land simply because it helps to produce, let us say, wheat which is demanded by the consumers. Similarly, he pays for seeds and fertilizers because they help to produce commodities, which are demanded by the consumers. When a producer employs an additional unit of a factor it yields him some extra output. While demanding a factor, the producer is not so much interested in the extra output that it yields him as in the amount of the extra revenue he will get from the sale of that output. In other words, he demands a factor simply because it ultimately contributes to his revenue. Hence the price a producer will be willing to pay for a factor unit will depend upon the addition to his total revenue which results from the employment of an additional unit of that factor. The additional revenue yielded due to the employment of an additional unit of a factor is called the marginal revenue product (MRP). For example, suppose that by employing 10 labourers on a given plot of land a farmer gets 100 quintals of wheat which sell for Rs. 20,000 in the market and by employing 11 labourers instead of 10 he is able to raise 110 quintals of wheat which sell for Rs. 22,000. It is evident that due to the employment of additional labourer total revenue of the producer rises from Rs. 20,000 to Rs. 22,000. Rs. 2000 is, thus, the MRP of the 11th unit of labour.

While demanding a factor the producer has his eyes set on this quantity. It is in this sense that the demand for factors is derived out of the demand for the commodities that they help to produce.

11.3.2 Different Concepts of Marginal Product

There are three different senses in which the concept of marginal product (MP) is used. Firstly, it may be used to express the addition made to the total physical product of a producer due to the employment of an additional unit of a factor, the amounts of all other factors remaining constant. We call this additional physical product as the marginal physical product (MPP). For example, if by employing 11 labourers on a given piece of land instead of 10, the total wheat output of a farmer increases from 200 quintals of rice to 220 quintals, then the MPP of the 11th unit of labour will be said to be 20 quintals. Thus, the MPP of a factor is the addition made to the total physical output of a producer due to the employment of an additional unit of a factor while keeping the amounts of all other factors constant.

Secondly, the concept of MP may be used in value productivity sense. The addition to the total revenue of a producer made by the employment of an additional unit of a factor, with amounts of all other factors remaining constant, is called the marginal revenue product (MRP) of the variable factor in question. According to this above example, the total physical product of the producer increases from 200 quintals to 220 quintals when he employs 11 labourers instead of 10 on the same plot of land. Now if the total revenue of the producer increases from Rs. 40,000 to Rs. 42,000 when he sells 220 quintals instead of 200, the MRP of the 11th labourer will be said to be Rs. 2,000. It is evident that the MRP of a factor depends upon two things: (a) the additional units of output produced and (b) the contribution of each unit of output to the total revenue of the producer. The additional output produced by the employment of an additional unit of a factor is called the MPP and the contribution of an additional unit of output to the total revenue of a producer is called the marginal revenue (MR).

Thus: MRP = MPP × MR

Thirdly, the concept of marginal product may also be used to denote the market value of the MPP of a factor. For instance, the MPP of the 11th labourer according to the above example is 20 quintals of wheat. Now if the ruling market price of wheat, when the larger output is sold (220 quintals instead of 200 quintals) is Rs. 200 per quintal, the market value of the additional output will equal Rs. 4,000, Rs. 4000 then will be said to be the value of marginal product (VMP) of the 11th labourer. VMP is simply the MPP multiplied by the market price of the commodity. As already explained in the context of the theory of firm, market price and average revenue (AR) is one and the same thing. Thus: VMP = MPP × AR

11.3.3 Relation between MRP and VMP

MRP equals MPP × MR while VMP equals MPP × AR MPP is common to both concepts. MPP, as discussed in detail in Set VI of this paper, depends solely on the technical conditions of production while MR and AR depend upon the structure of commodity market where the firm sells its output. If the firm sells its output on a perfectly competitive commodity market, it will be faced with a perfectly elastic demand curve and its AR and MR will then be identical. Thus in the event of perfect competition in the commodity market the MRP (=MPP × MR) and VMP (=MPP × AR) of a factor to a firm will be the same because AR and MR are identical. But if the firm

is faced with an imperfectly competitive commodity market, then MRP and VMP will not be the same. In the event of imperfect competition in the commodity market, as we have already studied, MR will necessarily be less than AR. From this it follows that in the event of imperfect competition in the commodity market, MRP (which equals MPP × MR) will necessarily be less than VMP (which equals MPP × AR) because MR is less than AR. Thus, in conclusion we note that in case of perfect competition in the commodity market MRP equals VMP and in case of imperfect competition MRP will necessarily be less than VMP.

Thus: MRP (=MPP × MR) VMP (=MPP × AR) in case of perfect competition in commodity market.

MRP (=MPP × MR) < VMP (=MPP × AR) in case of imperfect competition in the commodity market.

We clarify the point further with a simple example. Suppose the total physical product of a farmer per year increases from 200 quintals to 220 quintals of rice when he employs 21 labourers instead of 20, on a given piece of land. The MPP of the 21st labourer, according to this example, would be 20 quintals. Further suppose that the farmer sells his output on a perfectly competitive commodity market so that the price of rice remains constant at Rs. 100 per quintal even when he sells the larger output. MRP of the 21st labourer in this case would equal the change in the total revenue of the producer due to the sale of the larger output i.e., 220 × 100-200 × 100 = 22000–20000 = Rs. 2000. VMP (MPP × AR) in this case would also equal Rs. 2000 (=20 × 100 = 2000). Now suppose the fanner is faced with an imperfect commodity market so that he is able to sell the larger output at Rs. 98 per quintal and not at Rs. 100 per quintal. In this case MRP of the 21st labourer would equal 220 × 98 – 200 × 100 = 21560 – 20000 = Rs. 1560. And VMP would equal MPP (=20) × AR (=Rs. 98) = Rs. 1960.

Why is MRP in this case smaller than VMP? The reason is very simple. When the price falls from Rs. 100 to Rs. 98, this reduction in price applies not only to the extra output but also to the earlier output (i.e., 200 quintals) which was earlier sold at Rs. 100 instead of Rs. 98. Thus, while the producer gets additional revenue from the sale of the extra output (=20 quintals) at the current market price equal to Rs. 1960, at the same time he suffers a loss in his earlier total revenue equal to the fall in price (i.e., Rs. 2) multiplied by the earlier total output (i.e., 200 quintals) i.e., output but also to the earlier output (i.e., 200 quintals) i.e., Rs. 400. The MRP (or the net addition to the earlier total revenue of the producer) would thus equal Rs. 1960 – Rs 400 = Rs. 1560. Thus as a general rule we note that in the event of imperfect competition in the commodity market MRP will be less than VMP by the amount of loss of revenue suffered by the producer on his earlier output due to the fall in price. In the present case when, in order to sell the larger output (220 quintals instead of 200. quintals), price falls from Rs. 100 to Rs. 98, he is compelled to sell the earlier output (200 quintals) also at Rs. 98 per quintal and thus suffers a loss of revenue of Rs. 400/-. Therefore, MRP of 21st unit will be less than its VMP by Rs. 400.

11.3.4 The Shape of the MRP Curve

The demand for a factor is derived from its MRP. MRP, as we have seen above depends upon MPP and MR. The behaviour of MRP will thus depend upon the behaviours of its components with changes in the quantity of the variable factor employed. Under a given set of conditions the behaviour of MPP is determined by

the operation of the law of diminishing returns (or the law of variable proportions). The law states that as more units of a variable factor are used with a given amount of other factors, after a point its MPP starts diminishing provided there is no change in the state of technology. We can explain this law with a simple numerical example. Imagine a farmer employing more and more labourers on a given plot of land. The table below records total, average and marginal products as the farmer employs more and more labourers on the given plot of land and other equipment etc.

Table 11.1

No. of workers	Total Product	Average Product	Marginal Product (In physical units)
1	15	15	15
2	36	18	21
3	60	20	24
4	92	23	32
5	120	24	28
6	144	24	24
7	161	23	17
8	176	22	15
9	189	21	13
10	189	19	0
11	176	16	–13

The figures in the above Table show that both the average and marginal products increase at first and the decline. The marginal product falls faster than the average. The important point to note is that with the employment of the fifth unit the marginal product starts diminishing. The same phenomenon is depicted in the diagram below. In the diagram 11.1 below the MPP curve rises till the employment of OA units of labour and thereafter it falls continuously. The APP curve rises till the employment of OB units and thereafter starts declining. The relationship between APP and MPP is the same as that between AC and MC explained in the earlier set of lessons.

In order to convert the MPP curve into the MRP curve we need to know the contribution to revenue made by the MPP at each level of employment of the factor. It bears repetition to point out at this stage that while MPP depends entirely on the technical conditions of production, its value productivity depends upon the commodity market where the firm sells its output. If the firm sells its output on a perfectly competitive market, its MR will equal its AR and thus the MRP curve can be derived from the MPP curve simply by multiplying the MPP corresponding to each level of employment of the factor by the given market price of the product (AR). Diagram 11.2 depicts the MRP curve corresponding to the MPP curve of the diagram 11.1.

Carefully note the fact that just like the MPP curve the MRP curve is also downward sloping.

Fig. 11.1

Fig. 11.2

The reason for this is the diminishing marginal productivity of the factor. Also note the fact that in this particular case MRP curve is also the VMP curve. However, as already explained, if the firm is confronted with an imperfectly competitive commodity market, it will be able to sell larger outputs only by reducing the market price so that MR will be less than AR. As a result two things happen. Firstly, as the firm is able to sell its extra output at a lower price, the VMP curve (which is derived from the technically given MPP curve by multiplying MPP corresponding to each level of employment of the factor by the market price of the product) will fall more sharply than the MPP curve. Secondly, since MR will be less than AR, the MRP curve will lie below the VMP curve and slope more sharply than the latter. Diagram 11.3 depicts the VMP and MRP curves of a firm selling its product in an imperfectly competitive commodity market. The difference between MRP and VMP is further explained with hypothetical figures given m Table 11.2

Table 11.2
Difference between MRP and VMP under Perfect and Imperfect Competition in the Commodity Market

Units of Factor	Total Product	MPP	Perfect Competition in the Commodity Market				Imperfect Competition in the Commodity Market			
			Price	T.R.	M.R.P.	V.M.P.	Price	T.R.	M.R.P.	V.M.P.
1	15	15	100	1500	1500	1500	100	1500	1500	1500
2	36	21	100	3600	2100	2100	99	3564	2064	2079
3	60	24	100	6000	2400	2400	98	5880	2316	2352
4	92	32	100	9200	3200	3200	97	8924	3044	3104
5	120	28	100	12000	2800	2800	96	11520	2596	2688
6	144	24	100	14400	2400	2400	95	13680	2160	2280
7	161	17	100	16100	1700	1700	94	15134	1454	1598
8	176	15	100	17600	1500	1500	93	16368	1234	1395
9	189	13	100	18900	1300	1300	92	17388	1020	1196
10	197	8	100	19700	800	800	91	17927	539	728

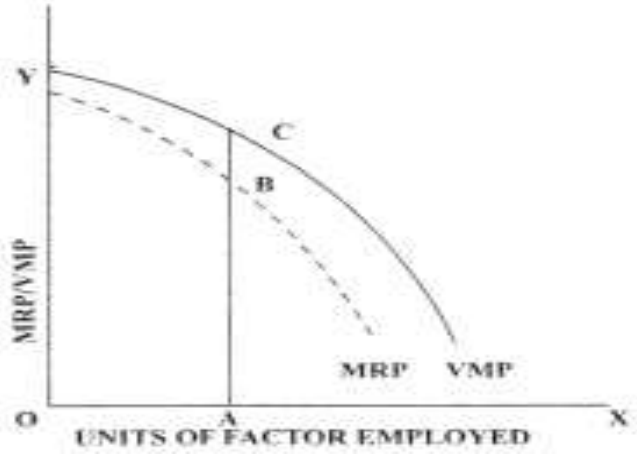


Fig. 11.3

Explanatory Notes:

MPP = Difference between two successive total products.

TR = Total revenue = Total product × price at which it is sold:

MRP = Marginal revenue product = Difference between two successive total revenues.

VMP = Value of MPP = MPP × the price at which total product sells.

Carefully note the following:

1. Total product and MPP figures are the same because they are determined purely by-technical factors.

2. In case of perfect competition in the commodity market, MRP and ‘VMP figures are identical,

3. In case of imperfect competition in the commodity market MRP is always less than VMP.

11.3.5 Firm's Demand Curve for a Factor

Just as it is true that a profit maximizing firm, whether it is selling its product under conditions of perfect competition, imperfect competition or monopoly, will produce to the point at which its MC equals its MR, so it is true that a profit-maximizing firm will purchase units of a variable factor up to the point at which the addition to its total cost resulting from the employment of an additional unit (i.e. marginal factor cost, MFC) equals the M.RP of the factor in question. Thus, in the purchase of a single variable factor a firm will be in equilibrium when MFC equals MRP of the factor.

Thus, in equilibrium: MFC = MRP (1)

The above is a perfectly general equilibrium condition applicable to all market situations. If we further assume that the firm is able to purchase any amount of the factor without influencing market price (i.e, purchases in a competitive factor market), the MFC of the factor to the firm is simply the market price (AFC). Therefore, for firms that purchases their factor supplies in a perfectly competitive market the above equilibrium condition (1) can be alternatively stated as follows:

AFC = MRP (2)

This condition allows us to derive a firm's demand curve for a factor from the MRP curve. The factor's MRP curve shows different MRPs corresponding to the different amounts of the factor employed with given amounts of all other factors, Firm's demand curve for a factor would show the different amounts of the factor that the firm would be willing to purchase at different prices of the factor.

Therefore, when a firm purchases its factor supplies in a competitive factor market (so that MFC = AFC) the MRP curve of the factor becomes the firm's demand curve for the factor as shown in the diagram below.

In the diagram 11.4 amount OA of the factor equates its MRP at point a with the price OW. Therefore, at OW price the firm would be willing to purchase OA amount of the factor. Amount OB of the factor equates its MRP at point b with price OWS. Therefore, with OW, as the price the firm would be willing to purchase OB amount of the factor. Similarly, at OW2 price the firm would be willing to purchase OC amount of the factor. However, at this stage let us carefully note that the MRP curve is the firm's demand curve for the variable factor in question on the assumption that the price of the product and the price of the factor are both given for the firm.

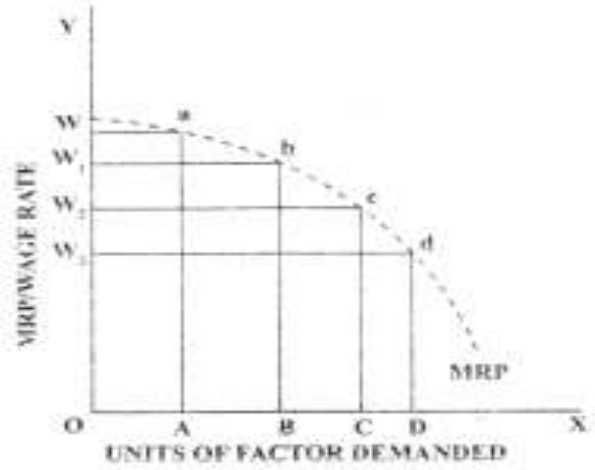


Fig. 11.4

11.3.6. Market Demand Curve for a Factor

In the preceding diagram the MRP curve is the firm's demand curve for the factor in question on the assumption that changes in the price of the factor do not, directly or indirectly, affect the price of the commodity produced and hence the given MRP curve. This assumption would be valid only if all other firms in the industry keep their outputs fixed. However, this is not a realistic assumption. In the event of a fall in the price of a variable factor we would expect all firms in the industry to employ more of this relatively cheaper factor. This would increase the total output of the industry and cause the price of the commodity to fall. A fall in the price of the commodity would cause the MRP curves of all the firms (based on the higher price of the commodity) to shift leftward. Firms will adjust their purchases of the factor with reference to the new MRP curve (corresponding to the lower commodity price). Thus, each fall in the price of a variable factor (via its effects on the factor's total employment, total output and hence the price of the commodity produced) will give rise to a new lower MRP curve with one equilibrium point corresponding to the new factor price. The line joining such equilibrium points on the different MRP curves will be the firm's demand curve for the variable factor in question when the reactions of other firms in the industry to changes in the price of the factor are allowed for. This is shown in the diagram 11.5.

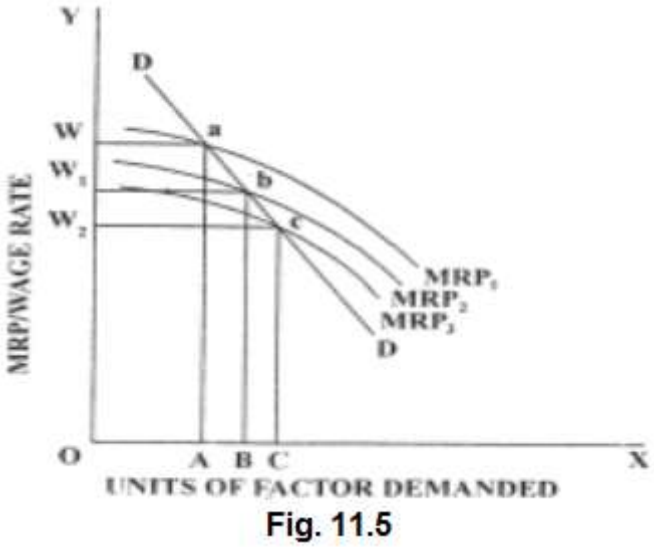


Fig. 11.5

In Fig. 11.5 let us start from an equilibrium position such as point a on the curve MRP, with OW as the factor price and OA as the amount demanded of it by the firm. Now suppose the price of the variable factor falls from OW to OW1. All firms in the industry employ more of this factor, as a result total output of the commodity increases and consequently price of the commodity falls. Fall in the price of the commodity (say, from Rs. 100/- to Rs. 98/-) causes the MRP curves of all firms to shift leftward. Suppose as a result of these indirect effects the MRP, in the diagram above shifts position MRP2 with MRP2 and OW1 as the factor price equilibrium is established at point b with OB as the amount demanded of the factor 0. Similarly, when the price of the factor rails further to OW2, MRP2 shifts leftward to the position of MRP3 on which equilibrium with the lower factor price (OW2) is established at point c; with OC as the amount demanded of the factor. The line DD joining equilibrium points such as a, b, c, etc., is the firm's demand curve for the factor when reactions of other firms in the industry' to variations in the price of the factor are allowed for.

The lateral summation of the demand curves of all firms for a factor, as derived above, gives us the market demand curve for the factor in question. Just like the firm's demand curve, the market demand curve for a factor will also be downward sloping.

11.3.7. Firm's Demand Curve for a Factor when factor Market Imperfect

As explained earlier, equality of MRP with MFC of a variable factor determines a firm's equilibrium in the purchase of a single variable factor under all market situations. However, a firm's demand curve for a factor, defined as indicating the different amounts of the factor demanded by the firm at different prices of the factor, is based on the assumption that MFC of the factor to the firm equals its price (AFC) so that equality of MFC with MRP also means the equality of price of the factor (AFC) with MRP. This implies that the firm purchases its factor supplies in a perfectly competitive factor market so that it is able to purchase any amount of the factor without influencing the given market price and as a result MFC of the factor equals its AFC. We derived the individual and the market demand curves in the preceding sub-section on the basis of this assumption. However, if a firm does not purchase its factor supplies in a perfectly competitive factor market, it will be able to purchase larger amounts of the factor only at higher prices. When a firm purchases larger amounts of a factor at higher prices, MFC of the factor will necessarily be higher than its AFC. For example, if in order to purchase 51 instead of 50 units of a factor a firm has to raise the factor price from Rs. 100 to Rs. 102, the MFC of the additional unit to the firm will equal Rs. 202 (102 × 51- 100 × 50 = 202) which is greater than AFC.

When the MFC of a factor to a firm is greater than its AFC, it cannot afford to equate MRP with the AFC because in doing so it will incur a net loss equal to the excess of MFC over AFC and thus reduce its profits. In such a case the MRP curve cannot be described as the firm's demand curve for the factor in the sense of indicating the different amounts of the factor demanded by the firm at different prices of the factor. Even in such cases MRP curve will be described as the firm's demand curve for a factor but in a different sense which we will explain in a later section.

Self-Check Exercise-1

Q.1 What is the nature of the demand for a factor?

Q.2 Discuss different concepts of Marginal Product.

Q.3 What is the relation between MRP and VMP?

Q.4 Discuss market demand Curve for a factor.

11.4 SUPPLY OF FACTORS

11.4.1 Supply of Factors to the Whole Economy

At first glance it may appear that quantities of most factors are fixed in an economy. For example, there is an upper limit to the number of workers. Similarly, there are upper limits to quantities of coal, oil, copper, iron ore, etc., available in the economy. However, in practice we are never near these limits. Often a large undiscovered or unexploited quantity exists, and a shortage of the resource that raises its price encourages exploration and the development of previously unprofitable sources. Thus, the supply of a resource to the economy usually varies considerably with changes in the price of the resource. With this brief introduction we now come to a discussion of the characteristic features of the supplies of individual factors.

11.4.2 Supply of Land

Land in economics includes all natural resources provided free by nature. The quantity of a particular natural resource existing in the world is, of course, limited. But we are never near these upper limits. Generally large undiscovered (or unexploited) sources exist and a shortage that raises their prices encourages exploration, research and development of previously unprofitable sources. Therefore, the supply of any natural resource usually varies considerably with changes in its price, A high return to land provides incentives for the development of its productive powers through irrigation, drainage, fertilization, etc., which greatly increase the supply of arable land. On the other hand, if the return to land is low, its fertility may be allowed to be exhausted within a short period of time. Traditionally, however, the supply of land (which includes all natural resources besides mere space) to the whole economy has been assumed to be absolutely inelastic.

11.4.3 Supply of Labour

By the supply of labour (or the supply of effort) we mean the total number of hours of work that the population is willing to supply. The supply of effort depends upon the following factors,

(1) The size of the population: The size of the population sets the upper limit to the total of labour. While there is some evidence that the birth and immigration rates are higher in good times than in bad times, it is doubtful, especially in advanced economies, whether economic factors are of paramount importance in determining the growth of population. It is difficult to establish any definite relationship between the reward of labour and growth of population. The reasons for which population varies are at the moment largely unexplained. Therefore, for our purpose we may take the size of population as fixed.

(2) The proportion of the population willing to work: The proportion of the population entering the labour market varies considerably in response to variations in

the wage rate. Generally, arise in the wage rate results in an increase in the proportion of the population willing to work. Women, old people and even young boys are induced to join the labour force when the wage rate is high. For example, the proportion of married women and old persons in the labour force increased dramatically during the Second World War. In addition to the rate, the proportion of the population entering the labour market also depends on the age composition of population, social institutions, customs and distribution of wealth in the economy. For example, the extent to which women, especially married women, enter the labour market partly depends on customs and opportunity. Customs and opportunity can vary from one time to another and from one place to another even within the same country. Greater equality in the distribution of property in a society, by reducing the number of those who live on unearned incomes and consequently do not need to work, will increase the supply of labour in an economy,

(3) The number of hours of work offered by each individual worker: By hiring out his services a labourer gets some money as his wage, with this money he purchases goods and services for his consumption. Thus, the labourer trades his leisure for goods, by giving up leisure (i.e., by working) he gets money, and hence, goods. A rise in the wage rate means that there is a change in the relative price of goods and leisure. Leisure becomes dearer- relative-to goods (since each hour of leisure consumed now is at the cost of more goods forgone), or alternatively, goods become cheaper relative to leisure since each hour worked (i.e., leisure traded for goods) now results in more goods than before. In the context of the theory of consumer's demand we noted that a consumer tends to substitute a cheaper good at the cost of a dearer good when their relative prices change. The same logic applies to change in the wage rate also. Due to rise in the wage rate goods become cheaper relatively to leisure and as a result a labourer tends to substitute goods at the cost of his leisure; he tends to have more goods by reducing his leisure. This is known as the, 'substitution effect' of wage increase.

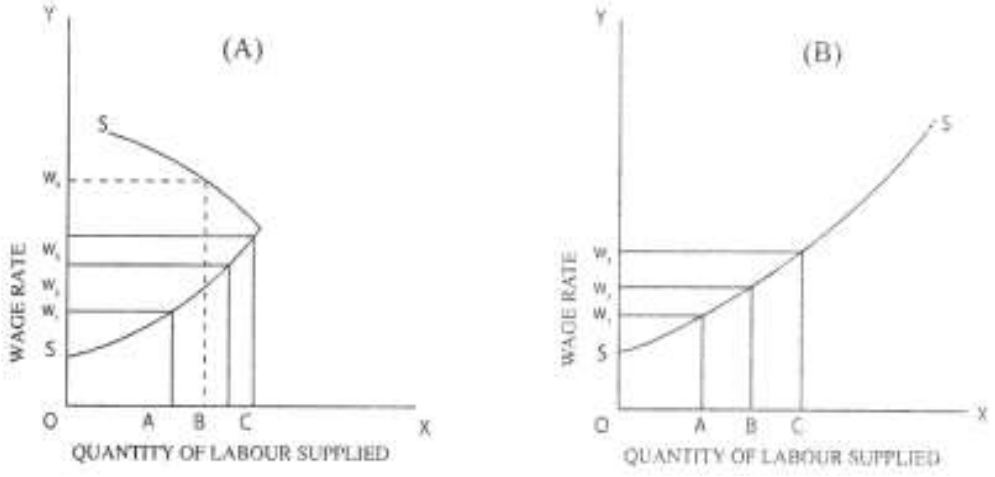
The substitution effect of a wage increase will tend to expand the supply of effort in two ways.

Firstly, some of those who were not willing to work at the lower wage rate would now like to work because leisure has now become costlier in terms of goods forgone. Secondly, for the same reason those who were already working would now like to put in more hours of work per day or per week by reducing their leisure. Thus, the total supply of effort will tend to expand due to these two factors. Quite apart from the substitution effect discussed above, a wage increase also generates an income effect. With an increase in the wage rate a labourer grows richer than before even if he continues to work the same number of hours per day or per week as he did when the wage rate was lower. Being richer the worker would demand more of all normal goods including leisure. He will spend a part of the increase in his real income in the purchase of leisure. He can do so by reducing the number of hours worked. So, the income effect of a higher wage rate induces the worker to reduce the number of hours worked per day or per, week. Thus the substitution and income effects of a wage increase tend to pull in opposite directions; the substitution effect tending to increase the number of hours worked while the income effect tending to reduce the number of hours worked. The net effect of a wage increase on the supply of effort will, therefore, depend on the relative strengths of the two opposing tendencies.

