BLOCK 4
THEORY OF PRICE

BLOCK 4 THEORY OF PRICE

In Block 3 you have learnt about the production function, law of supply, elasticity of supply and theory of costs. Another important area in Economic Theory relates to the determination of price. In this block, you will learn how a firm determines the level of its output and the price of its product. To be specific, it deals with equilibrium concept and equilibrium under perfect competition, monopoly, monopolistic competition and oligopoly.

Unit12 deals with concept of equilibrium, market and price, and market structures and market equilibrium.

Unit 13 explains concept of perfect competition short-run and long-run equilibrium of a firm and industry under perfect competition.

Unit 14 deals with concept of monopoly, short-run and long-run equilibrium under monopoly, price discrimination and regulation of monopoly.

Unit 15 explains the concept of monopolistic competition and short-run and long-run equilibrium under monopolistic competition.

Unit 16 deals with characteristics of oligopoly, price and output equilibrium in an oligopolistic industry and concentration and collusion of oligopolists.

UNIT 12 EQUILIBRIUM CONCEPT AND CONDITIONS

Structure

12.0 OBJECTIVES

After studying this unit, you should be able to:

- analyze the meaning of equilibrium;
- how equilibrium can be looked at from various angles;
- how in the market it helps to determine equality between supply and demand how and why demand and supply should be expressed through schedules and curves;
- what characteristics determine the structure of a market;
- how a given market structure gets related to demand curve; and
- explain the behaviour of the average and marginal revenues facing the seller in different market conditions.

12.1 INTRODUCTION

In the preceding units, you have learnt how production forces operate in the short and long period and what levels of output could become available to the market under various conditions.

The market brings sellers and buyers together. The price mechanism leads to the determination of equilibrium price which in turn helps in determining the level of production of a commodity and the level of demand. The

remuneration from factors of production and the distribution of income are also decided through the price mechanism in the factor market. For consumers, what quantities of the various commodities they consume and how much of their income they will use up for direct satisfaction of wants and how much they will save, are also decided by price mechanism. Thus, price mechanism determines allocation of resources in the free enterprise system.

A higher price indicates that the quantity supplied is more than quantity demanded at that price. This leads to the tendency of price showing a tendency to fall until supply becomes equal to demand. If price falls below this level the reverse happens namely demand becomes more than supply leading to a tendency of price going up until supply becomes equal to demand. In this unit, you will learn about equilibrium and its various aspects.

12.2 CONCEPT OF EQUILIBRIUM

The term equilibrium is a position where the opposing forces have balanced each other so that the system is either at rest or moving along a steady path. The tendency for the economic force to be in a state of balance should not be taken to mean that they remain in a state of no change. What is suggested by the tendency towards equilibrium is that economic forces will be necessarily generating conditions whereby disequilibrium, if it is there, will have to give way to equilibrium provided the equilibrium is stable. For instance, if quantity demanded of a commodity is less than quantity supplied then the price of those goods will fall and the seller may find himself in a situation where he is making less profit than before or even suffering losses. In such circumstances, he will be forced to reduce his output until it has become equal to quantity demanded. The price will have a tendency to rise if quantity demanded is more than quantity supplied of a commodity. Thus the tendency towards balance between the economic forces is inherent, if the outside forces do not interfere.

12.3 SIGNIFICANCE OF EQUILIBRIUM

It may be noted that the suggestion that there is a tendency for the economic forces to be in equilibrium does not mean that equilibrium is ‘good' or ‘bad’.

As Lionel Robbins, the British Economist has said “Equilibrium is just equilibrium; there is no penumbra of approbation about it”. This means that in itself equilibrium is neither to be admired nor condemned. It is just to be treated as a tendency for the market forces to balance themselves in course of time.