If the substitution effect is stronger than the income effect, labourers will put in longer hours of work in response to a rise in the wage rate. Bat if at any stage income effect becomes stronger than the substitution effect, labourers will put in shorter hours of work consequent upon arise in the wage rate.

The supply curve of effort in this case will be backward rising as the one shown in figure below. In figure A of diagram 11.6 below as the wage rate rises from W1 to W2 and then to W3. The supply of effort expands from OA to OC and then to OD. In other words, up-to the wage level W3 substitution effect is stronger than the income effect and as a consequence supply of effort expands in response to increases in the wage rate. But when the wage rate raises beyond W3 the income effect becomes stronger than the substitution effect and consequently the supply curve of labour starts sloping backwards to the left. In the figure B of diagram 11.6 when the wage rate increases from W3 to W4 instead of expanding, the supply of effort actually contracts from OD to OB.

Fig. 11.6



Concluding our discussion of the supply of effort we can say that the backward rising supply of effort curve presents a strong possibility but cannot be taken as the typical case. There is no conclusive evidence available in support of a backward labour supply curve. Therefore, we assume that normally labour supply curve will be upward rising bending.

11.4.4 Supply of Capital

Capital is a man-made factor of production and interest is its cost. The supply of capital in a country consists or the existing machines plant, equipment, buildings, etc., and is called the Capital Stock. In the course of production during the year a part of the existing capital stock is used up and to that extent the supply diminishes. On the other hand, new machines, buildings, plant and equipment are produced every year which go partly to replace the worn-out part of the capital stock and partly to add to the stock. Ignoring cyclical fluctuations, the supply of capital has been increasing over time in all modern economies.

11.4.5 Supply of factors to particular uses

Different factors of production can normally be put to alternative, uses. Only few resources may be specific to a particular use and that too only in the short run. A given piece of land can be used to grow a variety of crops. Similarly, a labourer can be employed either to weave cloth in a factory or to build a road or to dig a canal or

to grow various crops on a farm. Therefore, factors have to be allocated among various competing industries and among different firms in the same industry in a rational manner. Factor owners choose the use for their resources in which they earn the most. They, of course, take many other things into account besides monetary benefits. Factors move among different uses until there is no net advantage in further movement. A change in the relative price paid to a factor in two uses leads factor owners to increase the quantity supplied to the use in which the relative price has

Increased and to decrease the quantity supplied to the use where it has decreased. This means that higher the (relative) price offered to a factor in a particular use, the larger will be the amount of the factor supplied to it. This gives rise to an upward rising supply curve to an industry as shown in the diagram below.

SS curve in the diagram 11.7 is the supply curve of a factor to an industry. It is upward rising indicating that higher the price offered to the factor, larger is the quantity supplied to the industry in question. For example, when the price offered is OW1 only OA amount of the factor is supplied. But when the price offered rises to OW2, amount supplied increases to OB. And when the price offered rises to OW3 amount supplied increases further to OC.

As explained previously, the supply curve of any factor to the economy as a whole will be normally more than perfectly inelastic. However, even in a case where the supply curve of a factor to the economy as a whole is perfectly inelastic (as for example, classical economists assumed the supply of land to be), its supply to a particular

Industry will not be perfectly inelastic, it will be more classic because the industry will always be able to attract more units of the factor from other industries by offering a slightly higher price. Therefore, the supply curve of a factor to an industry will normally be more elastic compared to its elasticity of supply for the whole economy.

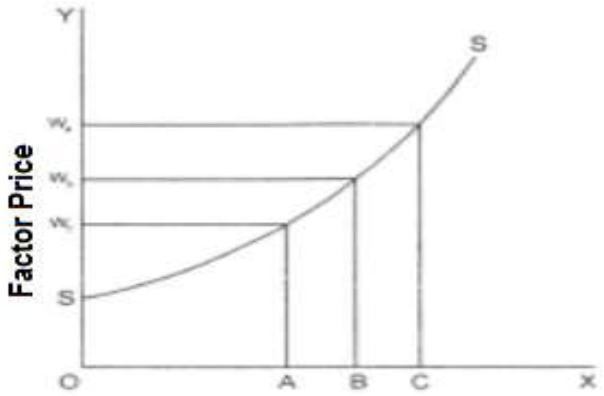


Fig. 11.7

11.4.6. Supply of a factor to an individual firm

In a factor market a firm may be either one of a large number of purchasers or one of the few purchasers of a particular factor. If the firm is one of a large number of purchasers of the same factor, its purchases will constitute a negligibly small fraction of the total market supply of the Factor. As a result, the firm would be able to

purchase any amount of the factor at the going market price. In other words, the supply of the factor to such a firm will be perfectly elastic at the price determined by the forces of market supply and demand for the factor. As already explained, when the supply of a factor is perfectly elastic, price (AFC) and marginal factor cost (MFC) to the firm are identical. On the other hand, if the firm in question is one of the few big purchasers of a factor, its purchases will constitute a sizeable fraction of the market supply of the factor and as a result when the firm buys a large amount of the factor, its price is raised. Thus, in such a case the firm is able to buy more units of the factor only at higher and higher prices. The supply curve of the factor to the firm in such a case will rise upward. When the supply curve is upward rising, as already explained, MFC is higher than AFC and therefore, the MFC curve lies above AFC curve.

We may conclude our discussion by observing that normally the supply of all factors to an economy is responsive to factor prices in the long run. In the short run the same factor can have supply curves ranging from the vertical (i.e., perfectly inelastic supply curve) to the horizontal, depending on which demand curve is coupled with supply-the demand curve of a small firm, of an industry (or a big firm) of a group of industries (i.e., the whole economy). This is shown in the diagram 11.8. It is thus evident that even when the supply of a factor to the economy as a whole is rigidly fixed (as in fig. A below), it will be more elastic to a particular use (as shown in fig. B), and will be perfectly elastic to a small user of the factor (as shown in fig. C).

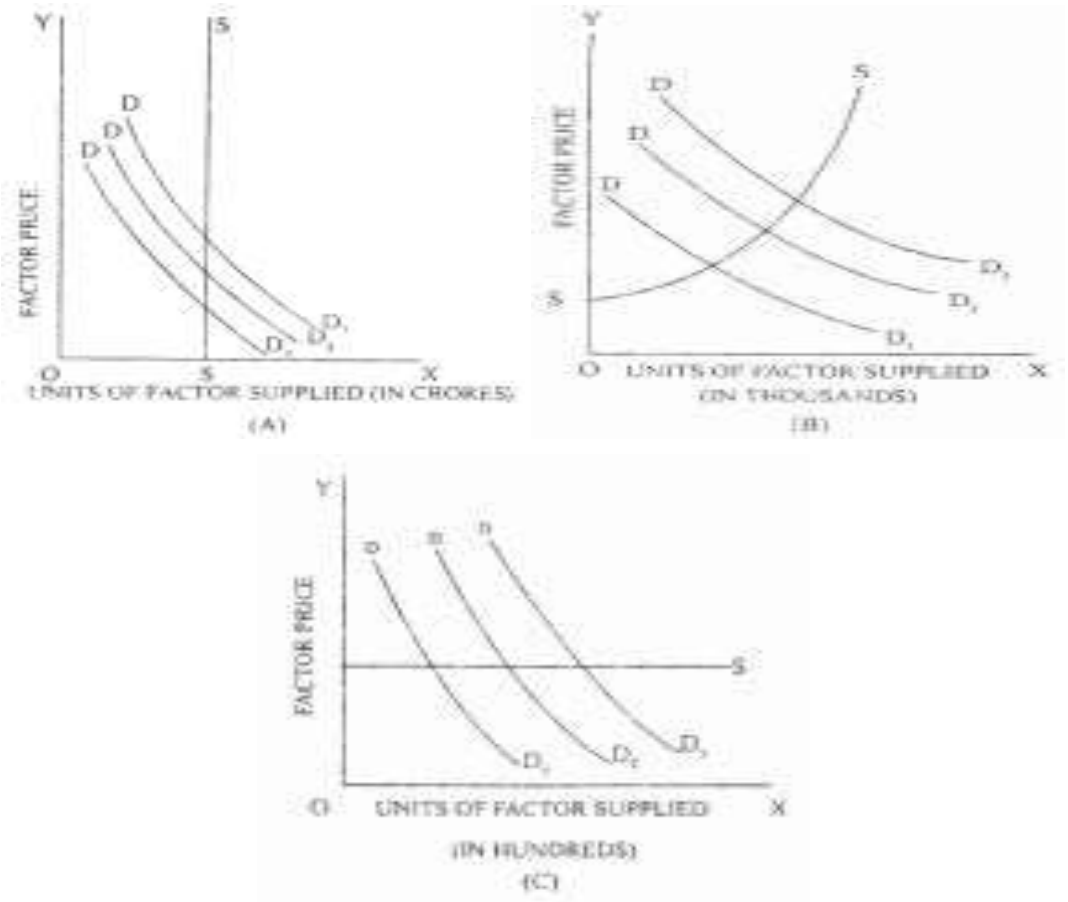


Figure 11.8

Self-Check Exercise-2

Q.1 Write a short note on the supply of factors to the Whole Economy.

Q.2 Write a short note on the Supply of factors to particular uses.

Q.3 Write a short note on the supply of a factor to an individual firm.

11.5 SUMMARY

In the economic sense factor supplies for the economy as a whole are never perfectly inelastic accept, possibly, in the very short run. Supply of a factor to an industry is generally more elastic than its supply to the whole economy 3. Supply of a factor to a small user of the factor can be assumed to be perfectly elastic.

11.6 GLOSSARY

- **Demand curve**: is the graph depicting the relationship between the price of a certain commodity and the amount of it that consumers are willing and able to purchase at that given price. It is a graphic representation of a demand schedule
- **Market Demand curve**: A graph that shows the amount of a good or service that consumers purchase on the X axis at a range of pricing levels that are plotted on the Y axis. The market demand curve for a good or service provided by a business can be combined with its market supply curve to determine the product's equilibrium price that is located where the two curves cross**.**
- **Marginal Product :** Output that results from one additional unit of a factor of production (such as a labour hour or machine hour), all other factors remaining constant. Whereas the marginal cost indicates the added cost incurred in producing an additional unit of output, marginal product indicates the added output accruing to an additional input. Since marginal product is measured in physical units produced, it is also called marginal physical product.

11.7 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 11.3.1

Ans.2 Please refer to section 11.3.2

Ans.3 Please refer to section 11.3.3

Ans.4 Please refer to section 11.3.6

Self-Check Exercise-2

Ans.1 Please refer to section 11.4.1

Ans.2 Please refer to section 11.4.5

Ans.3 Please refer to section 11.4.5

11.8 REFERENCES/ SUGGESTED READINGS

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11.9 TERMINAL QUESTIONS

Q1. Explain the Demand and Supply of Factors.

Unit-12

FACTOR PRICE DETERMINATION UNDER DIFFERENT MARKET CONDITIONS

STRUCTURE

12.1 INTRODUCTION

Having developed the necessary tools of analysis the demand and supply curves of factors under different market situations-we are now in a position to demonstrate factor price determination under different market situations. The theory of factor pricing is quite general applicable to all factors of production. In the following we discuss wage determination as a special case. However, the analysis is equally applicable to other factor prices as well. If one is interested in capital, he should interpret factor price as interest; if one is interested in land, then factor price should be interpreted to mean rent, and so on.

12.2 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- Determine the Factor Price Under Perfect Competition
- Establish the Factor Price Under Bilateral monopoly

12.3 PRICE DETERMINATION UNDER COMPETITIVE CONDITIONS

When there is perfect competition in the factor market and the commodity market, market wage rate is determined by the interaction of the forces of market demand for and supply of labour as shown in the diagram below. In figure A diagram 12.1, the market demand and supply curves of labour intersect at P, determining AP(=OW) as the equilibrium wage rate. At this wage rate amounts of labour supplied

and demanded are both equal to OA. At any higher wage rate supply of labour exceed the demand for it. For example, in the above diagram, at the wage rate OW1 supply of labour exceeds the demand for it by BC.

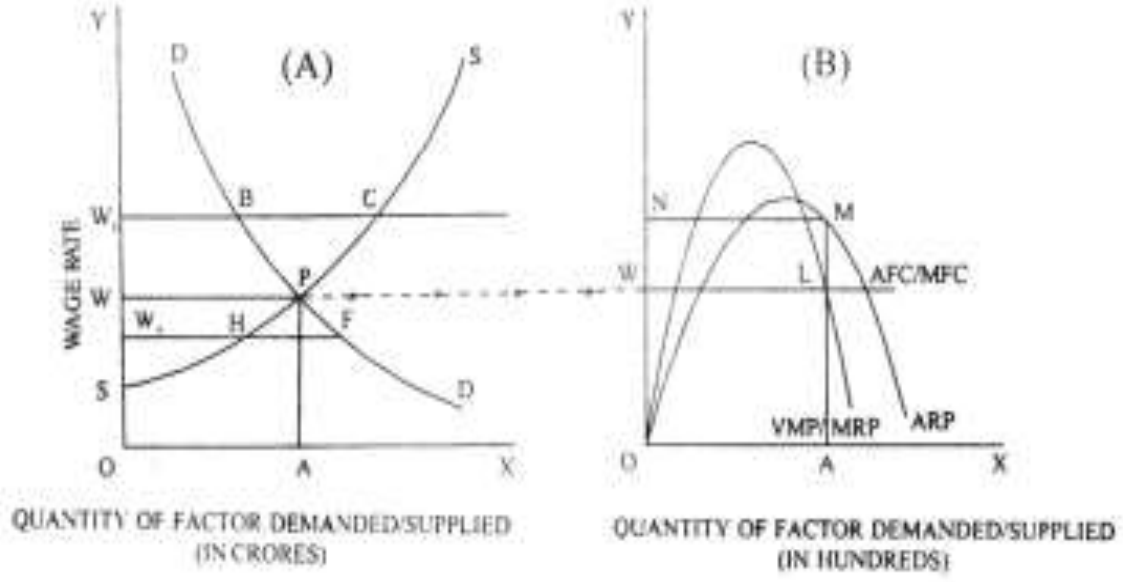

Figure 12.1

This lowers than the equilibrium rate the demand for labour will exceed its supply. For example, at the wage rate W2, demand for labour exceeds its supply by HP. This excess demand will tend to push up the wage rate towards its equilibrium level. Thus, in either case the wage rate will gravitate towards its equilibrium level where supply and demand are equated.

Figure 12.1(B) depicts the equilibrium or a competitive firm for which the wage rate and the price of the product (and therefore the ARP and MRP curves) both are given. At the given wage rate determined by the market forces of supply and demand for labour (as shown in Figure A above) the firm only decides to employ so much of labour which equates MRP with the given wage rate. In this particular case MRP being equal to VMP, wage rate equals MRP as well as VMP. Thus, with perfect competition in both the factor market and product market, wage rate is determined by the forces of market demand and supply of labour and at the given wage rate thus determined an individual firm only decides to employ that amount of labour which equates MRP (and also VMP) with the given wage rate.

The equilibrium condition of the equality of MRP and the given wage rate (or any other factor price) is the short run condition for profit maximization. For example, in fig. B above, at the given wage rate the firm employs OA of labour which equates MRP with the given wage rate at L. But in this equilibrium position, ARP being greater than the wage rate by LM the firm is earning abnormal profits equal to the area of the rectangle WLMN. In an industry where there is no restriction on the entry and exit of firms, the possibility of earning abnormal profits is bound to attract new firms into the industry. Entry of new firms into the industry will mean (1) increased demand for the factor in question and (2) the increased output of the commodity. Increased demand for the factor will tend to push up its market price and increased output of the commodity will lower MRP curve, i.e., the demand curve for the factor. Thus, as a result of the entry of new firms into the industry, the price of factor will tend to rise and demand curves of the firms for the factor (and therefore, its market

demand curve) will fall. This process of the entry of new firms into the industry and the consequent increase in the price of the factor and the fall in the MRP curves of firms will continue so long as firms in the industry earn abnormal profits (ARP>factor price). This process will come to an end when factor price equals ARP (in addition to its equality with MRP) so that there are no abnormal profits to be earned in the industry. Therefore, in long-run equilibrium under perfect competition factor price will equal not only MRP but also ARP. Given the shapes of the ARP and MRP curves, it is evident that there is only one point where the two are equal. It is the highest point on the ARP curve where MRP equals it. Therefore, in long run equilibrium the factor price curve (i.e., AFC curve) will be tangential to the ARP curve at its highest point as shown in the diagram 12.2.

The diagram 12.2 depicts the long-run equilibrium of the firm and the industry. The firm is in its long-run equilibrium because in the present situation it is earning only normal profits (i.e., the normal earnings of management) neither more nor less. The industry is also in its long-run equilibrium because there is no tendency either on the part of old firms, to leave the industry or on the part of new firms to enter the industry since there are no abnormal profits to be earned in the industry. How long the competitive process will take to wipe out abnormal profits will depend on the extent of the various frictions in the economy and the difficulties of entry into the industry.

The important conclusion of our discussion above is that in long-run competitive equilibrium factor prices equal ARPs as well as MRPs whereas in short-run equilibrium, they may be greater or less than ARPs (but still equal to MRPs). When factor prices equal their ARPs, prices or goods equal their average costs and total costs equal total revenue, thus leaving no residue over and above what are called ‘normal profits’ (or earnings of management). Managerial functions are different from entrepreneurial functions.

Pure profit, which is a residue left after all contractual payments (including normal earnings of management) have been made, is the reward for the entrepreneurial functions. Thus, in long-run competitive equilibrium pure profits are zero, or stated differently, entrepreneurial functions become redundant in perfectly competitive equilibrium system. We will have to examine this point more critically when we analyse the nature and causes of pure profits in the last section of this set.

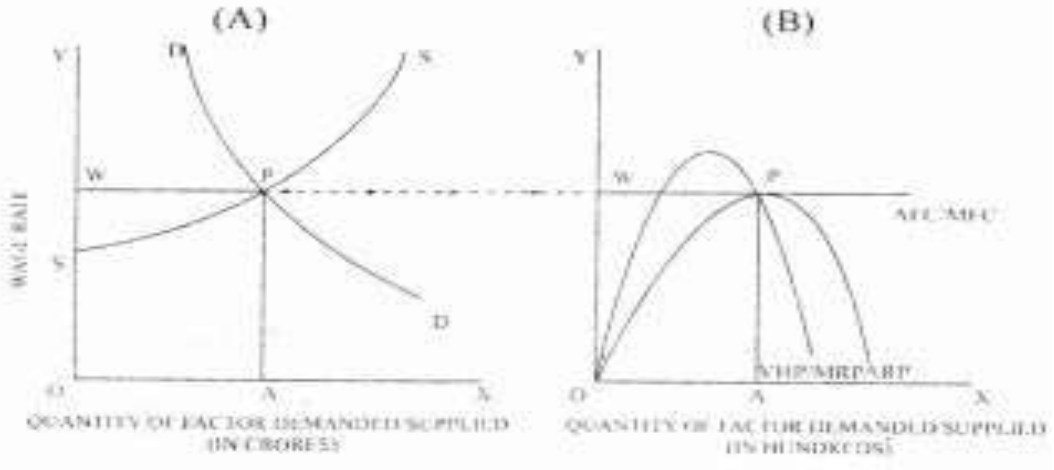

Figure 12.2

Self-Check Exercise-1

Q.1 How Price is determined when there is perfect competition in the factor market and the commodity market?

12.4 ONE SELLER (MONOPOLIST) AND MANY BUYERS

Suppose there is a labour union which controls the whole supply of a particular kind of labour but where buyers are many. The supply curve of labour (which is assumed to be upward firing) represents to the union the marginal costs of supplying different quantities of labour. The market demand curve for labour is downward sloping for the reasons explained earlier. The demand curve shows the different quantities of labour that can be sold in the market at different prices. The union is in the position of a monopolist. The market demand curve is the AR curve for the monopolist union. The union knows that it can sell larger quantities of labour only by lowering the wage rate against it and as a consequence the contribution of each additional unit of labour sold to its total receipts (i.e., marginal revenue) will be less than the wage rate. For example, suppose that the wage rate falls to Rs. 99 from Rs. 100 when the union supplies 51 units of labour instead of 50. In this case MR from the ^sale of an additional unit of labour will equal Rs. 49 only (i.e., 99 × 5l – 100 × 50 = Rs. 49), which is less than the wage rate (Rs. 99). This is so because the union receives a lower wage rate not only for the additional unit sold but also suffers a loss of Rupee 1 each on the 50 units which were earlier sold at ‘Rs.100 instead of Rs. 99 each. Knowing that the MR from the additional units sold is less than the wage rate, it will regulate labour supply in such a manner that MR from the last unit supplied equals the MC of supplying it. The supply curve of labour represents to the union the MC of supplying labour. Therefore, as a rational calculator the union will equate the MC of supplying labour not with -the wage rate offered (as indicated by the demand curve) but with the MR (as indicated by a curve marginal to the demand curve). In the diagram 12.3, equilibrium is established at point H where the supply curve intersects the MR curve and not at point F where the supply curve intersects the demand curve. Wage rate in this case is AB which is higher than the competitive wage rate DF. Level of employment OA is lower than the competitive employment level (OD).

Thus, monopoly in the labour market results in higher than the competitive wage rate (AB>DF) and lower than the competitive employment level (OA <OD).

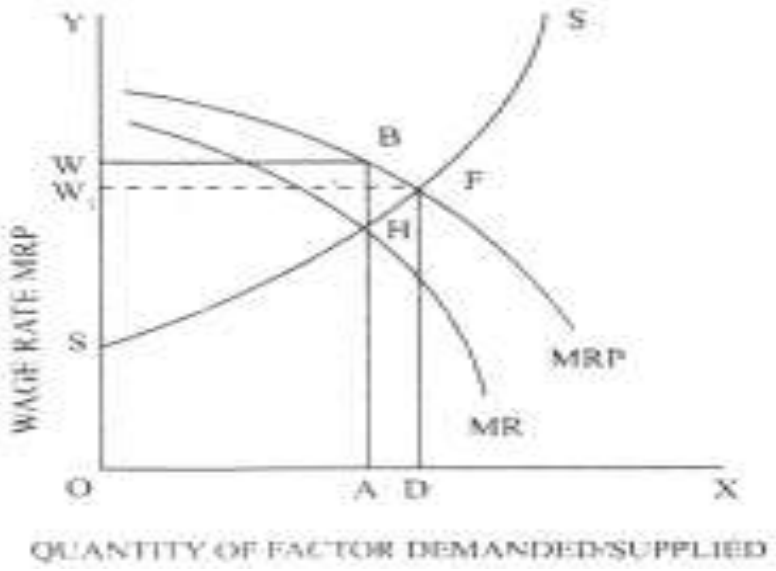

Figure 12.3

Self-Check Exercise-2

Q.1 How Price is determined when there is One Seller and Many Buyers?

12.5 One Buyer (Monopsonist) and Many Sellers

Such a situation can obtain when there is a single employer in a particular town or area when labourers are not organized. To the employer the supply curve of labour represents the average cost (AFC) of employing different quantities of labour. The supply curve is upward rising indicating that larger quantities of labour can be bought only by offering higher and higher wage rate. Being the only buyer of labour in the market, the employer knows that if he employs an extra unit of labour he drives the wage rate up against him and as a consequence the addition to his wage bill (MFC of labour) will be greater than the wage rate (AFC). For example, suppose that when the monopolist employs 51 units of labour instead of 50, the wage rate is pushed up to Rs. 101 from Rs. 100. In this case the MFC of employing an additional unit is Rs. 151) (101 × 51-100 × 50 = 151) and not Rs. 101. Therefore, the monopsonist equates the MFC of employing labour (and not AFC) with the MRP of labour. In other words, the monopsonist's equilibrium is determined at the point of intersection, of the MFC curve and the demand curve and not at the point of intersection of the AFC and demand curve. This is shown in the Fig. 12.4.

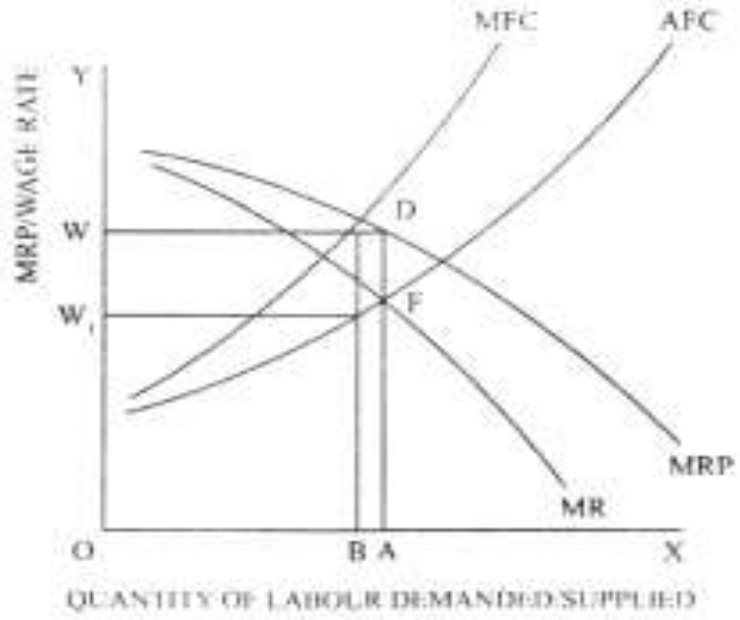

Figure 12.4

In the Fig. 12.4 the intersection of the MFC curve which is marginal to the AFC curve) and the demand curve (i.e., the MRP curve) at E determines the monopsonist's equilibrium. At E, MFC equals MRP. In equilibrium the monopsonist purchases OA quantity of labour at OW wage rate. The intersection of the demand curve and the AFC curve at point F determines competitive wage rate (OW,) and competitive employment (OB). Thus, the effect of monopsonistic conditions in the factor market is to lower the wage rate as well as the level of employment below what would have obtained under competitive conditions. Compare this case with that of monopoly in the factor market Both, types of imperfection tend to reduce the level of employment below the competitive level. But while monopsony tends to reduce the wage rate below its competitive level, monopoly tends to push up the wage rate above its competitive level.

Self-Check Exercise-3

Q.1 How Price is determined when there is One Buyer and Many Sellers?

12.6 ONE BUYER AND ONE SELLER-BILATERAL MONOPOLY

In this case a monopolist (say, a trade union which may be controlling the whole supply of a particular kind of labour) sells labour to a monopsonist who may be the sole employer of a particular type of labour in a certain region. The monopolist knows that the demand curve for the factor is downward sloping and as a consequence the marginal revenue from selling extra labour is always less than the wage rate. Therefore, he regulates labour supply in such a manner that the marginal cost of supplying an extra unit of labour (which is represented by the AFC curve) is equated with the marginal revenue obtained from selling that unit (which for him is represented by a curve marginal to the demand curve of labour). Thus, the intersection of the AFC curve and the marginal revenue curves determines his equilibrium. The monopsonist, on the other hand, knows that the AFC curve of labour being upward rising, MFC of buying labour to him is higher than the AFC. In his case equilibrium is determined by the equality of MFC (which is represented by a curve which is marginal to the AFC, curve) with the-marginal revenue product of

labour (which is represented by the demand curve of labour). This is illustrated in the diagram 12.5.

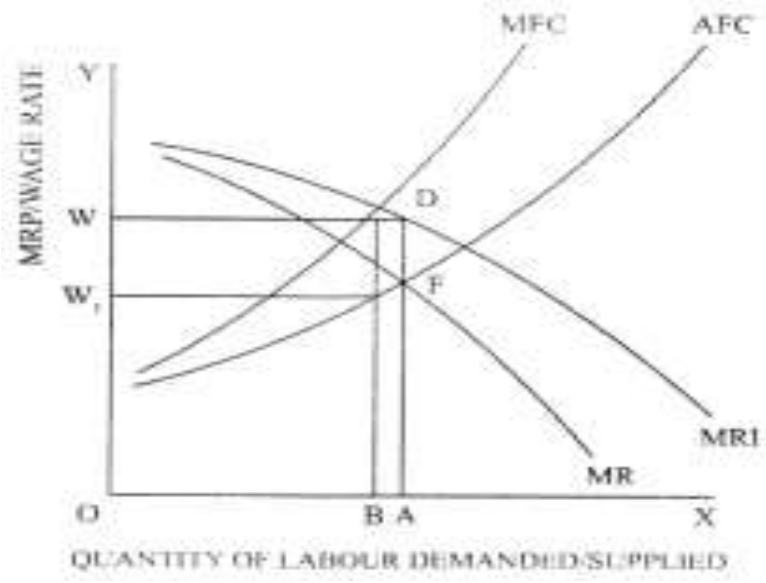

Figure 12.5

The marginal cost of supplying different quantities of labour for the monopolist and the demand curve represents the average price or average revenue at which he can sell different quantities. The marginal revenue curve (the curve marginal to the MRP curve) represents the marginal revenue obtained from selling different quantities. Therefore, the intersection of the AFC curve and the marginal revenue curve at E determines his equilibrium. The monopolist would, decide to sell OA amount of labour at OW wage rate. The monopsonist, in his turn, equates the MFC of buying labour with the marginal revenue product of labour. The MFC curve of labour for the monopsonist lies above the AFC curve which shows the average cost of labour to him. Therefore, his equilibrium is determined by the intersection of MFC curve and the demand curve (i.e., the marginal revenue product curve) at D. In equilibrium he would like to purchase OB amount of labour at OW1 wage rate. Thus, while the monopolist wants to sell OA amount of labour at OW wage rate, the monopsonist wants to buy OB amount of labour at OW, wage rate. The wage rate is thus indeterminate. If both parties are stubborn to the point where neither will yield a penny, no labour will be bought or sold. But this is not a likely situation. Instead, depending upon their relative bargaining positions, we should expect the two parties to bargain and settle the wage rate somewhere between the two limits.

Self-Check Exercise-4

Q.1 How will the factor Price be determined under Bilateral Monopoly? Explain with the help of Diagram?

12.7 SUMMARY

In this unit we concentrated on how the factor price is determined under different market conditions. The following chapters will show how the price is determined of labour, capital, land and entrepreneur.

12.8 GLOSSARY

- **Bilateral monopoly:** Market situation consisting of only one buyer and only one seller. It occurs usually in the intermediate stages of a production process and (since neither party can dominate the other) conditions of monopoly or monopsony do not apply.
- **Monopolist:** A person, group or organization with a monopoly. In other words, an individual or company that controls all of the market for a particular good or service.
- **Monopsonist:** A market similar to a monopoly except that a large buyer not seller controls a large proportion of the market and drives the prices down. Sometimes referred to as the buyer's monopoly.

12.9 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 12.3

Self-Check Exercise-2

Ans.1 Please refer to section 12.4

Self-Check Exercise-3

Ans.1 Please refer to section 12.5

Self-Check Exercise-4

Ans.1 Please refer to section 12.6

12.10 REFERENCES/ SUGGESTED READINGS

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12.11 Terminal Questions

Q1. What do you understand by bilateral Monopoly? How is price determined under bilateral monopoly?

Unit-13

MARGINAL PRODUCTIVITY THEORY OF DISTRIBUTION

STRUCTURE

13.1 INTRODUCTION

Having examined the general process of factor price determination under different market situations, we are now in a position to undertake critical examination of the Marginal Productivity Theory of Distribution, This theory was first formulated by J.B. Clark, a distinguished Columbia University economist and put forward as a general theory of distribution designed to explain the pricing of all factors of production. However, this theory is mainly concerned with what determines the demand for factors of production. It completely ignores the supply side. It is essentially a micro-economic theory concerning the determination of equilibrium at the level of an individual firm.

13.2 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- State the Marginal Productivity theory
- List the criticism of the Marginal Productivity theory

13.3 STATEMENT OF THE THEORY

The main proposition of the theory is that factors get rewards equal to the values of their respective marginal products. What a factor gets as price represents to the employer the average cost (AFC) of employing that factor. Value of marginal product of a factor (VMP) is simply the MPP of the factor multiplied by the market price (AR) of the product. Therefore, the main proposition of the marginal productivity theory that factors get rewards equal to the values of their respective marginal products can be expressed by the following equation:

AFC = VMP (MPP × AR)

The demand for a factor is derived out of the demand for the product it helps to produce. When a firm employs an additional unit of a factor with a fixed amount of other factors, it yields some extra output. The producer is not so much interested in the extra output produced as in the extra revenue he will get from the sale of that extra output. The contribution made to the total revenue of a firm due to the employment of an additional unit of a factor (i.e., MRP) depends on (1) the addition to total (physical) output (i.e., MPP) and (2) the contribution of each unit of output to total revenue (i.e., MR).

Thus, MRP equals MPP x MR. The demand for a factor depends on the MRP that it yields to the firm. While employing an additional unit of a factor the employer has his eyes set on this quantity. As already explained in detail, when a firm employs more and more units of a certain factor with a fixed amount of all other factors, after a point the law of diminishing returns comes into operation and as a result the MPP of the factor starts diminishing. In other words, the MPP curve of the factor slopes downward to the right. We have explained in detail why the MRP curve will also be downward sloping even when the firm sells its product in a competitive market. And in case of imperfect competition in the commodity market, the MRP curve of the factor will slope downward even more sharply. The downward sloping MRP curve is the firm's demand curve for the factor in question. While employment of an additional unit of a factor yields some additional revenue (i.e., MRP) to the firm, it also adds something to its total cost. The addition to the total costs of a firm made due to the employment of an additional unit of a factor is called marginal factor cost (MFC). Suppose when a firm employs 51 units of a factor instead of 50 its total cost increases from Rs.2000 to Rs.2100. The will be said to be the MFC of the factor. A profit-maximizing firm will always compare MFC with MRP while employing an additional unit of a factor. As long as MRP exceeds MFC, the firm will employ an additional unit of the factor because by doing so it will increase its total profits. On the other hand, if in case of any additional unit MFC exceeds MRP, the firm will never employ such a unit because by employing it the firm will incur a net loss equal to the excess or MFC -over MRP and thus reduce profits by that amount. Therefore, the firm will stop employing more units of a factor when MFC equals MRP. Profits will be maximum when MFC equals MRP. Thus, in the employment of a variable factor, the point of equilibrium is determined by the equality of MFC with MRP. This is a perfectly general equilibrium condition which must hold under all market situations.

A firm has to employ several variable factors and not one. What will be the equilibrium condition in the employment of several variable factors? The equilibrium condition remains the same whether a firm employs one variable factor or several. The equality of the MFCs of the different factors with their respective MRPs will still determine the firm's equilibrium. For example, if a firm is confronted with the problem of employment of three variable factors, X, Y, and Z, equilibrium of the firm will require:

$MFC_x = MRP_x$

$MFC_y = MRP_y$

$MFC_z = MRP_z$

The above equilibrium condition states the simple fact that in the employment or more than one factor the firm will be in equilibrium when MFCs or the different

factors are in the ratios or their respective MRPs. By dividing MRPs by the respective MFCs we get:

$$\frac{MRPx}{MFCx} = \frac{MRPy}{MFCy} = \frac{MRPz}{MFCz}$$

What does a ratio such as $\frac{MRP_X}{MFC_X}$ stand for? This ratio only indicates the MRP from the last unit of expenditure in the purchase of factor X. The equality or the ratios $\frac{MRP_X}{MFC_X} = \frac{MRP_y}{MFC_y} = \frac{MRP_Z}{MFC_Z}$ etc., simply implies the equality of MRP from the last unit of expenditure in the purchase of all the factors.

Therefore, the above equilibrium condition (i.e., MRPs in the ratio of MFCs) can be alternatively expressed by saying that the firm will be in equilibrium when it obtains the same MRP whether it spends an additional unit of money on the purchase of factor X, or factor Y or factor Z. Thus, in the purchase of more than one variable factor firm's equilibrium requires:

$$MFCx : MFCy : MFCz = MRPx : MRPy : MRPz$$

Or alternatively stated:

$$\frac{MRP_X}{MFC_X} = \frac{MRP_y}{MFC_y} = \frac{MRP_Z}{MFC_Z}$$

The above is a perfectly general equilibrium condition which must hold under all market situations.

Examination of the Marginal Productivity Theory

Under a certain framework the traditional marginal productivity theory states that factors get prices equal to the values of their respective marginal products (VMPs). In the form of an equation we have already expressed this proposition as follows:

$$AFC = VMP\ (MPP \times AR)$$

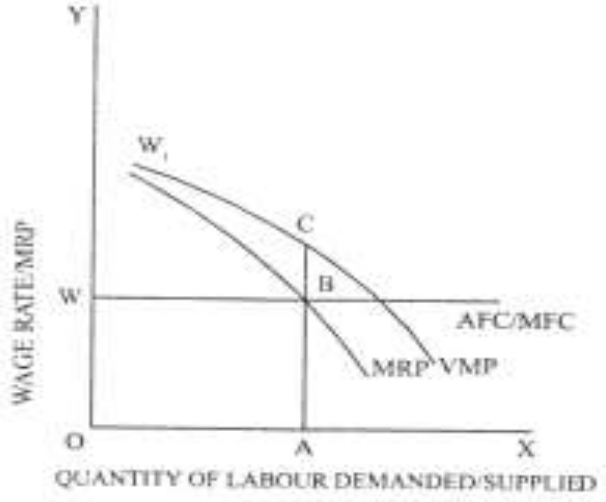
(AFC stands for average factor cost).

In the preceding sub-section we noted that whatever be the market situation the equality or MFC with MRP is the necessary condition for the determination of a firm's equilibrium. From this it follows that the proposition of the marginal productivity theory (i.e., AFC = VMP) will hold only when the necessary equilibrium condition (i.e., MFC = MRP) is also simultaneously satisfied. Thus, the conclusion of the marginal productivity theory will hold when;

- MFC = MRP (= MPP × MR)
- AFC = VMP (= MPP × AR)

or, stated alternatively, the theory will hold when (I) MFC = AFC and 2) MRP = VMP. In subsection I above we noted that MRP will equal VMP only when the firm sells its output in a perfectly competitive commodity market. In the event of imperfect competition in the commodity market MRP will be less than VMP. Therefore, for the marginal productivity theory to hold, the first necessary condition is the assumption of perfect competition in the commodity market. Under what conditions will MFC equal AFC? Equality of MFC with AFC implies that the employment of an additional unit of a factor adds an amount to total cost equal to the price of the factor (AFC).

For instance suppose the market price of a factor is Rs.1001/- and the firm can purchase any amount of the factor without affecting the market price. Suppose the firm decides to purchase 51 units of the factor instead of 51. What will be the MFC of the 51st unit to the firm? Obviously, the MFC of the 51st unit will equal Rs.1001/- (100 × 51– 100 × 50), which is equal to the market price (AFC). Under what market situation will this condition obtain? As explained above, this will be the case when the firm can purchase any amount of the factor without affecting the market price. This happens when there is such a large number of a purchaser of the factor in the market that purchases of a single firm are a negligibly small fraction of the total market supply of the factor. This will be the case when there is perfect competition in the factor market. Thus, it turns out that the conclusion of the marginal productivity theory that factors get prices equal to the values of their respective marginal products will hold only when there is perfect competition both in the factor market as well as the commodity market.



What will happen in the event of imperfect competition either in the factor market or in the commodity market or both? Let us examine the implications one by one. Imperfect competition in the commodity market will imply that the MRP will be less than VMP. Even if there is perfect competition in the factor market (AFC = MFC), the factor will get a price which will equal its MRP but will be less than its VMP as shown in the diagram above. In the diagram 13.1 the AFC/MFC curve intersects the MRP curve at point B. This determines the firm's equilibrium. The factor gets a price equal to AB which is less than its VMP by the amount BC.

What will be the result if there is, perfect competition in the commodity market but imperfect competition in the factor market? Perfect competition in the commodity market implies equality of VMP with MRP. Imperfect competition in the factor market implies that the firm is not able to purchase additional amounts of a factor without influencing its market price. In other words, the purchases of the firm are not a negligibly small fraction of the market supply and consequently the firm can purchase additional amounts of the factor only by raising its market price. What happens to MFC of the factor to the firm in the event of imperfect competition in the factor market? Suppose a firm can purchase 51 instead of 50 units of a factor by raising the market price from Rs. 100 to Rs. 101 per unit. In this case the MFC of the 51st unit of the factor will be Rs. 151 (= 101 × 51 – 100 × 50) which is more than the market price of Rs 103. Thus, imperfect competition in the factor market implies that MFC of the factor will be more than its AFC (i.e., its price). Therefore, in the event of

imperfect competition in the factor market (and perfect competition in the commodity market) the price of the factor cannot equal its VMP as shown in the diagram above.

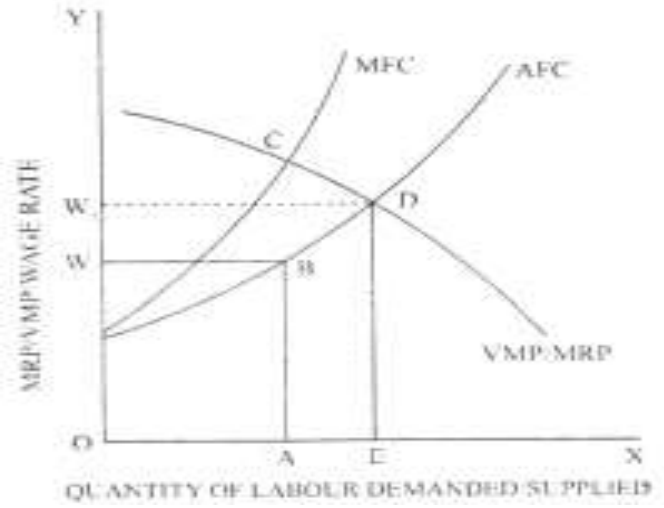


Fig. 13.2

In the Fig. 13.2 equality of MFC with MRP at point C determines the firm's equilibrium in the purchase of the factor in question. But the factor gets a price equal to AB (price of the factor is represented by the AFC curve) which is less than both the VMP and MRP. Therefore, in the event of imperfect competition in the factor market a factor gets a price less than its VMP even if there is perfect competition in the commodity market.

Self-Check Exercise-1

Q.1 Discuss Marginal Productivity Theory of Distribution in detail.

13.4 CRITICAL EXAMINATION OF THE MARGINAL PRODUCTIVITY THEORY

Before getting down to a critical examination of the theory we first examine the assumptions on which it is based.

(i) It assumes perfect competition in both the factor market as well as the commodity market.
(ii) It assumes that factor proportions are variable.
(iii) The producer is assumed to know the MRPs and VMPs of the variable factors.
(iv) The theory assumes full employment.

In the first place it is pointed out that the theory assumes perfect competition in both markets.

In the real world, it is argued, imperfect competition is the rule rather than an exception; perfect competition is merely a theoretical construct, and therefore, the theory is unrealistic. It has been discussed above in detail that only in the event of perfect competition in both markets the conclusion of the marginal productivity theory would hold otherwise it would not. However, the strength of this criticism would depend upon how we choose to interpret the theory. If the theory is meant to imply that factor prices are equated to their VMPs, then, of course, it has to assume perfect competition in both markets. For, that alone ensures that MRPs of factors equal their VMPs and their prices (=AFCs) equal their MFCs.

However, as noted above, the equality of MFC with MRP is a perfectly general equilibrium condition applicable to all market situations. Therefore, if we interpret the marginal productivity theory to mean that equality of MFC with MRP determines the firm's equilibrium in the employment of a factor then the assumption of perfect competition is not necessary.

In the second place, the theory is criticised for its assumption of the variability of factor proportions. It is pointed out that very often different factors have to be combined in fixed proportions and in such cases it is not possible even to calculate the MMP of a factor. In such cases output can be increased only by increasing die quantities of all the factors in fixed proportions. However, this is not a very valid point of criticism against the theory. Even if in some cases factor proportions are rigidly fixed, (e.g., a driver and a tractor, a carpenter and a saw, etc.) it is generally possible to use the given equipment more intensively by making labour work longer hours per day or per week. Thus, even in short run factor proportions are usually variable. In the long run, of course, alternative techniques of producing a commodity are generally developed and factor proportions remain no longer fixed. What needs attention is, however, the fact that even if it is not possible to continuously substitute one factor for the other, the theory may still be applicable. The only difference it would make is that small changes in factor prices may not induce corresponding changes in factor proportions. This is because in such a case there are less possibilities of factor substitution. Only when factor prices change substantially, will it pay the employer to rearrange factor proportions.

Thirdly, according to the marginal productivity theory the equality between MRP (or VMP) with factor price determines firm's equilibrium. Therefore, it is pointed out, the employer is assumed to know in advance the MRP/VMP that an additional unit of a factor is going to yield in future. This is not always true because no one can forecast what the future holds for him. The actual physical yield may fall short of the expected yield and prices in the future may turn out to be different from what one may have expected them to be. The criticism is not very relevant in the present context. The theory merely asserts that firm's profits would be maximised only when VMP is equated with the price of the factor. The theory says nothing about how the firm guesses the MRP or the VMP of an additional unit; whether the firm does it through a process of trial and error or through some careful calculations or merely guess work. The theory only asserts that the equality of VMP/MRP with price (or MFC) is a necessary condition for profit maximization. How the firm guesses the VMP or MRP of the factor is an independent question which we will discuss in the last section of this set.

Fourthly, it is pointed out that production of goods generally takes time. In some cases it may take months or even years before the output actually materializes and is sold in the market to realize the revenue. Therefore, it is argued that the firm cannot afford to pay the full value of the MRP or VMP yielded by a factor but will pay only its discounted value. This criticism is valid and the theory needs to be modified to take care of this point.

Fifthly, we define marginal product as the addition to the output of a firm by an additional unit of a factor, the amounts of all other factors remaining constant. This definition of marginal product gives the impression as if the additional output (MPP) is due solely to the additional unit of the factor in question and the other factors have

made no contribution. Thus, the concept of marginal productivity tends to emphasise the contribution of one factor taken in isolation. This is considered to be unrealistic.

Output is generally produced jointly and it is unrealistic to attribute the additional output to one factor alone ignoring, the contributions of other factors. Different factors generally increase each other's effectiveness and are thus complementary. Labour productivity may increase as much due to its own efforts as due to, say, the amount of other factors it works with, the kind of capital goods it uses, the level of technology, etc. Thus, the concept of marginal product fails to isolate the real contribution of a factor of production.

Finally, the theory is primarily concerned with what determines demand for factors of production. It does give precision to what determines the demand for a factor but tends of ignore the supply side completely. This is one of the most serious weaknesses of the theory.

Self-Check Exercise-2

Q.1 Give the main points of criticism of Marginal Productivity Theory?

13.5 SUMMARY

Thus, in conclusion we note that factors get' prices equal to their respective VMPs only when there is perfect competition in both the factor market as well as the commodity market. Therefore, for the conclusion of the Marginal Productivity Theory-that factors get rewards equal to the value of their respective marginal products-to hold the necessary condition is the assumption of perfect competition in both markets. In the event of imperfect competition in either market the marginal productivity theory does not hold.

13.6 GLOSSARY

- **Marginal Productivity** : Change in output that results from changing the labor input by one unit, all other factors remaining constant.
- **Marginal Factor Cost**: (MFC) is a rate expressed in currency units per units of input, such as labor. It is similar but not identical to a wage rate, which are currency units per unit time.
- **Average factor cost:** is the per unit opportunity cost incurred by a firm from the employment of a given resource.

13.7 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 13.3

Self-Check Exercise-2

Ans.1 Please refer to section 13.4

13.8 REFERENCES/SUGGESTED READINGS

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13.9 TERMINAL QUESTIONS

Q1. What are the assumptions underlying the Marginal Productivity Theory of distribution? On What grounds has this theory been criticized?

Unit-14

WAGES

STRUCTURE

14.1 INTRODUCTION

Wage is defined as the price paid for the services rendered by the labourer in the production process. If wages are paid according to the amount or quantum of work done, it is called piece-wage. E.g. wage for weeding in one acre of paddy field. If wages are paid to a labourer who works for a fixed period of time, it is known as time wage. E.g. wage for weeding per labourer per day.

14.2 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- Define Wages
- Explain the marginal Productivity theory of Wages
- Elucidate the Modern theory of wage determination

14.3 DEFINITIONS OF WAGES

- **Prof. Benham**, “A wage may be defined as a sum of money paid under contract by employer to a worker for services rendered.”
- **Prof. Mc Connel**, “Wages or wage rate are the price paid for the use of labour.”

14.4 MONEY WAGE OR NOMINAL WAGE

When wages are paid in cash or monetary terms, they are referred to as money wages or nominal wages. According to Whitehead, "Money wages represent the actual earnings received by workers."

14.4.1 Real wage

Real wages indicate a worker's earnings in terms of the actual benefits they receive. It represents the quantity of essential goods, comforts, and luxuries a labourer can afford in exchange for their services. Essentially, real wages reflect the purchasing power of the money earned or the wages measured in terms of goods and services. A labourer's standard of living is determined by their real wage.

In the words of Adam Smith, “The real wages of labour may be said to consist of the quantity of necessaries and conveniences of life that are given for its nominal wages, in the quantity of money. The labourer is a rich or poor, is well –or-ill reward in proportion to the real, not the nominal wages of his labour.”

14.4.2 Factor Determining the Real Wages

- **Money Wages:** other things remaining the same there is a direct relationship between money wages and real wages.
- **Price Level:** If the prices are rising or the purchasing power of the money is falling, the real wages will also fall and vice versa.
- **Supplementary Income:** real wages of an employee will be more if in addition to his fixed money wages he gets supplementary income like bonus, free accommodation, uniform, medical facilities, free education to his children, transport facilities etc.
- **Nature of Employment:** Real wages of labourer also depends upon the nature of employment. It means whether the labourer has a regular employment or casual employment. Real wages will be more in case of regular employment and less in case of causal employment.

- **Hours of work:** if a labourer gets the same amount of money wages as the other labourer by working for less number of hours than the latter, then his real wages will be more.
- **Period and Cost of Training:** professionals like doctors, engineers, lawyers etc. have to spend a lot of time and money on their education and training. These expenses must be deducted from their money income to arrive at real income.
- **Prospect of Future Promotion:** Money wages may be low initially in a particular job but the prospects of future promotion may be bright. Such jobs have more real wages.
- **Social Status:** Money wages of a head clerk in a government office and a Sub-inspector of police may be equal, but the social status of Sub-inspector of police is higher than that of head clerk. Hence real wages, of the Sub-inspector will be more.

Self-Check Exercise-1

Q.1 Define Different types of wages. Also discuss different factors determining real wages.

14.5 THEORIES OF WAGE DETERMINATION

The following are the theories of wages: (i) Subsistence theory of wages, (ii) Wages Fund Theory, (iii) Marginal Productivity Theory of Wages, and (iv) Demand-Supply Theory of Wages.

14.5.1 Subsistence Theory of Wages:

The Subsistence Theory of Wages, also known as the "Iron Law of Wages," was an alleged law of economics that asserted that real wages in the long run would tend to the value needed to keep the workers' population constant. According to this theory, wages are tending to maintain the level just significant to maintain the workers at the minimum subsistence. If the level of wages rise above the subsistence level. So the supplies of labor become high in number or large. The supply of labor brings wages downward to maintain the subsistence level. If the wages falls below the subsistence level, the supplies of labor decrease until wages rise to maintain the subsistence level. It is supposed that the supply of labor is infinitely elastic.

14.5.1.1 Criticism

On subsistence theory of wages are as under:

1. The subsistence level is uniform for all working labor with certain exceptions. The theory thus does not explain differences of wages in different employments.
2. The fundamental weakness of subsistence theory lies in its long term character. It contains adjustment of wages over lifetime of a generation and does not explain wage in fluctuations from year to year.
3. ‘The subsistence minimum’ is very vague, thus it prefers to the minimum requirements of a modern man or of a tribal savage? There is not rapidly fixed minimum and it is not independent of the wages ruling over a period of time.

14.5.2 Wage-Fund Theory

The wage-fund theory, introduced by J. S. Mill, suggests that wages are determined by the relationship between available capital and the working population. According to this theory, a fixed portion of capital is set aside to pay wages, known as the wage fund. The demand for labor influences this fund, while the supply of labor represents the number of workers willing to work at any given time. Consequently, the wage rate is determined by dividing the wage fund by the total number of workers.

$$\textbf{Rate of Wages} = \frac{\textbf{Wage Fund}}{\textit{Number of Workers}}$$

If the wage fund remains constant and the labor supply increases, wages will decrease. Since the wage fund is fixed, a rise in wages in one industry can only occur at the expense of wages in another. Overall wage growth is possible only if:

(i) The wage fund increases, or

(ii) The labor force decreases.

Criticism of the Wage-Fund Theory

The theory has been widely criticized for several reasons:

(i) In reality, no country has a strictly fixed wage fund, and wages can increase over time.