12.4 APPROACHES TO EQUILIBRIUM

It may be pointed out here that the tendency towards balance between economic forces has to be seen in the context of a time-frame. It may be that output is more than the market requirement today but not with reference to a long period. If output is excessive today, an attempt is made to bring that

output in balance with today's market requirement in various ways. But this will not be done instantaneously. For achieving balance in such circumstances, adjustments will have to be made. However, such adjustments are bound to take time. This is not to say that an immediate adjustment of some sort will not be possible. Much will depend upon the organisation of productive forces determining the production of the concerned commodity. Suppose a producer deals in a perishable commodity. Such a producer may be faced with a situation in which output is in excess of the market requirement but he cannot store his commodity because it is perishable. He will, therefore, be forced either with the alternative of selling his output at whatever low price he can get, or destroy his output. If he does the latter he gets zero price which is obviously worse than getting a low price. The producer of the perishable commodity has, therefore, to sell his output at whatever low price is available to him and thus equalize or balance his output with the market requirement. Such an adjustment leading to equilibrium will be almost immediately possible and involves little time. It can be called **'Momentary Equilibrium'.**

However, there are other kinds of goods produced at any given time which are non-perishables. Such goods can be stored or carried over to a subsequent period in case their output is in excess of market requirement. If the market requirement is more than output, it can be possible to a limited extent, to increase the output provided the producer has time to arrange for more rawmaterials, more labour, more electricity, etc. The point being made is that in case some time is available to a producer, production adjustments can be made to enable a balance of the economic forces. If at least so much time is available that he can have more raw material and more labour when quantity demanded is more than quantity supplied then **'Short-term equilibrium'** is possible.

The third adjustment would be one in which fixed capital may have to be changed. If there is excess supply, the fixed capital will have to be reduced. If there is deficient supply, the amount of fixed capital will have to be raised. Such changes in plant and equipment of a factory can be brought about only in a long period and thus a **'Long-term equilibrium'** is possible.

Thus, there will be equilibrium,

i) related to a momentary adjustment process which will be called **Momentary equilibrium;**

ii) there will be equilibrium related to the short period adjustment process in which various inputs, except plant and equipment can be changed, which is called **Short period equilibrium**; and

iii) there will be equilibrium related to adjustment in plant and equipment which will be described as **Long period equilibrium.**

Micro and Macro Equilibrium

We have noted that equilibrium involves balancing of economic forces. However, economic forces are so much spread out that unless we have started looking at them in terms of boundaries, it may not be possible to conceive of

their being in balance meaningfully. In economics, it is, therefore, convenient to talk of economic forces either in Micro or Macro terms. Macro-forces can either be related to national economy or to international economy; micro forces relate to a firm or an industry. It would be easily seen that micro balancing of economic forces enables us to isolate a small area from a large area, from an area relating to one commodity to the one embracing all commodities. Such separation often enables us to suppose either that economic forces at the national or international economy level are static or that even if they are dynamic, they do not affect the micro forces. Such assumptions are made for better understanding of micro economic analysis.

Economic forces in the context of a micro and a macro situation gives us the Micro-equilibrium and Macro-equilibrium respectively. In both micro and macro equilibrium, the short and long term adjustments are quite important. Following this, we can talk of short-term micro-equilibrium, long-term micro-equilibrium, short-term macro-equilibrium and long-term macro-equilibrium.

Static and Dynamic Equilibrium

There is one more point which needs consideration. Analysis of balance between economic forces can be built on the assumption that they are changeable and actually changing over time. It can be built on the assumption that they are what they are and would not change at least within the time for which the balance has to be worked out. Where the analysis of balance between economic forces supposes change in them over time, we say that we are analyzing**dynamic equilibrium.** On the other hand, where the balance is conceived as if the economic forces are unchanging, we are studying **static equilibrium**. For instance, if we suppose the tastes and incomes of the consumers or stocks of capital and labour as given, we would say, we are analyzing static equilibrium. On the other hand, if these variables are changing over time, we would be analyzing dynamic equilibrium.

So, there are various ways of looking at and analyzing equilibrium. We may do that in terms of the time available for adjustment, in terms of boundaries within which the economic forces are supposed to operate and in terms of constancy or variability in the forces.