(ii) It does not account for the ability of workers to negotiate higher wages through trade unions and labor strikes.

(iii) The theory overlooks the demand side of labor, which depends on the demand for goods and services rather than a predetermined wage fund.

(iv) It fails to explain wage disparities across different occupations.

14.5.3 Marginal Productivity Theory of Wages

Marginal Productivity Theory is an old and important theory of wage determination. It was first of all examined by German Economist Von Thunen in 1833 in his book “The Isolated State”. Later on, it was further developed by economists like Wicksteed, Walras and J.B. Clark.

According to this theory, “under perfect competition and in the long run, a labourer gets wages equal to his marginal and average productivity.” Marginal Productivity refers to the addition made to the total revenue by employing one more unit of labourer.

In the words of Prof. Blaug: “the marginal productivity of the theory contends that in equilibrium each labourer will be rewarded in accordance with the marginal productivity.

According to the Marginal Productivity Theory, wages will be equal to the value of marginal productivity of labour.

The marginal productivity theory is based on the following **assumptions:**

- It assumes the existence of perfect competition.
- All labourers are homogenous in character.
- The theory is based on the law of diminishing marginal returns.

- It assumes that different factors can substitute each other.
- Full employment situation is found in the economy.
- It applies in the long run.
- Technique of production remains constant.
- Each unit of labour is perfectly mobile. As a result of it wage rate will remain the same in different occupation.

14.5.3.1 Statement of The Theory

According to this theory, wage is equal to the value of marginal product. If the marginal product is more than the wages, then it will be profitable to engage more number of labourers. This is because the total revenue earned due to additional employment is more than the total cost of engaging them. But due to the operation of law of diminishing marginal return, the marginal value product will decline, if labour is engaged beyond a marginal value product, then it will be unprofitable to engage more labourers and hence, their engagement will be reduced until wages are equal to the marginal value product.

In the figure 14.1, If ON is the available supply of labour, OW is the equilibrium wage rate. Now, if the wage rate is increased to OW' by a collective bargaining of trade unions, NN' number of workers become unemployed. Thus, trade unions cannot enhance wages without creating unemployment. But, if the rise in wage brings about a sufficient increase in efficiency and productivity so that the marginal productivity curve shifts upward (MRP'), then unemployment will not be created.

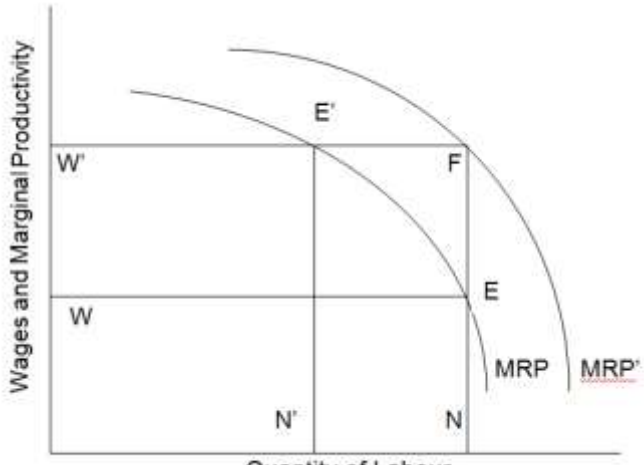

Fig. 14.1

14.5.3.2 Criticism:

- Labourers may not be uniform in quality.
- This theory ignores supply side of the labourers
- The individual entrepreneur may operate without the knowledge on law of diminishing marginal return.
- This theory is based on the unrealistic assumption of perfect competition.
- Prof. Hanson considers marginal productivity as merely a theoretical concept. This theory does not explain how wages are determined in real life.
- It ignores the influence of other factors on productivity like machines, entrepreneur, working conditions, etc.

14.5.4 Modern or Demand and Supply Theory of Wage Determination

According to the modern theory of wages, wages are the price of the services of a labour. Just as price of commodity is determined by its demand and supply, likewise price of the services of labour is also determined by their demand and supply. In other words, General Theory of value is as much applicable to the determination of wages as to price. Thus to determine wage, it is necessary to examine demand for labour and supply of labour and their interaction.

14.5.4.1 Demand for Labour:

In the factor market demand for labour is made by the producers or entrepreneurs. Labour is demanded because a labour helps in production. Demand for labour is a derived demand. Demand for labour depends upon the demand for those goods and services which they help to produce. Demand for labour refers to that number of labourers which the producers are willing to employ at a given rate of wage. No employer would like to pay a labourer more than his marginal productivity. Demand for the labourer is influenced by the following factors.

- Demand for the commodities: demand for labourer depends upon the demand of goods produced by them. If the demand for those goods would be less than the demand for the labour will also be less and vice versa.
- Price of the other factors of production: demand for labour is influenced by the price other factors and possibility of substitution of labour. If other factors are more expensive than labourers than there will be more demand for labourers in place of such expensive factors other than labour and vice versa. Due to the change in the technology and more use of machinery in place of labourers, demand for the latter may fall considerably. On the other hand, increased investment in the economy may stimulate demand for labour. Demand for labour depends upon its marginal productivity. More use of labour leads to diminishing marginal productivity. Accordingly, more labour will be demanded when wage rate is low and less labour will be demanded when wage rate is high. Because of this fact, demand curve for labour is downward slopping shown in fig

In fig number of labourers is shown on OX – axis and wages/MRP on OY – axis. DD is the demand curve of labourers. It slopes downward, signifying that more labourers are demanded at low wage and less on high wages.

14.5.4.2 Supply of Labour:

Supply of labour means; (i) the number of labourers doing a particular job who willingly offer their services at different wage-rates and (ii) the numbers of hours or days that each labourer is prepared to work at different rates of wages. Thus the supply of labour refers to the number of days or hours for which a particular type of labour is willing to work at different wage rates. Normally there is a direct relationship between the supply of labour and rate of wages. It means that at a high rate of wage supply of labour is large and vice versa.

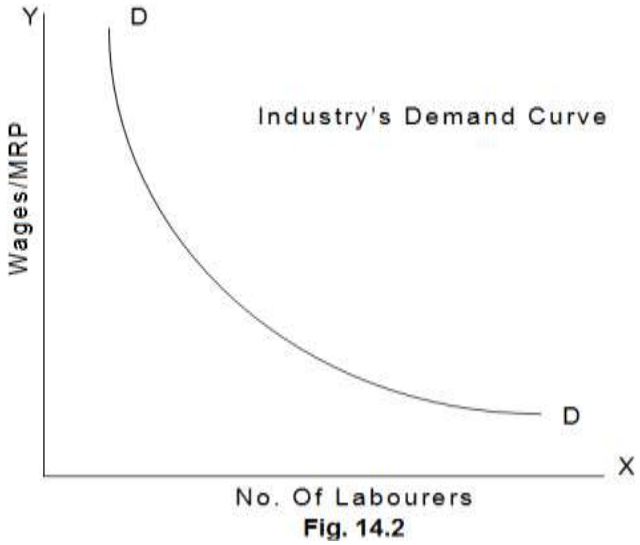

Fig. 14.2

- **Supply of labour to a firm:** under perfect competition there are a large number of firms. No individual firm can influence the wages. It has to adjust its use of labour on the existing wage rate. So the demand of an individual firm for workers cannot affect wages. That is why; supply curve of labour to affirm in perfect competition is perfectly elastic and parallel to OX- axis.
- **Supply of labour to an industry:** supply curve of a labour facing an industry slopes upwards left to right. It means that an industry can get more workers at higher wages.
- **Supply of labour for an economy as a whole:** the supply of workers for an economy depends upon social, economic and political factors. Supply of labour for an economy depends upon the size of population, its composition, sex ratio, working hours, society's attitude towards women's employment, efficiency of workers and their preference for leisure.

Backward bending Supply Curve of an Individual Labourer

It is generally noted that, in the beginning when wages increase, workers are ready to do more work and the supply of workers increases. But there is a limit to do it. There is a point beyond which if the wages are increased, workers will prefer leisure to work. In other words when wages are increased beyond a limit, supply of labour decreases.

Workers need a necessary income to maintain their standard of living. If their wages are low, they will have to do more work to maintain their standard of living. But when the wages are high the same needs can be fulfilled by working less. That is why when wage of worker increases, he does not allow his wife and children to work.

Thus when the wage increases, the supply of workers also increases but only up-to a point. Beyond this point, supply of workers starts diminishing. The supply curve of a worker facing an economy is backward sloping. The following diagram depicts the individual labour supply curve.

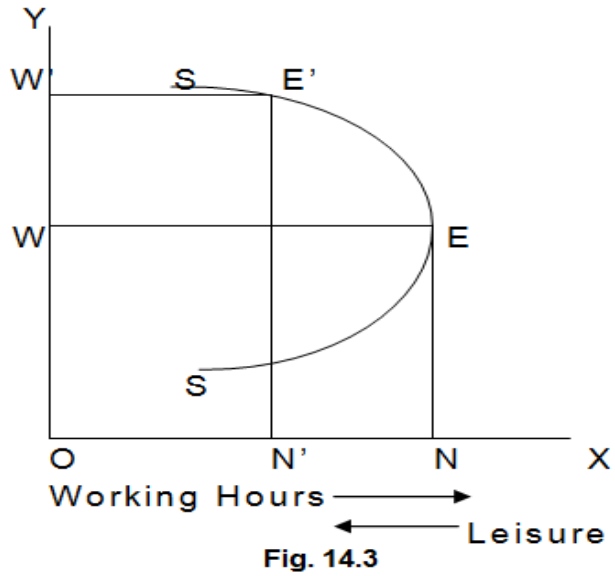

Fig. 14.3

When wages increases from OW to OW', the supply of labour decreases from ON to ON'. At higher wages, workers will prefer more leisure to work.

14.5.4.3 Determination of the equilibrium wage level

According to this theory, wages are determined by the forces of demand and Supply of labour. In the case of industry, the supply curve slopes downward. Where these two curves intersect each other, the price of labour or the wage rate is determined.

In the following diagram, at appoint E, demand curve DD and supply curve SS cuts each other. OW is the equilibrium wage rate. When demand rises from DD to D'D' the new equilibrium point is E'. Wage rate is fixed at OW'. Increase in demand leads to rise in wages. On the contrary, when the demand curve shifts from DD to D"D" wages fall from OW to OW".

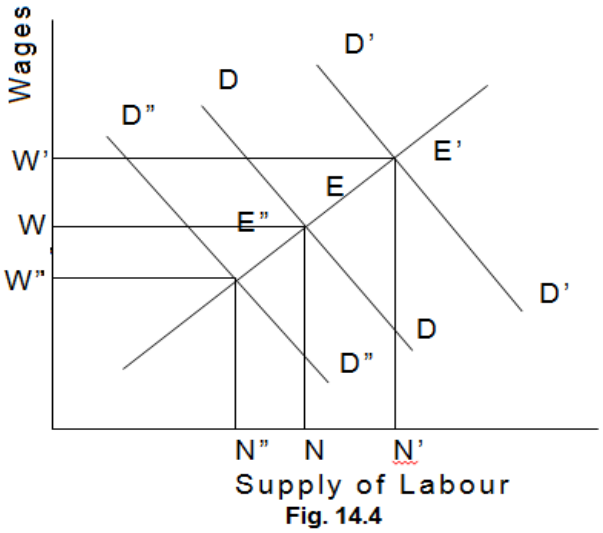

Fig. 14.4

Self-Check Exercise-2

Q.1 Critically Discuss Subsistence Theory of Wages.
Q.2 Critically Discuss Wage-Fund Theory.
Q.3 Critically Discuss Marginal Productivity Theory of Wages.
Q.4 Discuss Modern or Demand and Supply Theory of Wage Determination

14.6 ROLE OF GOVERNMENT IN REGULATING WAGES

The standard of living of labourers is influenced by real wages. Therefore, to ensure fair compensation and stability, countries establish minimum wage policies to: i) prevent labour unrest, ii) enhance the living standards of workers, and iii) boost the nation's production capacity.

14.6.1 Labour union and wages:

Classical economists believed that wages would not exceed the marginal productivity of labor. However, they acknowledged that labor unions could contribute to wage increases under certain conditions:

(i) When wages fall below the marginal value product of labor.

(ii) When there is a rise in the general price level, leading to an increase in money wages.

(iii) When labor unions enhance the marginal value product of workers, thereby justifying higher wages.

Despite their influence, labor unions face limitations in their ability to negotiate wage increases, as employers can replace labor with machinery when wage demands become excessive.

Self-Check Exercise-3

Q.1 Discuss Role of Government in Regulating Wages.

14.7 SUMMARY

In this lesson we studied about the wages and its different concept. We have also gone through the different theories of wage determination. We have studied the wage fund theory, Marginal productivity theory of wage determination and lastly the demand and supply or the modern theory of wage determination.

14.8 GLOSSARY

- **Wages:** Wages or wage rate are the price paid for the use of labour.
- **Nominal wage or Money wages:** Money wages refers to the actual money earned by the workers."
- **Real Wage:** Real wage represents a worker's earnings in terms of actual benefits rather than just monetary value. It signifies the quantity of essential goods, comforts, and luxuries that a laborer can afford in exchange for their services. Essentially, real wage reflects the purchasing power of the income earned or the wages measured in terms of goods and services. A laborer's standard of living is directly influenced by their real wage.
- **Rate of wage** $= \frac{\text{Wage Fund}}{Number\ of\ Workers}$

14.9 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to sections 14.3 and 14.4

Self-Check Exercise-2

Ans.1 Please refer to section 14.5.1

Ans.2 Please refer to section 14.5.2

Ans.3 Please refer to section 14.5.3

Ans.4 Please refer to section 14.5.4

Self-Check Exercise-3

Ans.1 Please refer to section 14.6

14.10 REFERENCES/ SUGGESTED READINGS

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14.11 TERMINAL QUESTIONS

Q1. What are wages? Distinguish between real and nominal wages? Briefly discuss the factors on which real wage depend?

Q2. Critically examine the Marginal productivity theory of wage determination?

Q3. State the Modern Theory of Wages?

Unit-15

RENT

STRUCTURE

15.1 INTRODUCTION

In the last unit, we discussed the wage and the determination of wage rate. This lesson deals with the pricing of another factor namely land. In this chapter we will go through the rent and the different theories determining the rent.

15.2 LEARNING OBJECTIVES

On the completion of this unit, you will be able to:

- Define Rent
- Explain the classical theory of Rent.
- Elucidate the modern theory of Rent.

15.3 RENT

Rent is the price of the services of land towards production. It is to be distinguished from the popular meaning of the term, 'rent'. The popular meaning of this term is the price paid for the use of a thing, say a house or a scooter or a fan, and so on. Price paid for the use of a thing may include 'economic rent', but usually it includes in it a number of other elements too. All these other elements may be brought together under one head "cost of production". Any surplus over and above the cost of production is usually referred to as 'economic rent'. We shall examine here two theories of rent, the classical and the modem. During the explanation of these theories, the further details of the meanings of economic rent' will unfold themselves. From now on we shall be using the term rent, in the sense of economic rent' without using the adjective 'economic'.

15.3.1 Classical Theory of Rent

The Classical Theory of Rent was systematized, first of all by Ricardo who defined rent as that part of the total produce of land which is given to the landlord for the use of the original and indestructible qualities of the soil. A careful look at this

definition will give the impression that rent is an income which is peculiar to land. Secondly, it is an income which is caused by some characteristics of land which Ricardo described as original' and 'indestructible'. In fact, he seemed to identify the 'original' and 'indestructible' qualities of land with its fertility and geographical situation. He seemed to assume that the fertility or productivity of land differs from plot to plot and then rent on land is caused, by these differences in the productivity of different plots of land. Thus the classical theory of rent came to be known as the "Differential" Theory of Rent.

According to this theory, as the demand for agricultural produce goes on increasing, the margin of cultivation goes on extending from more productive pieces of land to the less productive. At any given time, thé price of the produce of land equals the cost of production on the least productive land in use, where cost includes the cost of only two other factors, labour and capital. The factor, enterprise, was not recognized by the classical economists as a separate factor. The produce of land being assumed to be homogeneous, it receives the same price regardless of whether it was produced on a more productive land or a less productive one. The farmers on lands superior in productivity to the least productive land in use are able to produce a larger output of thé same cost: The price being the same,' their total revenue is greater than their total cost (wages plus profit on capital). The difference is a surplus which arises on account of superior productivity of land, Ricardo characterized this surplus as rent which in his opinion was appropriated by the landlord. On the least productive land in use that is on the 'marginal' land there is no surplus. Therefore, it was also described as no-rent land. All lands superior to it in productivity enjoy a surplus over and above their costs of cultivation. This surplus or rent varies in direct proportion to the variation in the productivity of the different plots of land.

The Ricardian theory of rent can be explained better, with the help of the marginal analysis. The Ricardian or the classical theory is based on the following assumptions, explicit or implicit; (i) there is pure competition in the product market; (ii) land differs in productivity but the other factors of production employed on all lands are equally efficient; (iii) land has only one use, say the production of corn; (iv) diminishing returns operate.

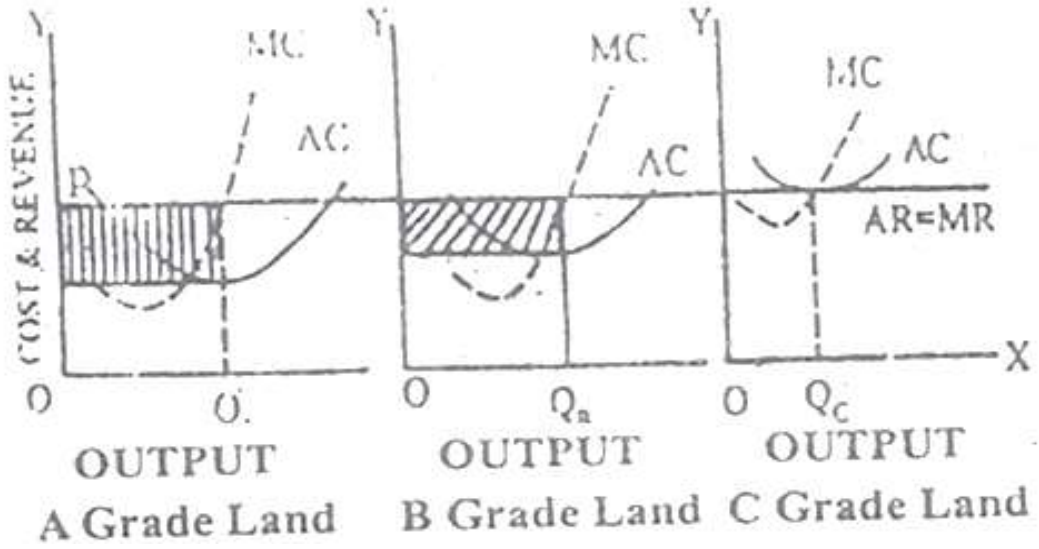

Fig. 15.1

The first assumption stated above implies a horizontal AR = MR curve for all producers of com, whether they are working on A-grade land or B-grade land or any other grade land. We have taken only three grades of land A, B and C, for illustrative purposes. A grade land is the most productive, B less and C the least productive. So the second assumption stated above implies that on A-grade land the cost curves will be the lowest as shown in Fig. 15.1. On C-grade land they are the highest. The third assumption stated above implies that land has no, opportunity cost. Because there is only one specific use for it. Therefore its 'transfer earnings' are zero. Hence land has no costs. Therefore, the cost curves include wages and profits alone. As already stated, the classical did not isolate profits from interest. Therefore, profits in the classical model include normal profits as well as interest. The assumption (iv) would rather imply that cost curves are rising ones while we have shown them to be U-shaped This will not make any difference, because under pure competition equilibrium takes place only when the returns are diminishing and therefore, the costs are rising.

Let the demand conditions for com be such that its price equals OP. Then P=AR=MR line in Fig 15.1 will indicate the average revenue as well as the marginal revenue functions for all producers. A producer will produce so much that his marginal cost becomes equal to his marginal revenue which on our assumption (i) equals the price. A producer on C-grade land will therefore, produce Qe quantity such that the price equals not only his marginal cost (MC) but also his average cost (AC), and he just manages to break even i.e. his total costs equal his total revenue. There is no surplus on this land and hence there can be no rent on it. If a rent is demanded, none will cultivate this land as total costs will then, exceed the total revenue. However, in the case of superior grades, A and B of land, at the output where the marginal cost of cultivation (MC) equals the marginal revenue equals the price, the average cost is less than the price. This causes a surplus over and above the cost on these lands. This surplus is rent according to the Ricardian theory. In Fig. 15.1 above, the rent is shown by the shaded areas. Rent is greater on A-grade land than on the B-grade, for productivity on A-grade land is greater than on B-grade land.

The above analysis explains Ricardian rent on the extensive margin that is when the margin of cultivation extends from more fertile to less fertile lands. But Ricardo had pointed out that rent arises not only on the extensive margin but also on the intensive margin of cultivation In this case the area of land of given fertility is assumed to be fixed, and production on it is increased, in response to increase in demand, by employing more and more doses of labour and capital on it. Labour and capital are assumed to be perfectly complementary to each other so that they can be employed only in a fixed proportion. That is why they are written as 'labour and-capital'. Diminishing Returns to variable proportions (between land and labour and capital) are assumed.

According to Ricardo, the intensive margin of cultivation would be taken to the point where the marginal product of labour and capital equals the price of labour mid capital. Perfect competition is assumed in the labour and capital market such that the average cost of labour and capital remains constant and therefore, the marginal cost of labour and capital also remains constant and equals the average cost. The horizontal line CC' in Fig. 15.2 represents the AC and the MC of labour and capital, and the negatively sloped MRP curve represents the marginal revenue product of labour and capital. A cultivator will employ such a quantity of labour and

capital that the marginal cost of employing the variable factor labour and capital, equals its marginal revenue product. In terms of Fig 15.2 OQ quantity of it will be employed. The total revenue product will be represented by the area OQRA and the total costs will be represented by the area OQRC and the different between the two the area ACR is the surplus over and above the costs. This is the Ricardian rent on the intensive margin.

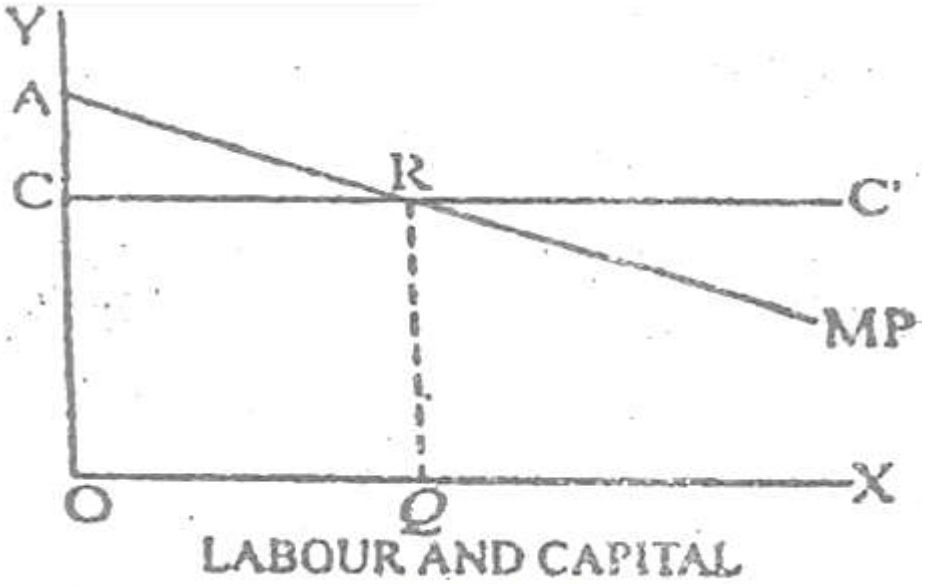

Fig. 15.2

When we go deep into the Ricardian analysis of rent, we shall discover that his model of the 'intensive margin' is more relevant than his model of the 'extensive margin' in so far as the basic cause of rent is concerned. If the factor labour and capital is assumed to be homogeneous, the diminishing marginal product is due to the perfectly inelastic supply of land. Even in the "extensive margin" model depicted in Fig. 15.3 above, it can be shown, that rent arises not on account of differences in the fertility of different pieces of land but due to the scarcity or perfectly inelastic supply of land Supposing the price of com rises above OP and now no more land is available for cultivation, there will be surplus and rent on the G-grade land too. Therefore, it is right to stress that *differences in fertility or situation are not the causes of rent but they are only the causes of differences in rent*. This will suggest that the so- called 'original' and "indestructible" qualities of land are to be found not in the differences of fertility and situation as such but in the fixity of its supply.

A fundamental weakness of the classical theory of rent is that it looks at land from the point of view of the economy as a whole only. From this point of view there can be no doubt that the supply of land is fixed and perfectly inelastic. But when looked at from the point of view of an individual industry or an individual cultivator, its supply is quite elastic. This point was explained in the last lesson while explaining the supply function of land. From the point of view of an individual industry, or an individual firm, land has a supply price. To an industry, the supply price of land equals its 'transfer earnings', the earnings that it can get in the next best alternative use. To an individual cultivator the supply price of land equals what the rival firms are offering for the use of its services. The classical particularly Ricardo, not only looked at land from the point of view of the economy as a whole

but also ruled out its opportunity cost by assuming land has only one specific use. This is a highly unrealistic assumption.

15.3.2 Modern Theory of Rent

The modern theory of rent has been developed so as to meet the criticism against the classical theory of rent and to broaden the traditional theory. The theory of rent, as it stands today, has the following features. Firstly, rent in this, theory is regarded just like any other price which is determined by the interaction of the forces of demand and supply. Secondly, it explains rent not only from the point of view of the economy as a whole but also, from the point of view of an individual industry. Thirdly, it emphasizes that rent is not an income which is nor peculiar to the factor land, it is the income of any factor the supply of which is perfectly inelastic. Fourthly, it makes a distinction between rent proper and quasi-rent. We shall now take these features one by one for explanation.

From the point of view of the economy as a whole, rent is regarded as the price paid and charged for the Use of services of land in production. The whole of this price is rent or a surplus over and above the supply price of land. To the economy as a whole the supply of land is perfectly inelastic and its “transfer earnings” are zero. Therefore, from the point of view of an economy the whole of the earnings of land is a surplus or rent.

However, the above does not imply that rent, which is the price of services of land, is determined by demand alone. Rent is determined by the interaction of the demand function for land and its supply function. The only peculiarity about its determination is that, from the point of view of the economy as a whole its supply is perfectly inelastic in the short period as well as in the long period. This makes the force of supply a passive force.

Supposing the total supply of land in an economy to be OS in Fig. 15.3, the supply curve of land will be vertical like SS’ in Fig.15.5. DD’ represents the demand function for land. As explained in the last lesson, the demand curve DD' is arrived at by horizontally adding up the MRP curves of the individual cultivators of land. Rent of land is determined at the level where the demand curve for land, DD', intersects the supply curve SS' so OR is the rent. If we assume that all the individual cultivators have identical MRP curves like the MRP curve in Fig. 15.3 in equilibrium each one of them will be hiring OQ quantity of land for cultivation and paying OR rent unit of land which equals the MRP of land to him. Since land has no supply price to the economy as a whole, the whole of OR is the rent per unit of land. Each farmer will be paying a total rent equaling OQAR.

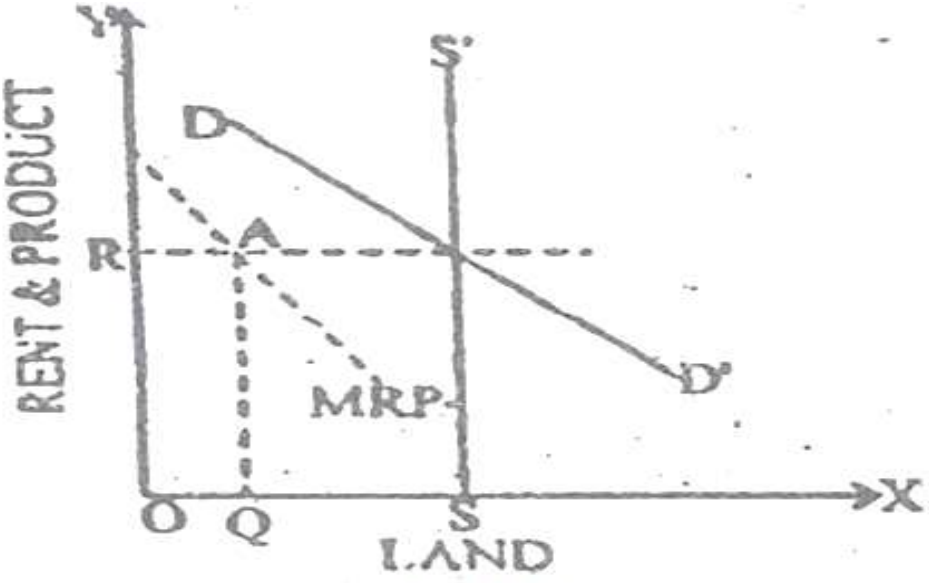

Fig. 15.3

The above analysis is based "on the implicit assumption of perfect competition which implies that land is a homogeneous. If the land is heterogeneous with its individual units differing in fertility or situation or both, there will not be a uniform rate of rent; Rent will be higher on lands which are more fertile or more favorably situated. Even when there are differences in the fertility or situation of different units of land, rent is determined by the same basic principle of demand and supply and is caused by the scarcity of land of a particular variety. As it was stressed earlier too, differences in fertility or situation do not explain rent they explain only the differences in rent.

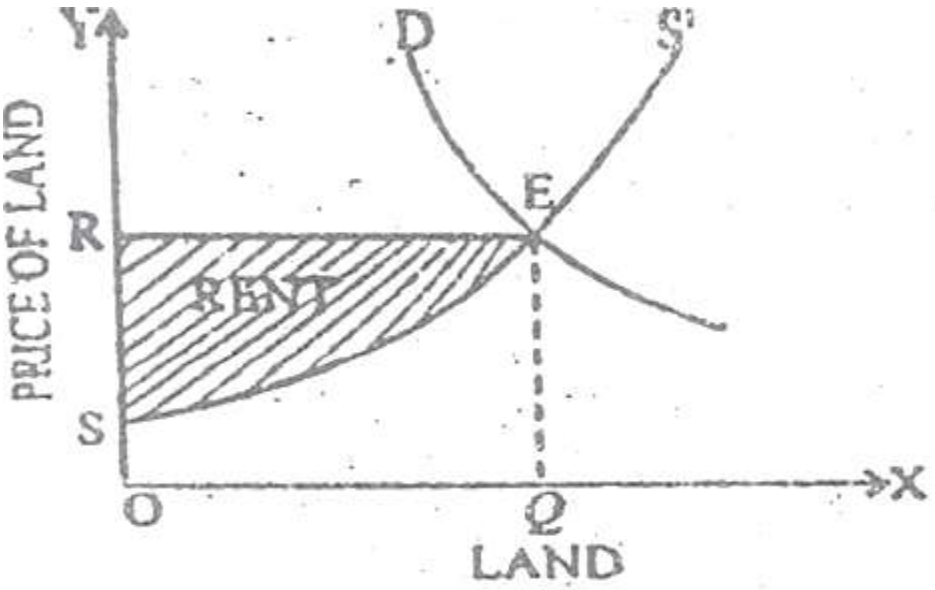

Fig. 15.4

While the supply of land to the economy as a whole is perfectly inelastic, it is elastic to a particular industry. If we assume that all units of land are equally productive in a given industry say wheat growing, they will have a single uniform price for the use of their services. However, if their productivities in the other

industries differ, their 'transfer earnings' which determine their respective supply prices to the wheat-growing industry, will also differ. The price for the use of land in wheat industry will equal the supply price of the marginal unit of land, employed in the industry and this is the unit which has the highest "transfer earnings of all the units employed, it is because as the wheat industry requires more and more units of land, these additional units will have to be attracted from other industries such as rice growing, sugarcane-growing and so on. Units with lower "transfer earnings" and therefore, lower supply price will be attracted first. If more units are required to be supplied they will have to he attracted from industries where they are earning more. Hence the supply price of land to a particular industry goes on rising, which implies that the supply function of land to a particular industry will be positively sloped like SS' in Fig. 16.6 with its elasticity > 0 < ∞.

DD' represents the demand condition for land in the wheat industry. The price paid for the use of the services of land in this industry must be OR at which the demand Function DD equals the supply function SS. OQ is the quantity of land employed. Q_{th} unit is the marginal unit and its supply price is QE = OR. Thus, it can be said that the price paid for the services of land in a particular industry is determined by the forces of demand and the supply of land in that industry, and in equilibrium, this price equals the MRP of land in that industry, on the one hand, and the supply price of the *marginal* unit, on the other.

It is to be noted that in this case the whole of the earnings of land OQ. OR = area OQER is not rent. For, there is a positive cost of supplying OQ quantity of land to this particular industry. This cost is measured by the ¡area under SS curve which is represented in Fig. 16.6 by the area OQES. The differences between the total earnings, OQER, and the total supply cost, OQES, is the surplus or rent.

This argument brings out an important difference between the classical theory and modern theory. While thé classical theory viewed the whole of the earnings of land as a surplus and rent, the modern theory stresses that from the point of view of an individual industry, only that part of the income of land which is over and above its supply price of "transfer earnings", is rent. In Fig. 16.6, OR equals the supply price OE of the marginal Q_{th} unit. But the intra-marginal units, that is, the units to the left of Q have lower supply prices and earn a surplus or rent which, in each case, is measured by the difference between the price OR and the supply price of the unit of land concerned.

If we assume that all units of land are of equal productivity in all the industries, the supply curve of land to an individual industry will be perfectly elastic at a level equaling its "transfer earnings". The price of the services of land will still be determined at the interaction of the demand and supply functions of land. But now this price equals the "transfer earnings" of land which are uniform for all units of land. Hence there will be no surplus earned by any unit of land over and above its supply price of "transfer earnings".

The modern theory has also stressed that rent can arise on any kind of productive service other than the services of land, if its supply is perfectly inelastic. Let us suppose that there is a musician who has natural gift in the form of his musical talent which is unequalled by any other musician. This talent helps him to earn say. Rs. 5000 per month, -Now, if he can earn only Rs. 1000 per month in the next best employment open to him, he will he earning a surplus of Rs. 4000 over

and above the 'transfer earning' of his natural ability as a musician, the supply of which is perfectly inelastic.

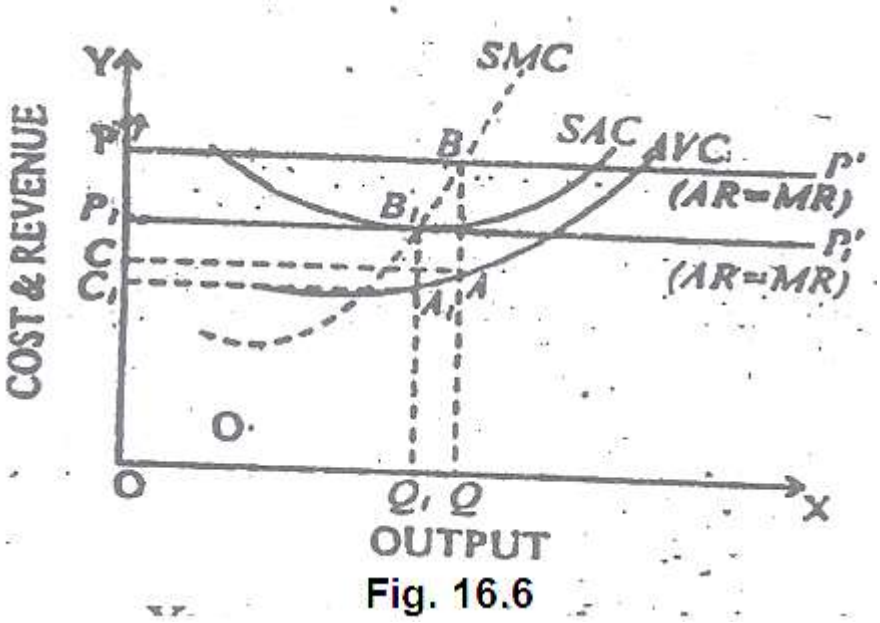

Fig. 16.6

Lastly, the modem theory of rent, as it developed in the hands of Marshall, makes a distinction between factors like land, whose supply is fixed in the short period as well as the long period and the man-made agents of production, that is capital equipment whose supply is fixed in the short period but is elastic in the long period. While the income earned by the former is rent proper or pure rent, the income earned by the latter in the short period, when their supply is fixed, was categorized by Marshall as *quasi-rent.*

You may recall that there is a particular form a physical capital which cannot be varied in the short-period. It is capital in the form of machines and buildings. Since such capital goods cannot move out of one industry or firm into another industry or firm in the short-period, their transfer earnings from the short-period point of view are zero; hence the whole of their short-period earnings are in the nature of a surplus. Their short-period incomes resemble rent and, hence, they were described as 'quasi-rent' by Marshall.

The concept of quasi-rent can be explained with the help of a diagram depicting the equilibrium of a firm in the short period. In Fig. 15.7, SAC, SMS and AVC are respectively the short-period average cost, short-period marginal cost, and average variable cost curves of the firm. If the price of the' product happens to be OP. PP will represent AR=MR line and the firm's equilibrium will be at point B where it produces OQ output. Its total revenue equals OP.OQ = area OQBP.

The variable costs OQ.QA = area OQAC are the necessary costs in the short- period. the difference between the total revenue and the total variable costs (OQBP-OQAC = CABP) may be imputed as the income of the fixed plant, The whole of if (CABP) is á surplus over and above the "transfer earnings" of the fixed factors which aré zero in the short period. Hence CABP is quotient earned by the firm on its fixed factors. If the price falls to OP_1, P_1P_1 becomes the AR=MR line and

the equilibrium of the firm takes place at B_1. Now the total revenue $OQ_1B_1P_1$) equals total costs which are also $OQ_1B_1P_1$. Yet, “there is a surplus over and above the variable costs which are the only necessary costs in the short period. This surplus now is given by the difference between the total revenue area $OQ_1B_1P_1$ and the total variable cost area OQ, B_1P_l which equals the área $C_1A_1B_1P_1$.

In brief, a firm’s short-period earnings that are over and above the variable costs are quasi-rent.

Self-Check Exercise-1

Q.1 What do you mean by rent? How is it different from quasi rent?

Q.2 Explain Classical Theory of rent.

Q.3 Explain the modern theory of rent.

15.4 SUMMARY

Rent is the price of the services of land towards production The Classical Theory of Rent was systematized, first of all by Ricardo who defined rent as that part of the total produce of land which is given to the landlord for the use of the original and indestructible qualities of the soil. According to this theory, as the demand for agricultural produce goes on increasing, the margin of cultivation goes on extending from more productive pieces of land to the less productive. At any given time, thé price of the produce of land equals the cost of production on the least productive land in use, where cost includes the cost of only two other factors, labour and capital. The factor, enterprise, was not recognized by the classical economists as a separate factor. A fundamental weakness of the classical theory of rent is that it looks at land from the point of view of the economy as a whole only. From this point of view there can be no doubt that the supply of land is fixed and perfectly inelastic. But when looked at from the point of view of an individual industry or an individual cultivator, its supply is quite elastic. The modern theory of rent has been developed so as to meet the criticism against the classical theory of rent and to broaden the traditional theory. The theory of rent, as it stands today, has the following features. Firstly, rent in this, theory is regarded just like any other price which is determined by the interaction of the forces of demand and supply. Secondly, it explains rent not only from the point of view of the economy as a whole but also, from the point of view of an individual industry. Thirdly, it emphasizes that rent is not an income which is nor peculiar to the factor land, it is the income of any factor the supply of which is perfectly inelastic. Fourthly, it makes a distinction between rent proper and quasi-rent. We shall now take these features one by one for explanation.

From the point of view of the economy as a whole, rent is regarded as the price paid and charged for the Use of services of land in production. The whole of this price is rent or a surplus over and above the supply price of land. To the economy as a whole the supply of land is perfectly inelastic and its “transfer earnings” are zero. Therefore, from the point of view of an economy the whole of the earnings of land is a surplus or rent.

However, the above does not imply that rent, which is the price of services of land, is determined by demand alone. Rent is determined by the interaction of the demand function for land and its supply function. The only peculiarity about its

determination is that, from the point of view of the economy as a whole its supply is perfectly inelastic in the short period as well as in the long period. This makes the force of supply a passive force.

The above analysis is based "on the implicit assumption of perfect competition which implies that land is a homogeneous. If the land is heterogeneous with its individual units differing in fertility or situation or both, there will not be a uniform rate of rent; Rent will be higher on lands which are more fertile or more favorably situated. Even when there are differences in the fertility or situation of different units of land, rent is determined by the same basic principle of demand and supply and is caused by the scarcity of land of a particular variety. As it was stressed earlier too, differences in fertility or situation do not explain rent they explain only the differences in rent. The modern theory has also stressed that rent can arise on any kind of productive service other than the services of land, if its supply is perfectly inelastic.

15.5 GLOSSARY

- **Transfer earnings** are what a factor must earn to prevent it from moving to an alternative use. In the case of labour, it is what people must be paid to persuade them to stay in their present job. Economic rent is anything over and above transfer earnings.
- **Quasi Rent**-This concept is used for the surplus earned by man-made factors other than land. Certain man-made factors become scarce in the short run. The surpluses earned by using these factors go to constitute Quasi rent.
- **Rent** arises because of the fixity in supply of land. Rent is the price paid for the use of land. Land being a free gift of nature has no cost of production. That is why what it earns constitute rent.

15.6 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 15.3

Ans.2 Please refer to section 15.3.1

Ans.3 Please refer to section 15.3.2

15.7 REFERENCES/ SUGGESTED READINGS

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15.8 TERMINAL QUESTIONS

Q1. Critically examine the Ricardian Theory of Rent?

Q2. Discuss Modern Theory of Rent?

Unit-16

INTEREST (I)

STRUCTURE

16.1 INTRODUCTION

Interest is the price paid for the use of loanable funds (capital) used in the production process. In this and the following chapter we will discuss the different theories of interest.

16.2 LEARNING OBJECTIVES

After going through this lesson you will be able to:

- Define interest
- Explain the Loanable Fund Theory of Interest
- Elucidate the Liquidity Preference Theory of Interest
- Give details of Modern Theory of Interest

16.3 DEFINITION OF INTEREST

- According to Seligman, “Interest is the return from the fund of Capital.”
- According to Anatol Murad, “Interest is the price paid for the use of loanable funds. Interest may also be defined as the income derived from the lending funds.”
- According to Mc Connell, “interest is the payment for the use of money or the use of loanable funds.”

16.4 PURE INTEREST AND GROSS INTEREST

Pure interest, also referred to as net interest, is the compensation given solely for the use of capital or borrowed funds.

Gross interest, on the other hand, includes additional charges apart from pure interest, such as:

(i) **Risk Compensation** – Lenders face the possibility of losing their capital due to trade and personal risks. Trade risks arise from business uncertainties that may prevent borrowers from repaying loans on time. Personal risks involve the borrower's dishonesty, which could lead to non-repayment.
(ii) **Compensation for Inconvenience** – After lending money, the lender may require it for urgent needs. Additionally, if the borrower repays the loan at a time when the lender is unable to reinvest it profitably, it creates an inconvenience.
(iii) **Compensation for Work and Responsibility** – Lenders must maintain financial records, safeguard securities (such as documents or valuables), and sometimes initiate legal action against defaulters. These efforts demand time and effort, adding to the lender's concerns.

To offset these risks and inconveniences, lenders charge an amount above pure interest, which constitutes gross interest.

Self-Check Exercise-1

Q.1 Define Interest. Also differentiate between Pure Interest and Gross Interest.

16.5 DIFFERENCES IN INTEREST RATES

Interest rates in the money market fluctuate due to several factors:

(i) **Security and Liquidity** – Loans secured by assets that can be easily liquidated (e.g., gold) attract lower interest rates. In contrast, loans backed by assets that are harder to sell (e.g., land) have higher interest rates.
(ii) **Loan Duration** – Long-term loans generally carry higher interest rates than short-term loans. This is because lenders relinquish control over their funds for an extended period and expect greater returns to compensate for the time risk.
(iii) **Purpose of the Loan** – Interest rates also depend on the loan's purpose. For instance, nationalized banks charge lower interest on agricultural loans compared to personal or consumption loans.

Self-Check Exercise-2

Q.1 Why there are differences in Interest rates?

16.6 CLASSICAL THEORY OF INTEREST

The classical theory of interest was developed by economists such as J.S. Mill, Walras, Marshall, and Pigou. This theory suggests that interest arises due to real factors like productivity, thrift, and abstinence, considering it a real economic phenomenon.

According to the classical perspective, interest is the return on the productive use of capital and corresponds to the marginal productivity of physical capital. In a monetary economy, since physical capital is acquired using financial resources, the interest rate is seen as the annual return on money invested in capital assets. Keynes argued that the true classical theory of interest is the savings-investment theory, later refined by economists such as Marshall, Pigou, and Taussig.

Fundamentally, this theory aligns with the general equilibrium framework, stating that the interest rate is determined by the interaction of capital demand and supply. The equilibrium interest rate is established at the point where the demand for capital matches its supply.

The demand for capital arises from entrepreneurial investment decisions, reflected in the investment demand schedule. On the other hand, the supply of capital originates from community savings, represented by the savings schedule. Consequently, savings and investment are the primary real factors influencing the interest rate. Technically, the equilibrium interest rate is where the investment demand and savings schedules intersect, ensuring that total investment equals total savings.

It is important to note that this theory is based on real savings and real investment. Real savings refer to the portion of income not consumed, which serves as a resource for investment. Real investment involves allocating these resources to produce new capital assets such as machinery, factories, tools, and equipment, contributing to capital goods industries. Therefore, understanding interest rate determination requires analyzing both capital demand and supply.

16.6.1 Demand for Capital:

The demand for capital originates from entrepreneurs looking to invest in capital goods industries. Essentially, the need for capital is linked to the demand for savings. Investors are willing to pay interest on these savings because the capital projects financed by these funds are expected to generate returns exceeding the borrowing costs (i.e., interest). In essence, capital is sought after due to its productivity—it has the ability to generate income even after accounting for its cost.

The demand for capital is determined by the marginal productivity curve of capital, which, beyond a certain point, slopes downward. When making investment decisions, entrepreneurs compare the marginal productivity of capital with the prevailing market interest rate. The marginal productivity of capital is calculated as the marginal physical product of capital multiplied by the price of the product.

If the rate of interest declines, entrepreneurs are encouraged to increase their investments until the marginal productivity of capital equals the interest rate. Conversely, when interest rates rise, investment demand contracts. Therefore, investment demand is considered an inverse function of the interest rate, represented symbolically as:

$$I = f(r), \text{ in which } \Delta I/\Delta r < 0$$

Where, I = investment demand, r = rate of interest, and f = functional relationship panel (a) illustrates an investment demand schedule in graphical terms.

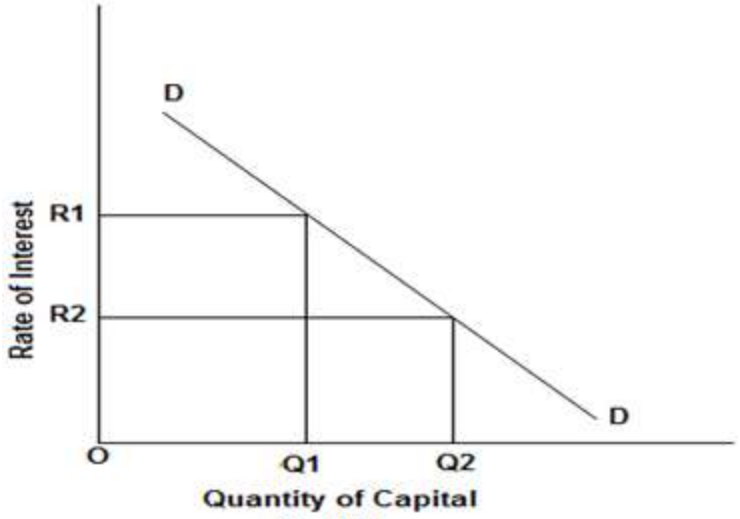

Fig. 16.1

It can be seen that when the rate of interest is OR, the investment volume is OQ_1 When the interest rate falls to OR_2, investment volume rises to OQ_2. It follows that the investment demand curve is a downward- sloping curve.

16.6.2 Supply of Capital:

Savings serve as the foundation for capital formation, making the availability of capital largely dependent on the level of savings within an economy. The ability and willingness of individuals to save contribute to the overall savings pool.

Classical economists such as Senior argue that saving requires abstaining from consumption, whereas Fisher emphasizes time preference as the primary motivation behind saving decisions. Despite these differing perspectives, both recognize the crucial role of the interest rate in determining savings behavior.

According to classical economic thought, the rate of savings is directly influenced by the interest rate. This implies that savings tend to increase when interest rates rise and decrease when interest rates fall. Mathematically, this relationship can be expressed through the saving function.

$S = f(r)$, in which $\Delta S/\Delta r > 0$

Where, S = volume of savings,

r = rate of interest, and stands for functional relationship.

Panel (b) illustrates the savings schedule in graphical terms.

The savings schedule refers to the quantum of savings at alternative rates of interest. When the rate of interest is, OR_2, OQ_1 is the savings; when the rate of interest rises to QR_1 savings expand to OQ_2 levels. The saving-function or the supply of savings curve is an upward-sloping curve.

It must be noted that savings and investment, referred to in the above functions, are in real terms.

Table 16.1 Determination of Rent of Interest

Rate of Interest	Demand for Capital Investment (Rs.)	Supply of Savings (Rs.)
1 %	80	40
2%	70	50
3%	**60**	**60**
4%	50	70
5%	40	80

16.6.3 Equilibrium Rate of Interest:

The equilibrium interest rate is established when the demand for and supply of capital are balanced. In other words, it is determined at the point where investment matches savings. According to classical theory, the determination of the interest rate is further explained using Table 1 and Figure 16.1 below.

It is clear from table 16.1, that when rate of interest is 3%, then demand for capital is equal to supply of capital. So 3% rate of interest will be determined. If somehow rate of interest rises to 4%, then demand for capital will fall to Rs. 50 lakh, while its will rise to Rs. 70 lakh. Supply of capital being more than its demand, there will be tendency for the rate of interest to fall. It will continue to fall till demand for and supply of capital are once again equal, i.e., till it falls to 3%. If on the other hand, rate of interest falls to 2%, then the equilibrium between demand and supply will again be distributed. Now demand for capital will be tendency on the part of rate of interest to rise. It will continue to rise till the equilibrium between demand and supply is restored, i.e., till it rises to 3%. It is further clarified in fig 1.

In this figure, units of capital are indicated on OX-axis and rate of interest on OY-axis. SS curve shows saving or supply of capital at different rates of interest. DD curve shows investment or demand for capital. At point E, DD curve cuts SS curve. Here demand for capital (investment) is equal to supply of capital (saving) and 3% rate of interest is determined.

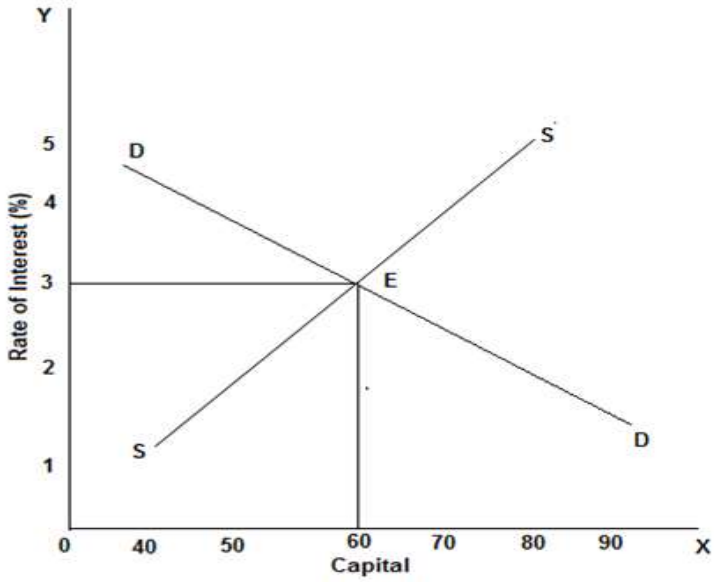

Fig. 16.2

The classical theory of interest suggests that the key determinants of the interest rate are real economic factors, specifically thrift and productivity.