12.5 WHAT DOES A MARKET MEAN?

You have learnt the meaning of equilibrium; now let us deal with the very common situation in respect of which we analyze equilibrium. This is the situation of a commodity market. Market implies a situation where buyers and sellers of a commodity interact. Market necessarily implies coming together of buyers and sellers of the same or similar commodities. It is possible for sellers to be dealing in one variety of soap and the buyers being interested in another variety which can be substituted for the one which same sellers are selling. Such buyers and sellers will constitute a market. What is to be noted about a market is that it is not necessarily a geographical area. Groups of buyers and sellers can be very widely located from each other. In fact, the more the development of communication and transport facilities, the

easier it would be for buyers and sellers to come to contact with each other even if there are long distances.

In a market there can be just one seller and many buyers and there can be one buyer and many sellers. There can also be many sellers and many buyers just as there can be a few sellers and many buyers or few buyers and a many sellers.

We shall see later that differences which characterize different markets in respect of the number of sellers constituting them can make significant difference to the determination of market equilibrium.

12.6 BASIC CONDITIONS OF EQUILIBRIUM

Generally, in the context of a market, equilibrium means a balance between the economic forces on the sides of sellers as well as buyers. In case we consider commodities, demand and supply will relate to commodities. In case, we consider factors of production, demand and supply will relate to factors of production. We are going to analyze market for commodities and, therefore, the economic forces considered will be those of supply and demand of commodities alone.

When we refer to supply and demand in the context of equilibrium, we are not suggesting the amount of the commodity actually supplied and demanded but something different. In fact, supply in the context of equilibrium is a list or schedule of the various amounts of a commodity which firms or sellers would make available at various possible prices. Likewise, demand will be a list or schedule of the various amounts of a commodity which buyers demand at various possible prices. Thus, supply is not what has been actually sold but a schedule of intended sales at different prices. Similarly, demand is not what has actually been demanded but a schedule of amounts demanded corresponding to various prices. For instance, it is likely that corresponding to a price of say Rs. 4 per unit, the sellers are intending to sell 50,000 loaves of bread but the buyers may be wanting to buy less than 50,000. Similarly, lack of equality between intended sales and purchases can exist at many other prices. However, equilibrium will take place only at a price, say Rs. 3.50, at which, what the sellers are intending to sell is just equal to what the buyers are intending to buy.

Market equilibrium is the balance between the intended sales on the part of the buyers and the sellers respectively. Sellers entering the market anticipate the price which could rule in the market and corresponding to each such anticipated price; they decide the amount of the commodity that they think it will be worthwhile to supply. Thus, behind the supply schedule, there is the consideration that supplying a certain amount of the commodity at a certain price would help in maximization of profits.

Similarly, when buyers decide what they propose to buy at a possible price, they also consider if buying at that price would be worthwhile. Buyers would naturally think of the utility or satisfaction which they would get from buying

a particular amount at a particular price. An equilibrium will mean an equality or balance between the intended sales and intended purchases.

An equilibrium is characterized by absence of the desire to expand or contract supply or demand of the commodity in question. When a supplier decides to expand its supply by one unit, he compares the price of the commodity with the marginal cost.

Marginal cost is defined as the addition to total cost by producing one extra unit of a commodity. Similarly, when a buyer decides to increase the purchase of a commodity, he compares the price of the commodity with the marginal utility.

Marginal utility is the addition to total utility by buying an additional unit of a commodity. Therefore, we can say that absence of expansion or contraction in supply and demand is what market equilibrium necessarily connotes. This implies that the price of the given commodity should be equal to its marginal cost to the supplier on the one hand and its marginal utility to the buyer on the other.

When schedules of intention of sellers and buyers are drawn up, we can show them by curves and just where the demand and supply curves intersect we will have a price at which what the sellers plan to sell is equal to what the buyers plan to buy.

This is what we call equilibrium price. The sellers schedule gives the supply curve and the buyers' schedule gives the demand curve.

Thus, equilibrium in a market can be said to be determined by supply and demand, not the actual amounts supplied or demanded but the whole series of amounts showing the various intentions of sellers and buyers at various prices.