16.6.4 Criticisms of the Theory

Keynes strongly criticizes the classical theory of interest rates, highlighting several key shortcomings:

(i) **Misconception about Interest as a Reward for Saving**: Keynes challenges the classical notion that interest is a reward for saving. He argues that interest can be earned even on money that has not been personally saved but inherited. Moreover, if someone chooses to hoard their savings in cash rather than lend them, they receive no interest. He emphasizes that saving depends not only on interest rates but also on income levels, making it incorrect to view interest as a return on saving. Instead, Keynes asserts that interest is purely a monetary phenomenon—essentially a payment for liquidity, or the willingness to part with cash balances.

(ii) **Indeterminacy of the Classical Theory**: Keynes finds the classical theory ambiguous and lacking precision. He argues that the interest rate cannot be determined independently since it relies on savings and investment schedules, which themselves depend on the interest rate. This circular reasoning renders the classical theory ineffective in providing a concrete solution.

(iii) **Neglect of Money's Role as a Store of Value**: The classical approach considers money solely as a medium of exchange and assumes that unspent income automatically translates into investment. Keynes critiques this view, highlighting that savings can be hoarded rather than invested, making the classical perspective unrealistic in a dynamic economy. He also notes that the theory fails to incorporate monetary theory into broader economic analysis.

(iv) **Flawed Equilibrium Concept**: According to classical economists, the interest rate serves as a balancing factor between savings and investment. Keynes refutes this idea, asserting that interest is not merely a price that equalizes the demand for investment with the willingness to defer consumption. Instead, he

views interest as the price that aligns the desire to hold wealth in liquid form with the available money supply.

(v) **Income, Not Interest, Determines Savings-Investment Equality**: Keynes argues that savings and investment do not automatically reach equilibrium through interest rate adjustments, as classical theorists claim. Instead, changes in income levels bring about this balance.

(vi) **Narrow Scope of the Classical Theory**: Keynes critiques the classical theory for its limited focus on capital meant for investment while ignoring the role of consumption loans, which also influence interest rates.

(vii) **Failure to Consider Credit Creation**: The classical theory disregards the impact of newly created money and bank credit on interest rates. It assumes that an increase in investment demand, with a fixed savings supply, will lead to rising interest rates. However, Keynes points out that modern economies supplement savings with credit, meaning interest rates may not necessarily rise despite higher investment demand.

Self-Check Exercise-3

Q.1 Critically discuss classical theory of Interst.

16.7 SUMMARY

The classical theory of interest was developed gradually by a number of classical writers and it was ultimately consolidated in the writings of J.S. Mill, Marshall and Fisher. This theory looks upon the rate of interest as a price paid and charged for the use of savings and it, therefore, seeks to explain the rate of interest in terms of the demand for and the supply of savings.

The demand for savings, according to this theory, comes from those who need funds for investment. The greater is the demand for investment, the greater is the demand for savings. Thus, investment makes up the demand side of savings.

Thus in the classical theory the demand for savings depends on investment which in turn depends on the productivity of capital. The supply of savings depends on people's time preference or their preference between present and future goods. A critical examination of this theory immediately reveals that this theory offers only partial and one sided explanation of interest. It assumes implicit that saving is the only source of the supply of loanable funds. It does not take note of the fact that, in a modern economy, à substantial portion of the total supply of loanable funds comes in the form of credit money created by the banking system. Therefore, it focuses attention solely on the real forces and completely ignores *the monetary* factors influencing the rate of interest.

16.8 GLOSSARY

- **Marginal productivity of capital** is the net yield from an additional unit of capital. It is to be noted that capital here refers to real capital in the form of machines and other capital goods.
- **Rate of interest** is a price paid and charged for the use of savings.
- **Flow** the movement of something shown as taking place over a period of time. Cash flow is the movement of cash in and out of a business; flow of income is the movement of income into the account of an individual or firm.

- **Stock** 1. The quantity of goods for sale or kept available for use 2. The total number of shares issued by a company 3. a share of capital held by an individual investor kept for sale all the time to keep goods for sale.

16.9 Answers to Self-Check Exercises

Self-Check Exercise-1

Ans. Q.1 Please refer to section 16.3 and 16.4

Self-Check Exercise-2

Ans. Q.1 Please refer to section 16.5

Self-Check Exercise-3

Ans. Q.1 Please refer to section 16.6

16.10 REFERENCES/ SUGGESTED READINGS

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16.11 TERMINAL QUESTIONS

Q1. What do you mean by interest?

Q2. Critically examine the Neo-Classical theory of Interest?

Unit-17

INTEREST (II): LOANABLE FUND THEORY

STRUCTURE

17.1 INTRODUCTION

The renowned Swedish economist Knut Wicksell developed the loanable funds theory of interest, often referred to as the neo-classical theory of interest. This theory refines the classical theory of interest by acknowledging the influence of money on saving and investment, which can lead to fluctuations in income levels. Unlike the classical perspective, the loanable funds theory takes a monetary approach to interest determination. It effectively integrates both monetary and non-monetary factors, offering a more comprehensive explanation of the interest rate mechanism.

17.2 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- Explain the Supply of loanable funds
- Elucidate the demand of loanable funds
- List the criticism of loanable fund theory of interest

17.3 LOANABLE FUND THEORY

The loanable funds theory posits that the interest rate serves as the equilibrium price that aligns the demand and supply of loanable funds. Consequently, fluctuations in interest rates stem from changes in either the demand for loans or the availability of credit for lending. Essentially, interest functions as the balancing factor between the supply and demand for loanable funds.

Loanable funds refer to the total financial resources available for borrowing and lending in the money market at any given time. The supply of these funds is primarily influenced by individual savings and the expansion of the money supply, typically facilitated by commercial banks through credit creation. Therefore, the total

supply of loanable funds is represented as the sum of savings (S) and newly created money (M), or S + M.

On the demand side, the need for loanable funds arises from two key sources: investment requirements and the desire to hold money in an inactive form (hoarding). When hoarding increases, it restricts the supply of funds, whereas a decrease in hoarding (dishoarding) releases more funds into circulation. Thus, the total demand for loanable funds comprises investment expenditure (I) and net hoarding (H), expressed as I + H.

According to the loanable funds theory, the equilibrium interest rate is established when the total demand for loanable funds (I + H) equals the total supply (S + M). This theory offers a broader perspective than the classical theory, which views interest rates as a function of savings and investment alone. Symbolically:

$$r = f (I, S),$$

Where, r denotes the rate of interest, I stand for investment and S for saving. The loanable funds theory regards the rate of interest as the function of four variables: savings (S); investment (I); the desire to hoard (H); and the money supply (M), i.e., newly created money or bank credit (including money dishoarded). Symbolically:

$$r = f (I,S,M,H).$$

It is interesting to note here that Wicksell, when he formulated his theory, regarded bank credit a constituent of loanable-fund supply as interest-inelastic, for he believed bank credit creation depends upon the liquidity position, of the banks and is not affected by changes in the interest rate. Thus, he considered the money supply (M) schedule to be constant in loanable funds. He took into account investment demand only and neglected the hoarding aspect of money. But other economists later on refined the Wicksellian theory of loanable funds and took into the consideration the tendency to hoard, the (H) variable.

Furthermore, in the refined version, the (M) schedule is not regarded as interest inelastic or constant. It was felt that this is incorrect. The banks will be less willing to create credit if the rate of interest is low, and they will be inclined to expand credit when the rate of interest is high. Thus, the bank credit or money supply (M) schedule was considered to be interest-elastic by the later economists.

17.3.1 Supply of Loanable Funds

The supply side of loanable funds is composed as under:

- **Savings:** savings are the main source of supply of loanable funds. Savings are affected by the individual sector, Government sector and business sector. Individual saving is the difference between the individual income and individual expenditure. Saving is influenced by both by income and rate of interest. If income remains constant rise in rate of interest will lead to more saving. Business savings are those savings which are not affected by business firms. Business savings beside other things, are also affected by rate of interest. Higher the rate of interest, greater will be the amount affected by the business firms, in order to obviate the necessity of borrowings funds from the market at higher rate. Accordingly supply curve of savings slopes upward to the right.

- **Bank credit:** Another source of supply of loanable funds is the credit created by the banks. Above the minimum rate of interest, bank credit is interest elastic. It means that at higher rate of interest banks will give more credit. On the contrary, at low rate of interest bank will offer little credit.
- **Dishoarding:** third source of supply of loanable funds is the dishoarding of the past savings. It means that the money hoarded by the people is given as loan. When rate of interest is high people lend their money and this dishoard their savings.
- **Disinvestment:** fourth source of supply of loanable funds is disinvestment. It refers to the non- replacement of depreciated machines. Thus the amount which is set apart annually as depreciation fund, is given as loan. Higher the rate of interest greater is the inducement to disinvest and vice versa.

Thus the supply of loanable Funds = S + B+ DH + DI

Here, S= savings; B=bank credit; DH= dishoarding; DI= disinvestment

17.3.2 Demand for Loanable Funds

The demand for loanable funds arises from the following sources:

(i) **Investment Demand**: Businesses primarily seek loanable funds for investment purposes. When interest rates are low, firms are more inclined to borrow, leading to higher demand for loanable funds. Conversely, when interest rates rise, borrowing becomes costlier, reducing the demand for these funds.

(ii) **Consumption Needs:** When individuals or households spend beyond their income, they rely on borrowing to cover the shortfall. As a result, they contribute to the demand for loanable funds. Typically, lower interest rates encourage more borrowing, whereas higher interest rates discourage it.

(iii) **Hoarding:** Some individuals demand loanable funds for the purpose of hoarding. At lower interest rates, the demand for such funds increases, while higher interest rates lead to a decline in this demand.

Thus demand for loanable funds = I +C+ H

Here, I= Investment Demand, C=Consumption, H=Hoardingd

17.3.3 Determination of Interest

According to this theory, rate of interest is determined at that point where demand for and supply of loanable funds are equal.

Demand for loanable funds = Supply of loanable funds

Or I +C+ H = S + B + DH + DI

Or (I - DI) + (H - DH) = (S – C) + B

The above equation indicates that equilibrium rate of interest is determined at that point where net investment and net hoarding (demand for loanable funds) are equal to net saving and bank credit (supply of loanable funds) are equal to net saving and bank credit (supply of loanable funds). The same is shown in fig 17.1 below.

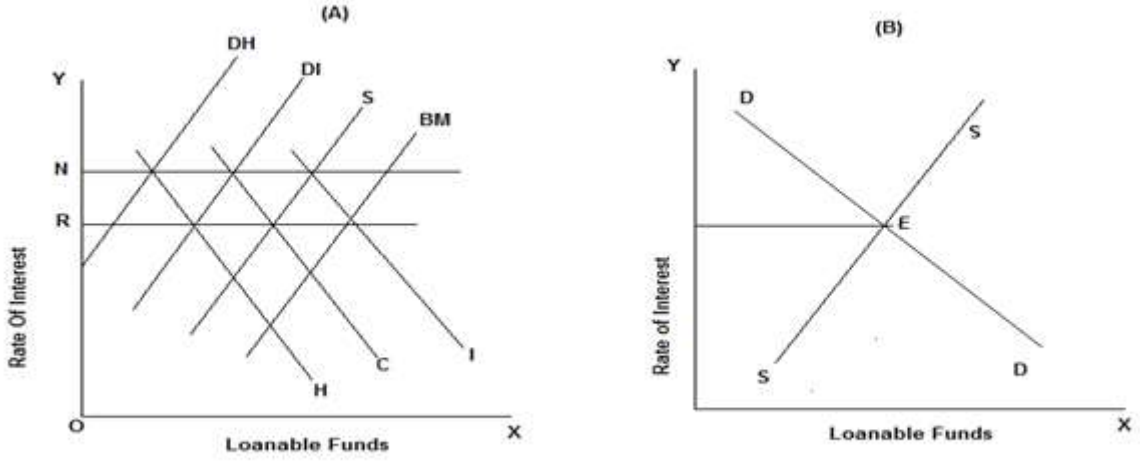

Fig. 17.1

Or Net Investment + Net Hoarding = Net Saving + bank Credit

The intersection of the I + C + H curve (representing the demand for loanable funds) and the S + B + DH + DI curve (representing the supply of loanable funds) at point E determines the market rate of interest (OR). This equilibrium establishes the interest rate based on the interaction between the demand and supply of loanable funds.

This graphical representation also highlights the key differences between classical theory and the loanable funds theory. In classical economic thought, the interest rate is determined where savings (S) and investment (I) curves intersect. In contrast, the loanable funds theory suggests that the interest rate is set at the intersection of the S + B + DH + DI and I + C + H curves.

According to the diagram, the classical interest rate would be OR. However, the loanable funds theory identifies a mismatch between savings and investment, which is accounted for by the algebraic sum of net money (M) and net hoarding (H). This theory emphasizes that money is not merely a passive factor but plays an active role in determining interest rates. By incorporating money into the supply side, the loanable funds theory suggests that the interest rate falls to OR, instead of ON in real terms.

Additionally, the diagram illustrates the Wicksellian distinction between the natural rate of interest and the market rate of interest. The natural rate (ON) is where savings equal investment in real terms, whereas the market rate (OR) is where the demand and supply of loanable funds balance in monetary terms.

The loanable funds theory improves upon the classical theory in several ways:

Greater Realism: Unlike the classical theory, which is expressed solely in real terms, the loanable funds theory accounts for both real and monetary factors. Since the interest rate is inherently a monetary phenomenon, this approach is more practical.

Active Role of Money: The theory acknowledges that money plays a dynamic and influential role in modern economies, whereas classical economists treated it as a passive, technical element.

Recognition of Bank Credit: Loanable funds theorists explicitly include bank credit as part of the money supply, recognizing its impact on interest rates—an aspect overlooked in classical economics.

Consideration of Hoarding: Unlike classical economists, proponents of the loanable funds theory account for the hoarding of cash balances as a factor influencing the demand for loanable funds.

In conclusion, the loanable funds theory presents a more comprehensive and practical understanding of interest rate determination by integrating both real and monetary variables.

17.3.4 Criticisms

The following shortcomings of the loanable funds theory are noteworthy:

(i) Hansen critcises the loanable funds theory as not providing us with a determinate solution to the problem of rate of interest. The supply schedule of loanable funds comprises new "savings" portion of the schedule varies with the level of disposable income (in the Robertsonian sense, "yesterday's income"), it follows that the total supply schedule of loanable funds also varies with income. Therefore, the rate of interest cannot be known unless the level of income is known; and the level of income cannot be known unless the rate of interest is known. Thus, like the classical theory, this theory is also indeterminate.

(ii) Furthermore, according to the loanable funds theory, the supply of loanable funds is sometimes increased by a release of cash balances, and sometimes diminished by the absorption of various savings into cash balances. This gives the impression that the cash balances of the community can be increased or decreased. This, however, is not actually the case. The total amount of cash balances of a community are, at any time, fixed and necessarily equal to the total amount of money supply. The members of a community may, of course, attempt to increase or decrease the total amount of their cash balances but such an attempt cannot result in an actual increase or decrease in the amount of cash balances. It can only result in a change in the velocity of circulation of money. This, no doubt, would result in an increase or decrease in the supply of loanable funds. Thus, the basic contention of the loanable funds theory that an attempt to change the volume of cash balances results in a change in the supply of loanable funds is correct. But, the way in which it is presented is not quite satisfactory.

(iii) Some critics have objected to the way monetary factors have been combined with real factors in the loanable funds theory. The critics argue that it is illogical to combine factors, like saving and investment, with monetary factors, like bank credit and liquidity preference.

(iv) The theory is an exaggeration of the functional relationship between the rate of interest and savings. Critics argue that people usually save not for the sake of interest but out of precautionary motives, where propensity to save is interest-inelastic.

Self-Check Exercise-1

Q1. Discuss Neo-Classical Theory of Interest?

17.4 SUMMARY

The neoclassical theory, which is also known as the loanable-fund theory of Interest, *is* a refinement of the classical theory which is primarily thé work of Wickshell and his followers, on the one hand, and Robertson, on the other. This theory too regards rate of interest as a price. But, in this theory, this price is determined in the loan market through the interaction of the forces of demand for and supply of loanable fonds. If you assume, that saving is the only source of supply of loanable funds and investment the only source of demand for loanable funds, and if you further assume that no part of saving is ever hoarded but the whole of it is always supplied as loans, then there would be no difference between the classical and neoclassical versions of the theory of interest. However, the neo-classical theory does not make the above said classical assumptions. In this sense it is a departure from the classical theory, and the refinement introduced by it is the stipulation that there are sources of supply of loanable funds other than saving alone, and similarly, that there are sources of demand for loanable funds other than investment alone.

17.5 GLOSSARY

- **Marginal productivity of capital:** is the net yield from an additional unit of capital. It is to be noted that capital here refers to real capital in the form of machines and other capital goods.
- **Rate of interest:** is a price paid and charged for the use of savings.
- **Loanable funds:** plural noun funds which are available for lending. The theory of loanable funds is that interest rates are determined by the supply of money available for lending. The market for loanable funds is the general money market.
- **Flow:** the movement of something shown as taking place over a period of time. Cash flow is the movement of cash in and out of a business; flow of income is the movement of income into the account of an individual or firm.
- **Stock:** The quantity of goods for sale or kept available for use 2. The total number of shares issued by a company 3. a share of capital held by an individual investor kept for sale all the time to keep goods for sale.

17.6 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 17.3

17.7 REFERENCES/ SUGGESTED READINGS

1. Ahuja, H.L. (2018). Advanced Economic Theory. S. Chand and Company, New Delhi.
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17.8 TERMINAL QUESTIONS

Q1. Explain and criticize the loanable fund theory of interest?

Unit-18

INTEREST (III): LIQUIDITY PREFERENCE THEORY

STRUCTURE

18.1 INTRODUCTION

According to Keynes, interest is fundamentally a monetary phenomenon since it is measured in monetary terms. The rate of interest is influenced by the interaction between the supply and demand for money. Keynes described interest as the compensation received for relinquishing liquidity for a specific period.

18.2 LEARNING OBJECTIVES

After going through this unit you will be able to:

- Explain the Demand For money
- Explain the Supply of money
- State the Meaning of Liquidity Preference
- State Theory of Liquidity Preference theory

18.3 LIQUIDITY PREFERENCE THEORY

Liquidity refers to the ease with which an asset can be converted into cash without incurring a loss. Money is considered the most liquid asset because it is universally accepted as a medium of exchange. People prefer to hold their wealth in the form of cash due to its immediate usability. If they choose to forgo this liquidity, they expect to be compensated with interest. Just as water is fluid and can be used as needed, money can be readily exchanged for goods and services.

In contrast, assets such as gold and real estate, while valuable, are not easily transferable, making them less liquid. Since money is highly liquid, individuals tend to prefer holding cash. According to Keynes, this tendency is known as liquidity preference. He argued that interest serves as the cost of relinquishing liquidity. A higher liquidity preference leads to an increased rate of interest.

Keynes further explained that the demand for money is driven by liquidity preference, which influences the rate of interest. The rate of interest is determined by the interaction between the demand for and supply of money. On the demand side, the community's need to hold cash for various purposes contributes to liquidity preference, which in turn affects interest rates.

18.3.1 Demand for Money

The demand for money is mainly for the following three motives according to Keynes:

1. Transaction Motive
2. Precaution Motive
3. Speculative Motive

1. Transaction Motive

Both individuals and businesses engage in daily financial transactions. People need to purchase various goods and services throughout the day, requiring them to hold some cash. This need to maintain liquidity for routine transactions is referred to as the **transaction motive for holding money**. In simple terms, the demand for money under this motive arises because consumers, businesspersons, and others require funds to facilitate economic transactions. The factors influencing this demand include:

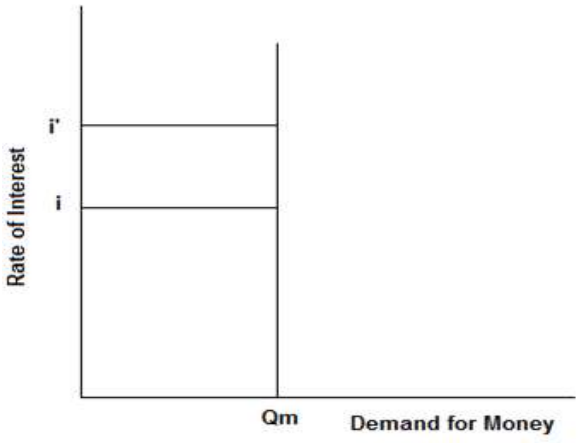
2) Precautionary Motive

Every individual aims to save a portion of their earnings or maintain liquid funds to handle unexpected emergencies, contingencies, or accidents. Similarly, business firms also prefer to keep a certain amount of cash as a safeguard for the future. This need for liquidity is referred to as the **precautionary motive** for holding money. Several factors influence this demand:

(i) **Income Level**: Individuals or firms with higher incomes tend to allocate more money for precautionary purposes to secure their future.

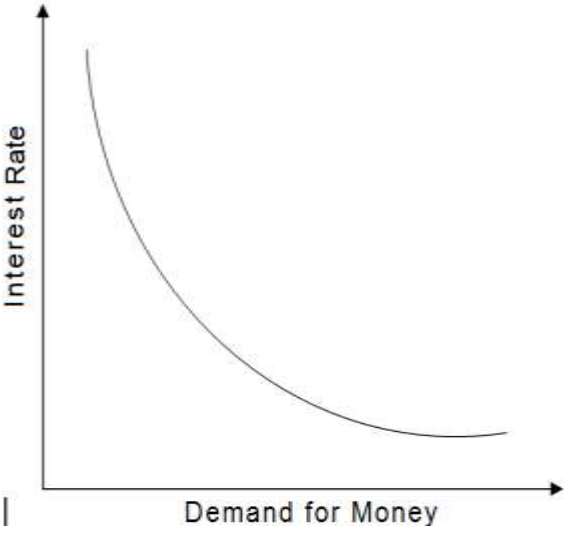
(ii) **Personality Traits**: People's outlook on the future varies—some are optimistic, while others are pessimistic. Optimists focus on the positive aspects of the future and perceive fewer risks, leading them to set aside less money for precautionary reasons. In contrast, pessimists anticipate potential dangers, crises, and uncertainties, prompting them to hold a larger cash reserve for financial security.

iii) Farsightedness: An individual with farsightedness possesses a strong ability to anticipate future events. They can make well-informed predictions about upcoming situations. Consequently, if they foresee a higher likelihood of emergencies, they will prefer to hold more cash for precautionary purposes. Conversely, if they expect fewer uncertainties, they will keep less cash on hand. The demand for money driven by the precautionary motive remains entirely unresponsive to changes in interest rates.



3) Speculative Motive

People prefer to hold cash to capitalize on fluctuations in bond and security prices. In developed nations, individuals tend to retain cash for investing in bonds and securities when they anticipate profitable opportunities. If bond and security prices are expected to increase, investors will choose to buy them rather than hold cash. Conversely, if prices are predicted to decline, people will prefer to keep their cash and invest only when the prices drop. As a result, liquidity preference tends to be higher when interest rates are low.

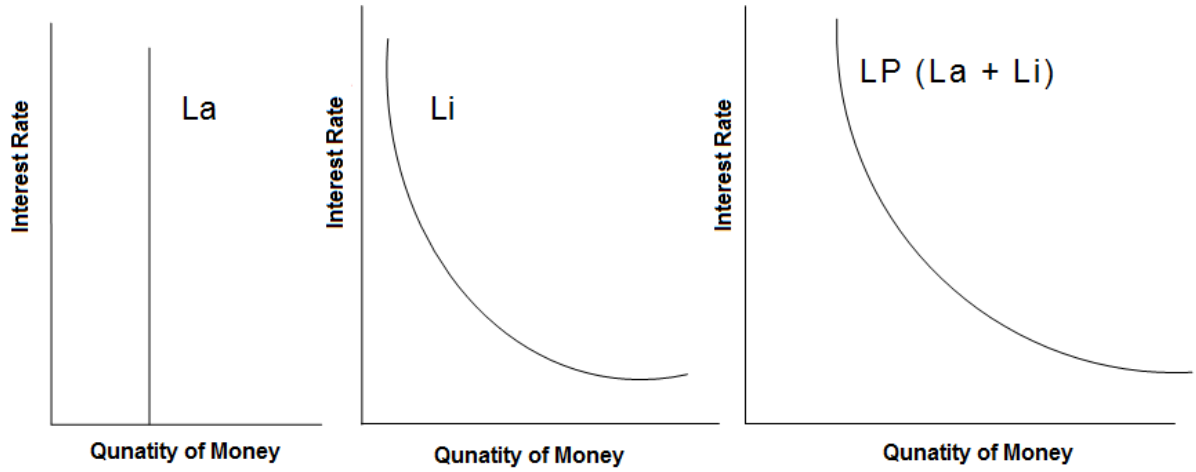


18.3.2 The Liquidity Preference Curve

The transactions balances and precautionary balances are held with the intention of being used to make purchases as and when required, they are sometimes jointly referred as **demand for active balances**.

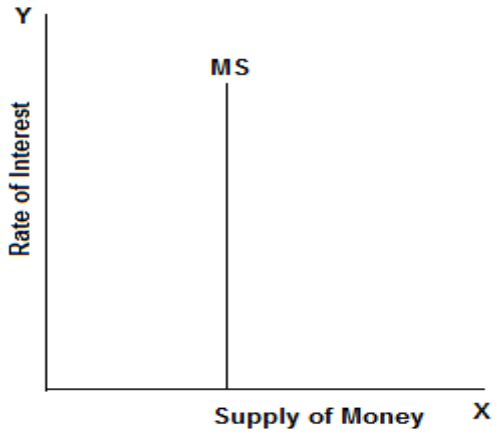
The important point about the demand for active balances is that it is not responsive to changes in the rate of interest i.e. it is interest inelastic. The demand for speculative balances, on the other hand is sometimes referred to as the **demand for idle balances**.

We can have the community's total demand for money or liquidity preference schedule by adding the demand for active (La) and idle balances (Li) together.



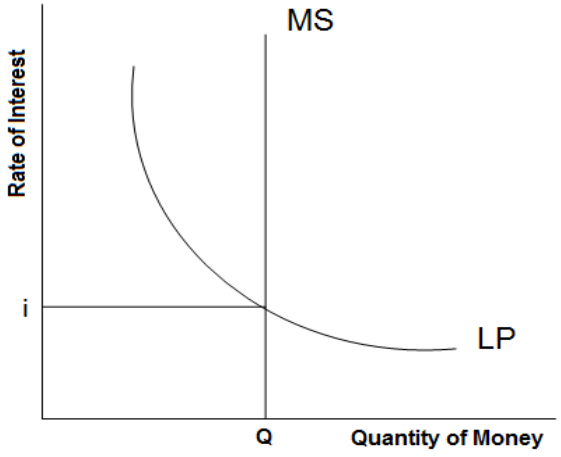
18.4 SUPPLY OF MONEY

The supply of money is quite different from the demand for money. No private individual can change it. Supply of money is controlled by the central bank or its government. Money supply depends upon the currency issued by the government and the policies of the central bank regarding with credit creation. In the short run at a particular period of time supply of money remains constant. That's why the supply curve money is perfectly inelastic.