The following Table (12.1) shows schedules of supply and demand:

Table 12.1: Demand and Supply Schedules

Intended Supply (in Units)	Expected Price (in Paise)	Intended Demand (in Units)
10	50	2
9	49	3
8	48	4
7	47	5
6	46	6
5	45	7
4	44	8
3	43	9
2	42	10
1	41	11

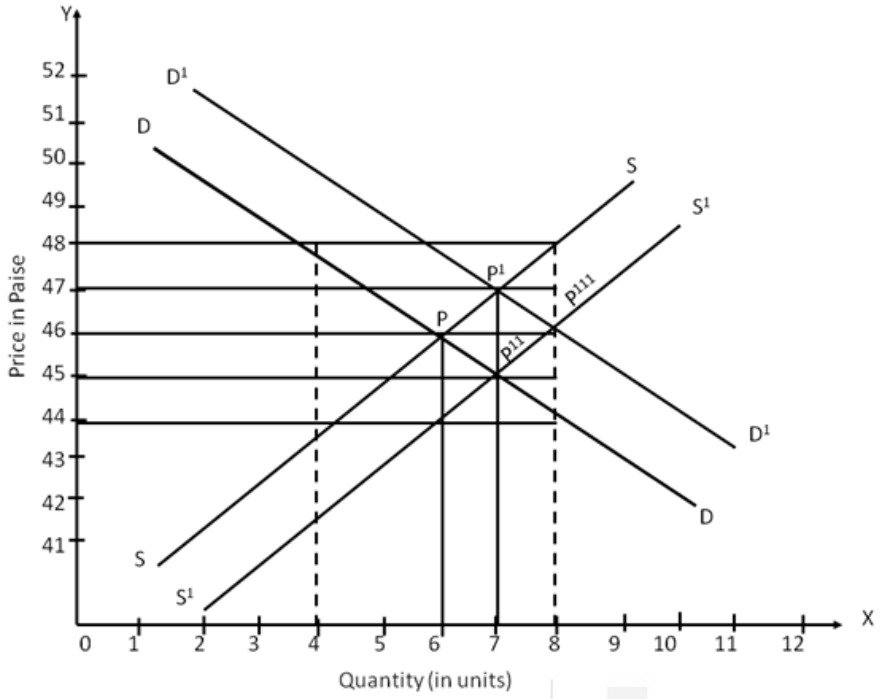

Figure: 12.1: Demand and Supply curve of market

Look at Figure 12.1 where DD is the demand curve and SS is the supply curve. At a price of paise 48 quantity supplied is 8 units and the quantity demanded is 4 units and this leads to a fall in price and it keeps falling until it becomes equal to paise 46 at which quantity supplied and quantity demanded becomes equal to 6 units. Similarly, at a price of paise 44, the quantity demanded is 8 units and the quantity supplied is 4 units which leads to a rise in price and it keeps rising until it becomes equal to paise 46 at which quantity supplied and quantity demanded becomes equal to 6 units. Forty-six paise is thus the equilibrium price or market price of the commodity.

Check Your Progress A

1) What do you mean by equilibrium?

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2) Distinguish between micro and macro equilibrium.

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3) What is the difference between static and dynamic equilibrium?

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4) Fill in the blanks with appropriate words given the end of the questions.

i) The price will have the tendency to rise if quantity demanded is……than quantity supplied of a commodity.

ii) Equilibrium related to short period adjustment process is called a ……

iii) Analysis of balance between economic forces with changing over time is called.....

iv) In static equilibrium, economic forces are considered as ……

v) Market equilibrium is the balance between the intended purchases and……..... on the part of the buyers and the sellers respectively.

12.7 MARKET AND PRICES

Suppose for some reason-because the buyers are earning more income than before or their liking for the commodity has become stronger, they desire to demand more of the commodity at each of the assumed prices than before. Then the demand curve will shift to the right and become D'D'. This new demand curve (Figure 12.1) will intersect the supply curve and the demand curve DD will be P" and the new price will be paise 46. A rise in demand thus raises the price, supply curve remaining unchanged.

Likewise, if for some reason-say, better availability of raw materials—the supplier can supply more of the commodity, at each of the assumed prices, the supply curve will shift to the right and become S'S' Then the new point of intersection between this supply curve and the demand curve DD' will be P' and the new price will be paise 45 which is lower than the old price paise 46. Thus, a rise in supply will lower the price, demand curve remaining unchanged.

It may, however, be noted that while allowing for a shift in the demand curve, we let the supply curve remain the same and while allowing for a shift in the supply curve we let the demand curve remain the same. If both curves shift, we will have to find out the exact degree of shifts in demand curve and supply curve before we can say what will happen to the price. Look at Figure 12.1, where the intersection of the new demand curve and the new supply curve is shown at point P" at which the price is paise 46 and quantity demanded and quantity supplied is 8 units.

Supply and demand could be either of the individual firm or of the industry. The demand curve relevant to a firm will be the horizontal sum of the

individual demand curves of the buyers who demand the commodity produced by the firm. The supply curve of the firm will show amounts of output which the firm considers making available to the group of buyers represented by the demand curve. If an industry is being discussed, the demand curve will show the sum of the demand curves of all the buyers who may be there, no matter from which firm they are buying the commodity. The supply curve for the industry will similarly show the total supply of all the firms constituting the industry at different prices. This difference between the demand and supply curves of firms and industry has been shown in Figures 12.2 and 12.3 respectively.

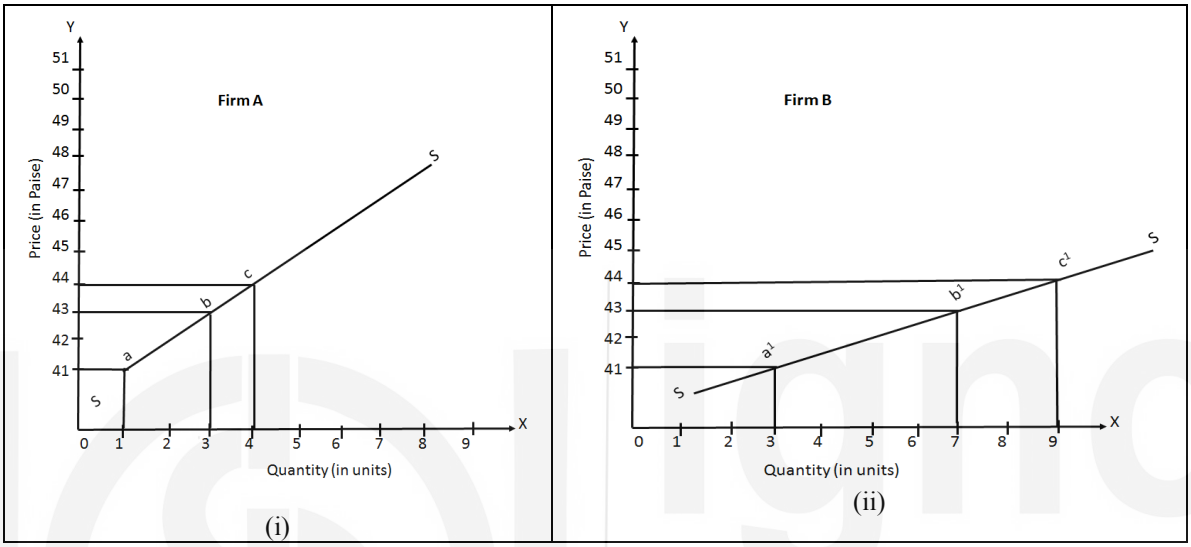


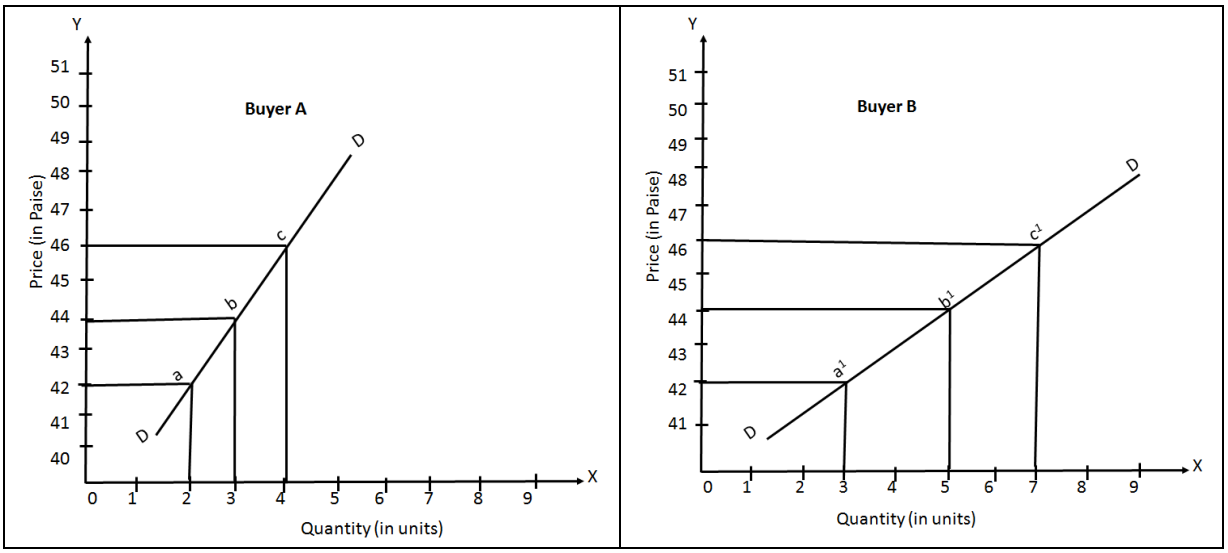
Figure 12.2 : An Industry's Supply Curve