18.5 EQUILIBRIUM RATE OF INTEREST

The interaction of demand and supply of money determines the interest rate. The rate of interest is determined by the demand for money and supply of money. The equilibrium rate of interest is fixed at that point where supply of and demands for money are equal. If the rate of interest is high peoples demand for money (liquidity preference) is low. The liquidity preference function or demand curve states that when interest rate falls, the demand to hold money increases and when interest rate raises the demand for money, diminishes.



In the above diagram LP is the demand for money and the Ms is the supply of money. This gives an equilibrium rate of interest i. At any rate of interest above i, the supply of money exceeds demand and this will pull down the rate of interest, while at any rate of interest below i the demand for money exceed supply and this will bid up the rate of interest. Once the rate of interest is established at i, it will remain at this level until there is a change in the demand for money and or the supply of money. This implies that the authorities have two choices

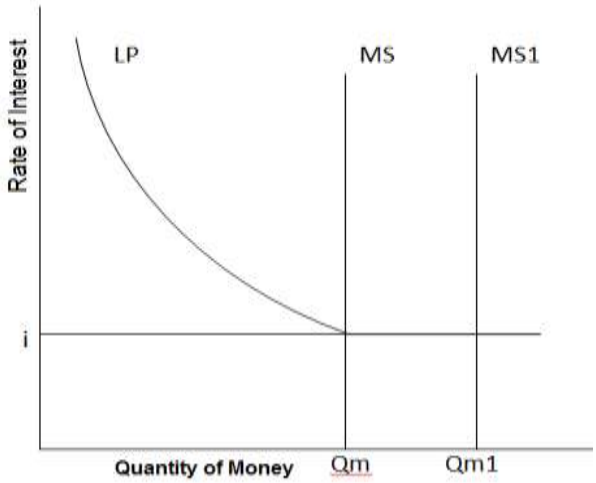
- They can fix the supply of money and allow interest rates to be determined by the demand for money; or
- They can fix the rate of interest and adjust the supply of money to whatever level is appropriate so as to maintain the rate of interest.

Self-Check Exercise-1

Q.1 Discuss Liquidity Preference theory of Interest.

18.6 LIQUIDITY TRAP

It is the situation in which changes in money supply have no influence on the rate of interest, monetary policy cannot be used to influence other variables such as consumption and investment when the rate of interest is i.



Self-Check Exercise-2

Q.1 What is Liquidity Trap?

18.7 CRITICISMS:

The following major criticisms have been levelled against the liquidity preference theory of interest:

1. Prof. Hansen maintains that the Keynesian theory of interest rate, like the classical theory, is indeterminate. In the Keynesian version, the liquidity preference function will shift up or down with changes in the level of income. Particularly, L_1 (i.e., liquidity preference for transactions and out of precautionary motives), being the function of income, we already know the income level. And, to know the level of income, we must know the rate of

interest. Thus, Keynes' criticism of the classical theory applies equally to his own theory. It is interesting to note here that Professor Hansen considers the loanable funds version as well as the liquidity preference theory, inadequate. But, in his view, loanable funds formulation and the Keynesian formulation, taken together, do supply us with an adequate theory of interest.

2. According to Hazlitt, the Keynesian theory of interest is one-sided since it ignores the real factors in the determination of the rate of interest. Keynes considered interest to be a purely monetary phenomenon and refused to believe that real factors like productivity and time preference had any influence on the rate of interest. Similarly, the classicists also were wrong in considering interest purely as a real phenomenon, and ignoring the monetary factors.

3. Keynes ignored the element of saving when he considered interest as a reward for parting with liquidity. Professor Jacob Viner points out that "Without saving there can be no liquidity to surrender. The rate of interest is the return for saving without liquidity." Hence, it is incorrect to ignore the impact of the saving factor in the determination of the rate of interest.

4. The liquidity preference version is clearly wrong. It goes directly contrary to the facts that it presumes to explain. According to the theory, the rate of interest should be the highest at the bottom of a depression when, due to falling prices or rising value of money, people have strong liquidity preference. On the contrary, the rate of interest is found to be the lowest at the bottom of a depression.

5. The concept of liquidity preference in the theory of interest is vague and confusing. For instance, if a man holds funds in the form of time-deposits, he will be paid interest on them; therefore, he is getting both, i.e., interest-cum-liquidity.

6. For some critics, Keynes' liquidity preference theory of interest is too narrow in scope. In their view, the desire for liquidity an important factor in determining the rate of interest arises not only from the three main motives (transactions, precautionary and speculative) mentioned by Keynes, but also from several other factors not stressed by him.

7. Some critics opine that interest is not a reward for parting with liquidity as stressed by Keynes. In their view, interest is the reward paid to the lender for the productivity of capital.

8. In Keynesian theory, the rate of interest is regarded independent of the demand for investment funds. Critics point out that this is unrealistic. The cash balances of the entrepreneurial class are largely influenced by their demand for capital for purpose of investment. The demand for capital being dependent upon the marginal productivity of capital, the rate of interest is not determined independently of the marginal efficiency of capital or the demand for investment funds.

9. Keynesian theory concentrates only on the short run and ignores the long period. But, for capital investment, it is a long-term rather than a short- term rate of interest which is really significant.

Self-Check Exercise-3

Q1. Give Criticism of Liquidity Preference Theory of Interest.

18.8 SUMMARY

In this unit, we studied about the liquidity preferences theory of interest given by Keynes. The rate of interest is determined by the interaction of demand and supply of the money. Demand form mainly consists of three motives Transaction Motive, precautionary motive and speculative motive. The supply of money is mainly kept constant.

18.9 GLOSSARY

- **Liquidity Trap-** Keynes believed that there must be some minimum rate of interest at which the demand for holding money becomes perfectly elastic. The basic reason for it, as given by Keynes, is that the risk of capital loss at a very low rate of interest is much greater than it is at a high rate of interest. When the rate of interest is very low the capital loss from a future rise in the rate of interest and the consequent fall in bond prices may be much greater than the income earned from the holding of bonds.
- **Liquidity preference** is the preference of the people to keep their assets in the form of cash balances rather than in any other form.
- **Transaction Motive**: people keep some amount of money with them because they have to make cash payment in day to day transactions. The main reason for keeping cash balances for this purpose is that while people receive their incomes at the end of certain period of time, such as a week or a month, their expenditure is done more or less daily because they cannot buy all their daily necessaries on credit Therefore they have to keep a part of their income in the form of readily available purchasing power. The cash balances kept on account of this motive are known as transaction demand for money.
- **Speculative motive**: Individuals and firms like to keep their assets in the form of cash balances not only for the transaction and precautionary motives but also because of the hope to make profit from the prospective changes in bond prices, alternatively, from changes in the rate of interest.
- **Precautionary motives:** People as individuals as well as firms keep a part of their assets in the form of money balances in order to meet unforeseen contingencies, such as sickness and unemployment in the case of individuals and sudden unanticipated demands for cash payments in the case of firms.

18.10 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 18.3, 18.4 and 18.5

Self-Check Exercise-2

Ans.1 Please refer to section 18.6

Self-Check Exercise-3

Ans.1 Please refer to section 18.7

18.11 REFERENCES/ SUGGESTED READINGS

1. Ahuja, H.L. (2018). Advanced Economic Theory. S. Chand and Company, New Delhi.
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18.12 TERMINAL QUESTIONS

Q1. Critically examine the Liquidity Preferences of Interest?

Unit-19

PROFITS

STRUCTURE

19.1 INTRODUCTION

We have seen how the price of services of labour (or wage rate) and the price of the services of land (or rent) aré determined. The Other two factor prices are discussed under the headings, 'interest' (which is the price of the services of capital) and 'profits' (which is regarded as the price of the services of the entrepreneur in production.). Of these two we have discussed, in the preceding lesson, the determination of the rate of interest. In the present lesson, we shall be dealing with the analysis of profits.

19.2 Learning Objectives

After going through this unit you will be able to:

- Define Profit.
- Differentiate the profit as Reward for Uncertainty Bearing and Reward for risk Taking
- Explain profit as A Dynamic Surplus
- Elucidate Marxian Theory of Profit.

19.3 PROFIT

It is sometimes observed that the theory of profits is one of the least satisfactory parts of economic theory. This is indeed so in spite of quite a plethora of theories seeking to explain the phenomenon of profits. One of the reasons of this unsatisfactory state of the theory of profits may be that profits are not a homogenous income. It usually contains more than one kind of reward. The individual theories of profits focus attention on some particular aspect of the phenomenon of profits with the result that any single theory provides us with only a partial explanation of profits.

In order to avoid confusion, it will be useful to know at the very outset as to what we mean by profits in economics. A layman is likely to regard profits as the difference between the total revenue proceeds of a given volume of output and the total expenses of producing that output. However, economists would describe this difference as "gross profits" which is different from the 'net profit' that the economists mean by the term 'profits' Gross profits include some elements of costs too in addition to the 'net' profits.

These costs are those which do not form a part of explicit expenses of production. The imputed rent on the entrepreneur's own land and the imputed interest on his own capital invested in his business are such costs which are not included in his expenses of production. Another such cost is thé reward due to the entrepreneur on account of his work of management. This reward is wages like the wages of a salaried manager. Such wages of management which, under perfect competition are in fact the 'transfer earnings' of the entrepreneur, are often identified with 'normal profit. When we deduct these three elements of imputed costs from the gross profits, the remainder is 'net' profit.

Even 'net' profits are not homogeneous income. It includes at least two distinct types of income namely, 'monopoly' profits, or more appropriately, 'monopoly' rents and 'pure' profits. While 'monopoly rents are that part of 'net' profits which are due to causes other than uncertainty, which restrict the entry of new firms into an industry or do not allow the product of one firm to become a perfect substitute of the products of other firms in the industry. Pure profits are that part of 'net' profits which are related to uncertainty-bearing, which, in the opinion of most of the economists, is the chief, perhaps the only function of an entrepreneur that distinguishes his services from the services of other factors of production.

It should be clear from what has been said above that 'net' profits are profits over and above 'normal' profits which, as stated earlier, should be treated as wages of management and thus part of the cost of production. As We have been observing throughout this series of lessons, super-normal profits are competed away in the long run under conditions of perfect competition which stipulates perfect knowledge (and therefore, no uncertainty), perfect mobility of factors, perfect divisibility of factors and products, and homogeneity of all factors including enterprise. Under perfect competition of this type it is impossible to think of causes that can restrict the entry of new firms, into an industry and can thus prevent the super-normal profits from being competed away. It has been, therefore, rightly observed that there is no place for a theory of profits in the neoclassical economics which is founded on the assumption logically rule out the possibility of supernormal profits or 'net profits, what is there that we need a theory of profits for?

So, any theory of profit, if it is to be at least plausible, must start by discarding the assumptions of perfect competition. Anyway, the real world is not a world of perfect or even pure competition. What has been said in the preceding paragraph should immediately suggest that the existence of 'net' profits, whether they are 'monopoly' rents or 'pure' profits must be due to causes which restrict the entry of new firms into the industry or industries earning these profits.

Entry of new firms into an industry, where the established firms are earning 'net' profits, may be restricted due to any one of the following factors : (i) institutional or legal factors, (ii) immobility of factors, (iii) inferior entrepreneurial ability of firms outside the industry, (iv) less knowledge ability of the outsiders firms compared to that of the insiders, (v) indivisibility of plant, (vi) exclusiveness of the product markets of the insiders and (vii) divergence in the profit estimates of the insiders and the outsiders.

If the outsiders are prevented from entering an industry earning 'net' profits only on account of the last of the causes listed above, the profits being earned will be 'pure' profits because they, as *we* shall presently see, are related to uncertainty. If profits are maintained because new entry is prevented by some cause or causes other than the last one the profits being earned are not 'pure profits' but monopoly rents.

If the establishing of a firm requires government license according to the law and the 'license is not freely available; this legal factor will block the entry of new firms. The supply of enterprise in the industry remains fixed so that the insiders enjoy a sort of monopoly position and earn monopoly profits. Since these profits are maintained due to the inelastic supply of enterprise, they are to be regarded as "rent" rather than profits. A single test of finding out whether the profits are 'monopoly' rent or not is to know if those profits will be capitalized or not into the price which an outsider will be willing to pay, if such a business were to be auctioned as a going concern. If the profits are capitalized into this price, they are 'monopoly' rent. Existence of patent laws also has an identical effect. You are advised to work out the implication of causes from (ii) to (vi) for yourself to show that profits resulting from these causes are 'monopoly' rents.

The outsiders may be reluctant to enter an industry where the insiders are enjoying 'net' profits because their profit estimates fall far short of those of the insiders. An entrepreneur produces in anticipation of demand. He is planning for the future which is uncertain on account of the dynamic changes which are taking place almost all the time. An entrepreneur does nor perfectly know what the future demand for his product will be, what prices he can get in the time period he is planning for, what the prices of his inputs and what his costs in the future periods Will be. Therefore, he has to make some estimates with regard to the most likely price as well as the most likely average cost. Let us denote this estimated price as *p* and this estimate average cost as *c.* Estimates are after all mere guesses which may go wrong. Hence a rational entrepreneur may be expected to have a safety margin for the estimated price as well as the estimated average cost to provide against his guesses going wrong due to the unpredictable dynamic changes that give rise to uncertainty. Such a safety margin will have to be subtracted from the estimated price and added to the estimated average cost in order to limit the range of possible loss, if the estimates are completely believed by the actual events. If the safety margin for price is denoted by *a* and that for cost by b, the estimated profits will equal *(p-a)-*

(c+b). While the estimates of price and cost dépend on the view an entrepreneur takes of the uncertain future, the value of the safety margins depends on the entrepreneur's attitude towards uncertainty-bearing.

It is possible that the profit estimates of the insiders and the outsiders may diverge such that to the outsiders they appear to be much less than they appear to the insiders. Thé divergence may be either because they have different views of the uncertain future or because they have different attitudes towards uncertainty-bearing and therefore they have different safety margins. If for example the insiders are more enterprising and adventurous than the outsiders, their safety margins will be less than those of the outsiders, consequently, the profit estimate of the insiders will be quite high, while those of the outsiders may be so low that they do not expect to earn larger profits by entering this industry than what they might be earning in the industry they are already in or what they could earn, if they joined some other industry. It is also possible that their estimated profits pay be negative, that is, they may fear losses rather than expect profits. In all such cases, the outsiders will not enter the industry and the insiders may continue to make 'net' profits, even when there is no other hindrance in the way of new entry. In this case the 'net' profits will *be pure* profits which may be interpreted as a reward for *uncertainty bearing.* But as Machlup has pointed out, these 'pure' profits are a reward for uncertainty bearing as it is viewed by the outsiders who are reluctant to bear it.

Self-Check Exercise-1

Q.1 What is Profit. Discuss in detail.

19.4 A DYNAMIC SURPLUS

'Pure' profits were described as a dynamic surplus by J.B. Clark who' pointed out that in a state of equilibrium under perfect competition' 'pure' profits are completely competed away so that each entrepreneur earns just 'normal' profits, which are his wages of management. In a stationary economy, in which either no change is taking place or the rates of change are uniform, an entrepreneur has no function other than that of managing the business. So he earns only the wages of management. But Clark argued that the real-world economy is not stationery economy, it is a dynamic economy in which various types of changes are taking place all the time. These changes usually push an economic system into a state of disequilibrium, on account of which prices may turn out to be lower than expected and costs higher than estimated, with the result that there are negative profits or losses. A special characteristic of profits is that it is a residual income which accrues to the hiring factor, entrepreneur after he has paid contractual incomes to the hired factors, land labour and capital. Therefore, the residue, that is profit may be positive or negative, depending upon how the dynamic changes work out.

Clark had listed five types of dynamic changes which turn a static equilibrium into dynamic- disequilibrium. They are changes in the size and- composition of population, changes in the size and composition of wants, .changes in the capital stock, and changes in the forms of business organization and changes in the techniques of production. However, these are not the only types of changes that make an economy a dynamic one. There might be quite a number of others too. For example, there may be sudden unexpected break-out of war. The general economic environment may be passing through a particular phase, prosperity or depression of a business cycle. There might be changes in the government tax policy or

expenditure policy. All these changes may have either favourable or unfavourable repercussions on the price and costs of entrepreneurs. If the effect of such changes is favourable there is a surplus in the form of positive 'pure' profits. Since it is caused by the dynamic changes in the economy, these profits are described as a 'dynamic surplus'.

Self-Check Exercise-2

Q.1 Discuss Dynamic Theory of Profit.

19.5 REWARDS FOR RISK-TAKING

There are other economists who will acknowledge that a dynamic economic environment is a necessary condition for profits to arise, but they will rather deny that these dynamic changes by themselves can create profits. In any case the dynamic theory of profit does bring into focus the fact that these dynamic factors make a business enterprise a risky affair. Unless someone is coming forward to undertake the risk of the business, the question of profits does not arise. From this point of view, profits may well be a dynamic surplus but it is also a reward for undertaking risk. If profits are the price of the services of the entrepreneur, then according to the risk theory of profits, it is the entrepreneur's reward for risk-taking. This theory assumes that the most important function of an entrepreneur, which distinguishes him from other factors, is to undertake the risk of the business. If an entrepreneur expects to earn more than what he invested, he would rather loan out his capital and get himself employed as a salaried manager rather than undertake the risk of the business by working as an entrepreneur. This reduces the supply of enterprise to an industry and the supply of product of the industry is reduced. Price rises and 'pure' profits emerge. They must be sufficiently high to keep the required number of entrepreneurs in the industry. The requirement for their services will depend on the marginal revenue productivity (MRP) function of entrepreneurial services in the industry.

Self-Check Exercise-3

Q.1 Discuss Risk taking Theory of Profit.

19.6 REWARD FOR UNCERTAINTY-BEARING

Frank H. Knight did not accept the crude risk theory of profit briefly described above. It was considered to be crude, because it did not make a distinction between risks which can be foreknown and the risks which cannot be foreknown. There are certain types of risks for example, risk due to death, theft and fire-the average incidence of which can be known on the basis of the law of probability. Such risks can be insured against and the premium that is paid but to the insurance company by an entrepreneur becomes a part of his costs. However, there is another type of risk, the average incidence of which cannot be known. Risks connected with an entrepreneur's price output decisions are unknown risks. Risk lies there, because the expected profits may actually turn into losses. The average incidence of losses due to a particular price-output decision cannot be known. That is why one never hears of an insurance company that insures firms against losses or falling profits. Risks connected with sudden outbursts of political events or changes in the fiscal and monetary policies of the government are also unknown risks.

According to Knight, the latter type of risks which cannot be foreknown and therefore cannot be insured cause against uncertainty in business prospects. Knight

emphasizes that the chief function of an entrepreneur is to bear uncertainty caused by unknowable risks. Hence, he looks upon profits as the reward for uncertainty bearing. However, it is to be noted that the unknowable risks which cause uncertainty are themselves caused by the dynamic changes taking place in an economy. Therefore, the uncertainty-bearing explanation of profit is not independent of the dynamic explanation. It only supplements it.

Moreover, Machlup as we have already seen, has modified Knight's uncertainty bearing theory by demonstrating that the profits in an industry measure uncertainty as it is viewed by the outsiders and not as it is viewed by the insiders.

Self-Check Exercise-4

Q.1 Discuss Uncertainty bearing Theory of Profit.

19.7 INNOVATIONS AND PROFITS

Another explanation which is in line with the explanations of profits considered above is Schumpeter's Innovation Theory. This theory starts from the assumption that the most important function of an entrepreneur is to act as an innovator. An innovator is distinguished from an inventor or a discoverer. An innovator is one who makes an economic use of an invention or a discovery which might have been made by himself or someone else. A successful innovator succeeds through an innovation in either lowering his cost function or raising the demand function for his product or both in relation the cost and demand functions of the rival entrepreneurs. The innovations may take the form of an improvement in technology or the use of a new method of business organization or the exploitation of a new source of raw materials or a new material itself. All such innovations will have the effect of improving the production function of the innovator and thus lowering his cost curves, while the cost curves of the rival entrepreneurs remain at the old level. Consequently, the innovator is able to make super-normal profits of the pure type. Similarly innovation may take the form of putting a new product or a new design of a product on the market, or the discovery and exploitation of a new market, or a use of a new method of advertising the good. All such innovations have the effect of raising the demand function for the product of the innovator in relation to those of his rivals. It is possible that such an innovation may even lower the elasticity of demand for the product of the innovator. This too will bring in pure profits to the innovating entrepreneur.

The above would suggest that even if the economy had been in a state of static equilibrium, the activity of a true entrepreneur, who is an innovator, would have disturbed this equilibrium. This innovational activity by itself acts as a dynamic force creating uncertainty which favours the innovator at the expense of his rivals: However, these profits which, according to Schumpeter are a reward for innovation are transitional under perfect competition. For, soon, the rivals will imitate the successful innovations and compete away the supernormal profits; A stationary equilibrium may again arrive. But, sooner or later, new innovations will again be introduced, the static equilibrium will; once again, be converted into a dynamic disequilibrium, and profit of innovations will again emerge. This process gives rise to profits within freely competitive economy.

The survey of the few profit theories that we have made suggests that whether profits are looked upon as a reward for uncertainty bearing or as a reward for making innovations, they are basically connected with change. This connection is obvious in the fact that the entrepreneurial decisions either produce change (as in

Schumpeter's Innovations Theory) or involve adaptation to change or both. When there is no charge or when the change and the risks connected with it are predictable, there are no entrepreneurial functions to be performed and hence, there are no 'pure' profits. In this sense 'pure' profit may still be described as a 'dynamic surplus'.

Self-Check Exercise-5

Q.1 Discuss Innovations Theory of Profit.

19.8 MARXIAN THEORY OF PROFITS:

Marxian theory of profits throws open an entirely different perspective on the explanation of profits. Instead of looking at it as a superficial market phenomenon, this theory claims to go deeper into the historical and institutional sources of the phenomenon of profits.

The foundation of the Marxian theory of profits is Karl Marx's theory of value which is an improved version of the classical labour theory of value, According to Mark's theory of value, the value of a good is determined by the amount *of* socially *necessary* labour time that is required to produce it. *Socially necessary* labour time is that amount of labour which, under *the* generally prevailing technology*,* is necessary to produce a good. Moreover, Karl Marx made a conceptual distinction between constant capital and variable capital, a distinction which is different from the distinction between fixed capital and *variable* capital of mainstream economics with which we have been dealing so far in all these lessons. Marx had argued that a commodity is produced with the help of machines and other fixed capital in the conventional sense such as raw materials and labour. He further argued that the fixed capital and raw materials did not transfer more than their own value into the final commodity. Therefore, he categorized the fixed' capital in the conventional sense plus the raw materials as *constant* capital. However, he explained that labor is a commodity which, in the process of production, produces more than its own value, that is, this is the only commodity which produces *surplus* value which is the source of capitalist profits. A fundamental criticism of the theories of profits we have examined above is that they seek to explain how profits are determined but they do not explain the *source* of profits. The Marxist economists believe that the Marxian theory removes this lacuna and lays bare the source of profits. Anyway, since labor, in the Marxian view, is the only factor input which reproduces more than its own value, it is categorized as the *variable capital. To* be more correct, capital devoted to the purchase of labour is the variable capital.

The Value of labour, like the value of any other commodity is also determined by the amount *of socially necessary* labour time required to produce it. This amount is determined by the amount of socially necessary labour required to produce the subsistence of worker which enables him to keep his body and soul together and to perpetuate his "race" (class). This amount determines his wage rate. However, what the capitalist employer of labour purchases and pays for is *labour power* but what he makes use of is *labour.* Supposing it requires only four hours of work for a labourer to reproduce the value of his own wages, while he is made to work eight hours a day by his employer, then the Worker is producing a *surplus over* and above the value of his own labour that is wages. This is the *surplus value* which is the source of profits. Thus the value of a commodity according to Marx equals the sum, c+v+s, where c is the value of the *constant* capital and v is the value of the *variable* capital employed

by the capitalist, s is the additional or surplus value produced by labour. The capitalist's cost are c+v. The difference between the total value of the commodity (c+v+s) and the costs of its production to the capitalist (c+v) is the profit.

In this simple abstract model of Karl Marx, only two social classes, capitalists and workers, are assumed. Therefore, the whole of surplus value (s) is characterized as profit. The rate of profit is given by the ratio $\frac{S}{C+V}$, while the ratio $\frac{s}{v}$ gives the rate of exploitation of labour. Thus, in the Marxian theory, profits represent the exploitation of labour and they directly depend on the rate of exploitation of labour. The rate of profit equation,

P =$\frac{S}{C+V}$ can be written as p =$\frac{S/v}{c/v+1}$

which shows that the rate of profit is a direct function of $\frac{S}{C}$, that is the rate of exploitation, and it is an inverse function of c/v which ratio has been categorized by Marx *as* organic composition of capital profit will fall with rise in the organic composition of capital *($^{C}/_{v}$).* Marx had also pointed out that the lope of the dynamic of capitalist economic development is such that as capitalism goes on developing the organic composition of capital goes on rising and, therefore, the rate of profit tends to fall under capitalism.

Self-Check Exercise-6

Q.1 Discuss Marxian Theory of Profit.

19.9 SUMMARY

Profits are the difference between the total revenue proceeds of a given volume of output and the total expenses of producing that output. Pure' profits were described as a dynamic surplus by J.B. Clark who' pointed out that in a state of equilibrium under perfect competition' 'pure' profits are completely competed away so that each entrepreneur earns just 'normal' profits, which are his wages of management. In a stationary economy, in which either no change is taking place or the rates of change are uniform, an entrepreneur has no function other than that of managing the business. So he earns only the wages of management. But Clark argued that the real-world economy is not stationery economy, it is a dynamic economy in which various types of changes are taking place all the time. These changes usually push an economic system into a state of disequilibrium, on account of which prices may turn out to be lower than expected and costs higher than estimated, with the result that there are negative profits or losses.