Look at figure 12.2 - where Firm A's and Firm B's supply curves are shown in (i) and (ii) respectively where quantities are measured on X-axis and price (in paise) is measured on Y-axis. Firm B's supply curve is shown flatter than that of Firm A's supply curve. There can be

more firms than A and B in an industry. An industry is a group of firms. The supply curve of an industry is shown in (iii). We notice that point a in (i) shows that at 41 paise price 1 unit is supplied by Firm A. Similarly at point a' firm B supplies 3 units. If the industry consists of Firm A and Firm B alone, the industry's supply at 41 paise price is 1+3=4 which is shown by point a" in (iii).

Similarly, amount supplied by the industry is found but 43 and 44 paise price where the quantities supplied are 10 (=3+7) and 13(=4+9) respectively. If points like a" b" and c" are joined together, we get the industry's supply curve.

Look at Figure 12.3 where Buyer A' and B's demand curves are shown in Figures (i) and (ii) respectively and the industry's demand curve is depicted in Figure (iii). The procedure to derive the industry's demand curves is the same as the industry's supply curve as explained above in Figure 12.2.



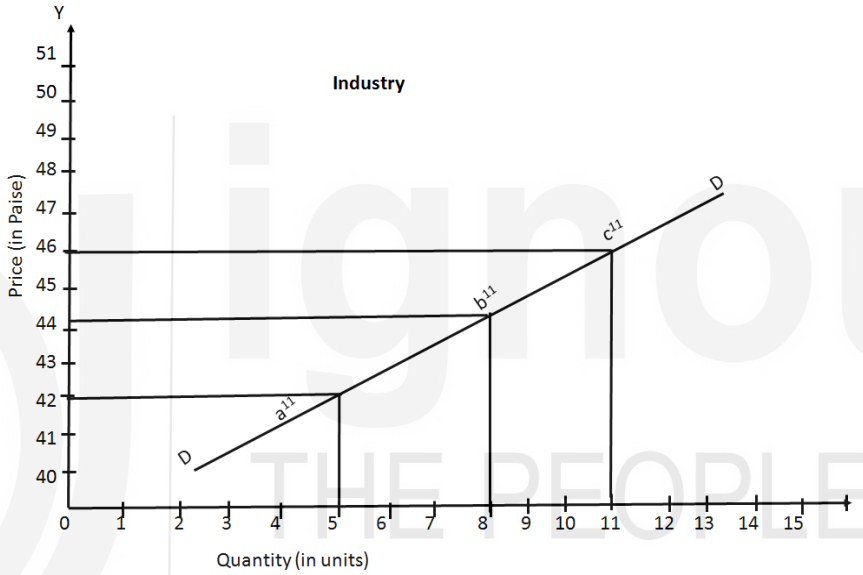


Figure 12.3 : An Industry's Demand Curve

It is inherent in the concept of equilibrium that there is a tendency for the economic forces to balance. This means that if any price in the market is not the equilibrium price, there will be tendency for it to change, so that ultimately the equilibrium price prevails, provided the equilibrium is stable.