Clark had listed five types of dynamic changes which turn a static equilibrium into dynamic- disequilibrium. They are changes in the size and- composition of population, changes in the size and composition of wants, .changes in the capital stock, changes in the forms of business organization and changes in the techniques of production. If the effect of such changes is favourable there is a surplus in the form of positive 'pure' profits. Since it is caused by the dynamic changes in the economy, these profits are described as a 'dynamic surplus'.

If profits are the price of the services of the entrepreneur, then according to the risk theory of profits, it is the entrepreneur's reward for risk-taking. This theory assumes that the most important function of an entrepreneur, which distinguishes him from other factors, is to undertake the risk óf the business. If an entrepreneur

expects to earn more than what he invested, he would rather loan out his capital and get himself employed as a salaried manager rather than undertake the risk of the business by working as an entrepreneur. This reduces the supply of enterprise to an industry and the supply of product of the industry is reduced. Price rises and 'pure' profits emerge. They must be sufficiently high to keep the required number of entrepreneurs in the industry. The requirement for their services will depend on the marginal revenue productivity (MRP) function of entrepreneurial services in the industry.

Frank H. Knight did not accept the crude risk theory of profit briefly described above. It was considered to be crude, because it did not make a distinction between risks which can be foreknown and the risks which cannot be foreknown. There are certain types of risks for example, risk due to death, theft and fire-the average incidence of which can be known on the basis of the law of probability. Such risks can be insured against and the premium that is paid but to the insurance company by an entrepreneur becomes a part of his costs. However, there is another type of risk, the average incidence of which cannot be known. Risks connected with an entrepreneur's price output decisions are unknown risks. Risk lies there, because the expected profits may actually turn into losses.

Another explanation which is in line with the explanations of profits considered above is Schumpeter's Innovation Theory. This theory starts from the assumption that the most important function of an entrepreneur is to act as an innovator. An innovator is distinguished from an inventor or a discoverer. An innovator is one who makes an economic use of an invention or a discovery which might have been made by himself or someone else. A successful innovator succeeds through an innovation in either lowering his cost function or raising the demand function for his product or both in relation the cost and demand functions of the rival entrepreneurs. The innovations may take the form of an improvement in technology or the use of a new method of business organization or the exploitation of a new source of raw materials or a new material itself The survey of the few profit theories that we have made suggests that whether profits are looked upon as a reward for uncertainty bearing or as a reward for making innovations, they are basically connected with change.

Marxian theory of profits throws open an entirely different perspective on the explanation of profits. Instead of looking at it as a superficial market phenomenon, this theory claims to go deeper into the historical and institutional sources of the phenomenon of profits. The foundation of the Marxian theory of profits is Karl Marx's theory of value which is an improved version of the classical labour theory of value, According to Mark's theory of value, the value of a good is determined by the amount *of socially necessary* labour time that is required to produce it. *Socially necessary* labour time is that amount of labour which, under the generally prevailing technology, is necessary to produce a good. Moreover, Karl Marx made a conceptual distinction between *constant* capital and *variable* capital, a distinction which is different from the distinction between fixed capital and *variable* capital of mainstream economics with whic we have been dealing so far in all these lessons. Marx had argued that a commodity is produced with the help of machines and other fixed capital in the conventional sense such as raw materials and labour. He further argued that the fixed capital and raw materials did not transfer more than their own value into the final commodity. In this simple abstract model of Karl Marx, only two social classes, capitalists and workers, are assumed. Therefore, the whole of surplus value (s) is characterized as profit.

19.10 LOSSARY

- **Profits** are the difference between the total revenue proceeds of a given volume of output and the total expenses of producing that output.
- **Net profit**, also referred to as the **bottom line**, **net income**, or **net earnings** is a measure of the profitability of a venture after accounting for all costs.
- **Gross profit:** A company's revenue minus its cost of goods sold. Gross profit is a company's residual profit after selling a product or service and deducting the cost associated with its production and sale.
- **Innovation** can be defined as something original and, as consequence, new that "breaks in to" the market or into society. One usually associates to new phenomena that are important in some way. A definition of the term, in line with these aspects, would be the following: An innovation is something original, new, and important - in whatever field - that breaks in to (or obtains a foothold in) a market or society.

19.11 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Ans.1 Please refer to section 19.3

Self-Check Exercise-2

Ans.1 Please refer to section 19.4

Self-Check Exercise-3

Ans.1 Please refer to section 19.5

Self-Check Exercise-4

Ans.1 Please refer to section 19.6

Self-Check Exercise-5

Ans.1 Please refer to section 19.7

Self-Check Exercise-6

Ans.1 Please refer to section 19.8

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19.13 TERMINAL QUESTIONS

Q1. Explain Marxian theory of Profit?

Q2. Explain Profit as a Dynamic Surplus?

Unit-20

WELFARE ECONOMICS

STRUCTURE

20.1 INTRODUCTION

Welfare in economics refers to the level of satisfaction. It is assumed to be a direct function of satisfaction. Social welfare, as distinguished from individual welfare, refers to the level of satisfaction of the society as a whole. However, the concept of welfare is based on the assumption that an individual himself is the sole judge of the level of his satisfaction and welfare. From this it follows that social welfare is the sum total of the welfare of the individuals who make up the society. A society has rather an independent preference scale nor can a collective scale of preference be imposed from above by a dictator. The latter, that is, the imposition of a collective scale of preference from above, will violate the assumption of consumer's sovereignty.

The modern welfare economics is founded on subjective utility which, as you know, cannot be quantified and therefore, is not additive. The question then arises how to aggregate the individual welfare to arrive at social welfare. Pigou, who rather represented the 'old' welfare economics which came to him from the classical economics through Marshall, has suggested that if we assume that the individuals belonging to a given society have, on the average, an equal capacity for enjoying money income, we can solve this problem as well as arrive at meaningful and operational welfare principles. But the "positivists", and almost all the followers of the modern welfare economics claim themselves to be "positivists", object to Pigou's suggestion on the ground that it would impart value judgements into welfare analysis and make welfare economics a normative rather than positive study. Thus, modern

welfare economics starts with the basic assumption that it is not possible to make interpersonal comparisons of utility. Utility of one individual cannot be compared with that of another, for utility is a subjective magnitude for which there can be no common measure. Money cannot serve as a common measure, because it does not have the same utility for all the individuals. The utility of money to individuals varies, because their total money income and wealth as well as 'tastes' (capacity to enjoy a given money income) differ.

20.2 LEARNING OBJECTIVES

After going through this unit, you will be able to explain :

- what is paretian optimum
- what is compensation principle
- what is social welfare function
- what are externality effects.

20.3 PARETIAN OPTIMUM

The assumption of impossibility of making interpersonal comparisons of utility on a objective and positive basis led Pareto, the father of the modern school of welfare economics, to define welfare optimum for a society as, *a position in which it is not possible to increase the welfare of an individual without at the same, time, decreasing the welfare of some other, individual or individuals*. For when, due to a particular change in the organization of resources and/or distribution, some people are made better off, while some others are made worse off, it is not possible to say whether the aggregate social welfare has increased or decreased,, unless we are prepared to and are capable of making inter- personal comparisons of utility.

Besides assuming ordinal utility and impossibility of making interpersonal comparisons of utility, Pareto made the following additional assumptions: (i) individual preference functions are given and constant; (ii) All production functions in the economy are given and constant; and (iii) There are no externality effects, that is, external economies and diseconomies are ruled out.

On the above assumptions, Pareto laid down seven conditions that must be fulfilled if social welfare was to be optimized. These conditions have come to be known as the seven 'marginal' conditions of a Pareto Optimum. These conditions are as follows:

(i) First, there is the condition *of optimum allocation of goods which states that the marginal rate of substitution between any pair of must be the same for any pair of consumers of those goods*, It should not be difficult for you to tell that the MRS between a pair of goods to a pair of consumers will be equal where the indifference curves of the two. consumers are tangent to each other in an Edgeworthian box diagram that we derived while explaining pricing under bilateral monopoly (see Lesson 11). It was observed therein that there is not one but almost an infinite number of points of such tangency between the indifference curves of the two individuals. Therefore, all points on the locus of these tangencies (i.e. on the Edgeworthian *contract curve*) are positions of optimum social welfare, each one of which relates to a particular distribution. Since the Paretian welfare economics fights shy of making welfare

pronouncements on changes in distribution, this theory is unable to tell us which of these infinite optima is the optimum.

(2) Second, there is the condition of *optimum production of goods, which states that the marginal rate of transformation (MRT) between any pair of goods must be the same for any pair of producers of those goods*. You know that the MRT between a pair of goods is given by the slope of the transformation or production- possibility curve at that level. This condition is satisfied where the production-possibility curves of the two producers in a box diagram become tangent to each other.

(3) Third, there is the condition of the *optimum allocation of factors of production which states that the marginal rate of technical substitution (MRTS) between any pair of factors employed in the production of any good must be the same for any pair of producers employing those factors to produce that good*. You know that the MRTS between a pair of factors in a given position is indicated by the slope of an iso-product curve in that position. Therefore, this condition will be satisfied at the point of tangency between the iso-product curves of any pair of producers in a box diagram. In this case too there will not be a unique optimum but almost an infinite number of optima. Which of these is the optimum optimorum cannot be determined within the Paretian theory for reasons already given in relation with the first condition above.

(4) Fourth there is the condition of the *optimum utilization of a factor, which states that the marginal rate of transformation of a factor into a product must be the same for all producers employing that factor and producing that good*. This marginal rate of transformation is given by the slope of the transformation curve which, in this case, is the same as the total product curve of the given factor. Therefore, this condition will be satisfied where the transformation curves (the total product curves of the given pair of producers) become tangent to each other in a box diagram. The MRT of a factor into a product is only another name for the marginal product of the factor in the production of the given good. So this condition implies that the marginal product of any factor must be the same for all producers employing that factor and producing that good.

(5) Fifth, there is the condition of the *optimum pattern of production, which states that the MRT between any pair of goods to the society must equal the MRS between that pair of goods to all the consumers consuming those goods*. This condition will be satisfied where the society's transformation curve becomes tangent to the highest possible indifference curve of an individual as shown in Fig. 20.1, PP' is the society's transformation curve and I, II.... are the indifference curves of the individual. At all points on PP' the total cost of the society is the same. But the point c, at which it becomes tangent to an indifference curve of an individual enables him to reach the highest level of satisfaction or welfare. At this point, $MRT_{AB} = MRS_{AB}$

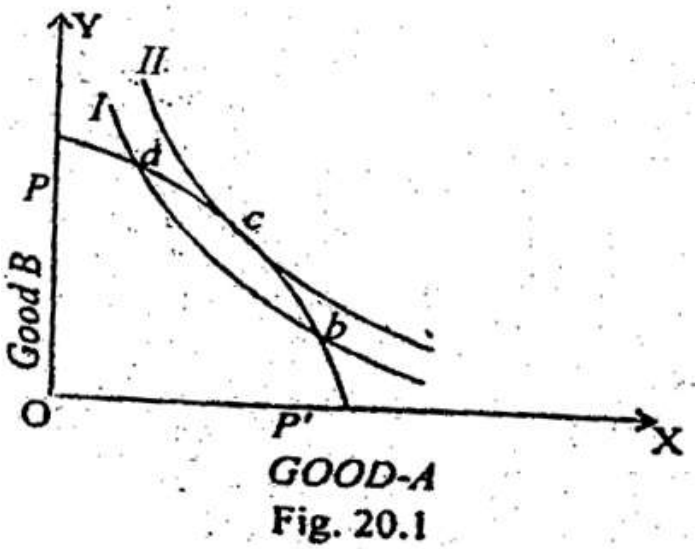

Fig. 20.1

(6) Sixth, there is the condition of the *optimum use of a factor units time*. A factor service may be supplied to produce some good or it may be kept idle. We may state this condition with reference to the factor, labour. *The marginal rate of substitution of an individual between leisure and product (income) must equal the marginal rate of transformation of work into product to the society*. This implies that an individual's MRS between leisure and product (income) must equal the MRT of work into product (i.e. marginal product of labour) to the society. This condition will be satisfied where the labour product transformation curve of the society becomes tangent to an individual indifference curve showing his preference between leisure and product (income). In Fig. 20.1, let OX represent product and OY leisure. A position like C will show the optimum with respect to this condition.

(7) Seventh, there is the condition of intertemporal *optimum allocation of assets, which states that the MRS between any pair of assets yielding income at different points of time must be the some for any pair of individuals*. The condition relates to borrowing and lending in the absence of risk. Assuming the borrower to be a producer, this condition will imply that an individual lender's MRS between present and future income (i.e. his marginal rate of time preference') must equal the marginal product of capital. This condition will be satisfied where a borrower's time-production possibility curve becomes tangent to an indifference curve of an individual showing his preference between present and future income. The time production possibility curve shows the product of capital invested by the borrower. If, in Fig. 20.1 above, OX represents present income and OY future income at some specified moment of time, and I, II... are lender's indifference curves, the position C will show the optimum.

The above marginal conditions of Pareto Optimum are only the necessary but not sufficient conditions of optimum social welfare. The 'second order' conditions, which must also be satisfied along with the above 'first order' conditions, are that in the neighborhood of the optimum, all indifferences curves must be convex to the origin and all transformation curves must be concave. Hicks has further. pointed out that despite the fulfillment of both, the 'first order' and the 'second order' conditions, a position may not be a position of optimum welfare, if it is possible to increase welfare by producing a product not otherwise produced (or produced only by One firm).

Hence, Hicks has pointed out that the whole set of optimum welfare conditions may be stated in terms of the total conditions as follows:

Welfare is optimized if it is impossible to increase it by varying the output of any product by any firm, including variations from zero, or by varying the amount of any product consumed by any consumer including variations from zero; or by varying the amount of any factor unit used to yield direct service to any individual, including variation from zero.

However, the above welfare optimum is not unique, for it presupposes a given distribution of income.

Self-Check Exercise-1

Q.1 What do you mean by Paretian Optimum?

20.4 COMPENSATION PRINCIPLE

One of the basic deficiencies of Paretain welfare economics was that it could not indicate the welfare implication of a policy which increased the total product of the society and in the process, made some people better off. and some others worse off. Since interpersonal comparisons of utility were ruled out, the Paretian theory could not determine whether the gain of the beneficiaries of the policy was or was not greater than the loss of the victims of such a policy.

Kaldor and Hicks made a bold but, as we shall see, an unsuccessful attempt to remove this lacuna of the Paretian welfare theory without dispensing with its basic assumptions. Their reformulation of the Paretian theory has come to be known as the Compensation Principle.

Kaldor, in his 1939 article, "Welfare Propositions of Economics and Interpersonal Comparisons of Utility," argued as follows. If a policy has the of increasing the national product of a society, it *becomes potentially* possible that every individual member of the society may be made better off as compared to his original position, for the increment in the national product could be distributed among all the members. Kaldor argued that it is not necessary for the economist to prove that none will be made worse off as a result of the policy It is enough if he can demonstrate that if the gainers from the change are made to compensate the losers for their loss from the change, they will still remain the gainers.

Hicks too seemed to agree with Kaldor, when the former wrote in his *Foundations of Welfare Economies* which was published only a couple of months after Kaldor's above mentioned article, that a permitted reorganization (from the welfare point of view) is the one which allows compensation being paid to the losers and yet leaves a net advantage. So long as such a reorganization is possible, the welfare optimum of the society is not reached.

The Compensation Principle can be illustrated and explained by bringing in the state. Let the state gather the whole benefit from the beneficiaries of the change through a compensating tax and utilize this tax revenue to compensate the loss of the losers from the change in the form of bounties to them. If, at the completion of this compensatory operation, the state is left with a surplus, the change, according to the Compensation Principle will be welfare-increasing. Or, as Reder observed. "Welfare will be increased, decreased or left unchanged, if the algebraic sum of all compensating taxes and bounties is positive, negative or zero" (*Studies in the Theory of Welfare Economics*).

The Compensation Principle of Kaldor and Hicks has not been able to remove the gaps in the Paretian welfare theory. It too, like its parent theory, assumes welfare to be a function of production alone, ignoring the fact that the efficiency of production itself is determined, among other things, by distribution. Moreover, any evaluation of national product before and after a reorganization has of necessity to be done on the basis of the market prices of goods. But the market prices themselves are the result of the prevailing distribution.

The claim of its authors that it enables us to point out the welfare implications of a policy in situations where as a result of the policy some individuals are made better off and some others are made, worse off without recourse to interpersonal comparisons of utility, is not valid. The only method by which the losses and gains of welfare can be measured is to employ money as a measure. But-this necessarily implies the assumption that the marginal utility of money to all individuals is the same. One may very well ask if it is not making interpersonal comparisons of utility, then what it is?

Besides, once it is recognized that potential compensation will not ensure actual increase in the welfare of all the individuals, the payment of actual compensation becomes necessary. But how are we to calculate losses and gains of welfare from a given policy? The utility scales of all individuals cannot be known and therefore the losses and gains cannot be known. Questionnaires either will not help, for the losers are likely to exaggerate their losses and the gainers are likely to understate their gains. This makes the principle non-operational.

Scitovsky had shown that if, on the basis of the Kaldor Hicks compensation principle, actual compensation is not paid, then the actual redistribution resulting from the change may be such that a reversion to the pre- change situation may also be advisable on the basis of Kaldor Hicks criterion. For example, the losers from the change may be in a position to bribe the gainers not to accept the change and yet remain better off as compared to their post change condition. Hence Scitovsky suggested his *double criterion* for judging the welfare effect of a change (policy): *A change in economic organization will increase social welfare, if (i) the gainers are able to the losers and yet remain the gainers*, and (ii) the losers are unable to bribe the gainers not accepting the proposed change.

Self-Check Exercise-2

Q.1 Discuss Compensation Principal.

20.5 SOCIAL WELFARE FUNCTION:

The so-called 'new' welfare economics that we have examined so far leaves out a very important variable determining social welfare, namely, distribution because it fights shy of making interpersonal comparisons of utility. It also ignores the 'externality' effects on welfare, for it fails to see that the welfare of an individual may be a function not solely of his own consumption but also of the consumption of other individuals. Some economists, notably Bergson, Samuelson and Tintner, acknowledged that welfare analysis cannot be done without some sort of interpersonal comparisons of utility which, they confessed, meant making value judgements. Therefore, they expressed the view that welfare economics was essentially a normative study. It however, should be studied scientifically. So it was they, particularly Bergson, who reformulated the welfare theory by introducing info welfare analysis a set of value judgements, including judgement on distribution from

outside economics. This has come to be known as the Social Welfare Function Theory.

The essence of this theory lies in the rule by which the individual welfare functions can be aggregated into a social welfare function. Furthermore, this theory, looks upon the individual welfare as a function not only of his own consumption but also of the consumption of other individuals, his attitude towards distribution as well as any other variable that could influence an individuals' welfare. In the words of Bergson, the value of welfare function is understood to depend on all the variables that might be considered as affecting welfare the amounts of each and every kind of goods consumed and service performed by each and every household, the amount each and every kind of capital investment undertaken and so on. (cf. Bergson, "Socialist Economics". *A Survey of Contemporary Economics, ed. Ellis, Vol.1)*

Social Welfare Function has been described as a brilliant theoretical device which "completes the formal mathematical system of welfare economics," (Little). But, in spite of its sophistication, it is non-operational and of little practical significance. The only possible device suggested by this theory for constructing social welfare function is the voting system. All the individual members of a society or their representatives are assumed to order all possible alternatives according to their own preferences, and these individual scales of preferences can then, be reduced to a single collective ordering on the basis of the majority vote.

But the snag in it as pointed out by Arrow in his "Social Choice and Individual Values", is that due to the "Paradox of voting", the social welfare function so arrived at may turn out to be non-transitive and inconsistent in situations when choice is to be made from among more than two alternatives. Let us suppose that society is made up of only three individuals, X, Y and Z and there are three alternative choices. A. B and C. Furthermore, suppose that X prefers A to B to C. Y prefers B to C to A, and Z prefers C to A to B. Let us now consider how the majority choice on the social welfare function will work out to be in this case.

Choice	**For**	**Against**
A preferred to B	X and Z	Y
B preferred to C	X and Y	Z
C preferred to A	Y and Z	X

The above table shows that majority prefers A to B and the majority also prefers B to C. Therefore, transitivity of choices will require that majority should prefer A to C. But the above table shows that actually the majority also prefers C to A, Hence, the social welfare function built on majority decisions turns out, in this case, to be inconsistent.

The main reason of the above- mentioned inconsistency is that all individual votes have been assigned equal weight. critics of the theory rightly point out that it is not different from giving equal weights to all individuals satisfactions as is implied in the 'old' Pigovian welfare economics which is much more simple and practical than the Bergson Samuelson type of social welfare function theory.

Lastly, in so for as social welfare is concerned with every individual's welfare, and not only with the welfare of the majority, a social welfare function built on majority decision will not be quite satisfactory.

Self-Check Exercise-3

Q.1 Discuss Social Welfare Function.

20.6 EXTERNALITY EFFECTS

Paretian welfare theory had an implicit assumption that, under perfect competition, the private marginal utility from a good equals its social marginal utility, and the private marginal product of a factor equals its social marginal product. This can happen only in the absence of externality effects. *Externality effect refer to the effects of external economies and diseconomies in production as well as consumption, on account of which the private marginal utility differs from the social marginal utility and private marginal product diverges from social marginal product*. This divergence was, first of all, highlighted by Pigou in his famous work, Economics of Welfare. It was pointed out that in the presence of externality effects, welfare will not be optimized under perfect competition, even when we disregarded the effects of direct changes in- distribution.

It is to be noted that the external economies and diseconomies in production and consumption, to which externality effect refer, are non-pecuniary economies and diseconomies that is they are the external economies and diseconomies which are not reflected in their market prices.

External economies in production arise when the production of one product or of one firm has a direct beneficial effect on the production of another product or another firm. When apple orchards increase in size and number, it may directly benefit the bee-keeping industry, for the latter is able to have an increased supply of an input for which it is not paying. This input is the services' of the apple blossoms to the bee-keeping industry. This is an external economy of the bee-keeping industry. When external economies are present in production, the social marginal product of a factor or factors is greater than the private marginal product. On the other hand, when there are external diseconomies, the social marginal product is less than the private marginal product Pigou's famous example of factory smoke polluting the environment and increasing for others the cost of sanitation and health illustrates this case. Or, suppose that the bees eat away the apple- blossoms and thus are instrumental in reducing the output and increasing the cost of apple industry. The bee-keepers around the apple orchards cannot be made to pay for this loss inflicted on the apple industry. This is an external diseconomy caused by the growth of the bee- keeping industry to the apple industry. In consequence of it social marginal product of bee- keeping industry will be less than its private marginal product.

External economies and diseconomies may be present in consumption too. External economies in consumption are present when the consumption of a good by an individual increases the utility of some other individuals in the society. For example, the utility a telephone-owner gets from his telephone increases with the number of persons using telephones. A person who installs a television set in his house increases the satisfaction of his neighbors also who can, at least, occasionally visit him and enjoy the programmes on the television. In such cases, social marginal utility of a good is greater than its private marginal utility. On the other hand, if the consumption of a good by an individual creates a sort of nuisance for others and thus reduces their satisfaction (welfare), it will be a case of external diseconomy in consumption. A person playing his radio loudly creates nuisance for others. In such cases, social marginal utility of a good is less than its private marginal utility.

In view of what has been said above, it is suggested that an additional condition has to be satisfied for attaining welfare optimum even when we ignore the distribution factor. This condition is that the private marginal product of any factor must equal its social marginal product, and the private marginal utility from the consumption of any good or service must equal its social marginal utility.

Since one of the conditions of optimum social welfare is that private marginal product should equal the social marginal product and private marginal utility should equal the social marginal utility, the question arises how we should bring about this equality, when external effects are present. Two types of policies are generally suggested to solve this problem. The one of these policies has the aim of preventing an individual's (a producer's or a consumer's) action from interfering with another person's well-being. This applies to situations of external diseconomies. For example, the government may require the factory-owners to use smoke- abating equipment to prevent the external diseconomy in the form of the pollution of the environment due to the smoke from the factories. Similarly, playing of radio-sets at high volume may be prohibited. The other policy aims at discouraging the expansion of production and consumption of goods causing external diseconomies and encouraging the expansion of production and consumption of goods yielding external economies. This suggests that the first kind of industries should be taxed and the second kind should be subsidized.

Self-Check Exercise-4

Q.1 Discuss Externality Effects.

20.7 SUMMARY

Untill now we have focussed on considerations of Pareto efficiency in evaluating economic allocations. But there are other important consideration. It must be remembered that Pareto efficiency has nothing to say about the distribution of welfare across people, giving everything to one person will typically be Pareto efficient. But the red of might not consider this a reasonable allocation. Pareto efficiency is in itself a desirable goal of there is some way to make some group of people better off without-hurting other people. More generally, a welfare function provides a way to rand different distributions of utility among consumed.

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 charge increases social welfare or not. Pareto criterion states simply that an economic charge which harms no one and makes someone better off indicates an increase in social welfare.

20.8 GLOSSARY

External Economics and Diseconomics in Production:

As the firm expands its scale of production, it becomes possible for the firm to produce a unit of product at a relatively lower cost due to internal economics of large scale product in. On the other hand, external economic occur when the expansion of a firm's output creates benefits, parts of which goes to others.

Let us now explain some external dis economics of production. There are good number of external dis economics which may be created by the productive

activity of a firm. The pollution of air by the factories through emitting smoke and the wastes of factories poured into streams or ocean create health wizard for men, especially those who live in surrounding areas. A factory owner pays nothing to the residents of the neighbouring colony who happen to be the victims of pollution by the factory.

External Economics and Diseconomies in Consumption

External economics in consumption arise when the consumption of a person creates beneficial effects on others. For example, the satisfaction of a telephone owner increases with the increases in number of telephone owners because he can now contract. Large number of persons on telephone. On the contrary external dis economics of consumption occur when a person's consumption creates un favourable inpart on the other consumer. A good example of it is provided by the conspicuous consumption of a person who through demonstration effect causes a lot of dissatisfaction to his friends and neighbourers who now feel themselves inferior to him.

20.9 ANSWERS TO SELF-CHECK QUESTIONS

Self-Check Exercise-1

Ans.1 Please refer to section 20.3

Self-Check Exercise-2

Ans.1 Please refer to section 20.4

Self-Check Exercise-3

Ans.1 Please refer to section 20.5

Self-Check Exercise-4

Ans.1 Please refer to section 20.6

20.10 REFERENCES/ SUGGESTED READINGS

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20.11 TERMINAL QUESTION

Q.1 Discuss external economics and dis economics of both production and consumptions.