Alfred Marshall used the term **'normal price'** for what would be '**equilibrium price in a long period'.** Market price would then either be the actual price prevailing in the market at any given moment of time on the price ruling in a short period. In either case, however, this price will have a tendency to change, because all the adjustments needed for a normal price would not be made except in the long period.

12.8 MARKET STRUCTURE

As market is a combination of buyers and sellers and this combination have several forms, depending on the number of buyers and sellers and some other characteristics. Every form of combination is a distinct kind of market structure. Some other characteristics defining market structure are also (in addition to the number of sellers), taken into account. They are: (i) price

elasticity of demand; (ii) cross elasticity of demand; (iii) nature of the product; and (iv) freedom of entry.

Demand reactions to a change in the price of a commodity vary and that sometimes when sellers raise the price, the buyers may reduce their demand very sharply; also there could be commodities whose demand does not decline even if the price is higher. These two cases-the first of a higher price elasticity of demand and the second of a lower one, are the characteristics which impose limitations on sellers in respect of their capacity to manipulate their price. The more price elastic is the demand of the commodity, the less will be the control which a seller can exercise on the market and the more we will move in the direction of perfect competition. With lower elasticity, we will move in the opposite direction namely, monopoly.

Cross elasticity means that demand for a seller's commodity would vary because of the change in the price of a substitute supplied by another seller. The demand for a tea seller's output could be affected by a change in the price of coffee, since tea and coffee are substitutes. If cross elasticity for tea is high, the tea seller would be helpless to raise his price. But if it is low, manipulation of the price will be possible and we would move from more to less competition.

The third factor, namely, the nature of the product refers to whether the product is homogeneous or differentiated. Homogeneous product implies that all sellers are selling identical product. The differentiated one implies that the product while being basically the same is slightly different from that of the other sellers. Wheat is an example of a homogeneous product while tooth paste is the example of a differentiated one.

If a seller is selling the same product which the other sellers are selling, he may not be able to charge a higher price than the rest so that there will be greater competition amongst sellers. If, however, he is selling a differentiated product say another brand of tooth-paste, he can charge a higher price than the rest without losing the share of the market. To the extent, the seller's control over price increases. We will move towards a situation of less competitive market.

Freedom of entry is crucial to competition. Assume some seller is able, for some reason, to raise his price and profit. Provided entry into industry is free or unhindered, new sellers attracted by high profit, would make going tough for the existing seller and thus competition will increase. If entry is restricted, competition to that extent will also be restricted. Thus in perfect competition, the number of sellers is large, demand is so highly elastic as to be infinite, the cross-elasticity of demand is infinite, the product is homogeneous, entry of firms into the market is free and there is perfect knowledge on the part of buyers and sellers.

In oligopoly, where the number of sellers is small, elasticity of demand and cross elasticity are low, the product can be homogeneous as well as differentiated and entry is easy.

In monopoly, where the elasticity of demand is low, cross elasticity is zero, and the product is homogeneous without a close substitute, there is only one seller and entry of other sellers into the market is blocked.

Except for perfect competition, all the other three market structures namely monopolistic competition, oligopoly and monopoly represent imperfect competition.

In perfect competition, since there are a large number of buyers and sellers, one individual buyer or seller is not in a position to influence the price of the commodity in the market. In other words, the demand curve faced by one individual seller isperfectly price elastic or it is parallel to X-axis as shown in Figure 12.4(i). On the other hand, the demand curve faced by a firm under monopolistic competition or monopoly is the one which slopes downward from left to right as depicted in Figure 12.4(ii)

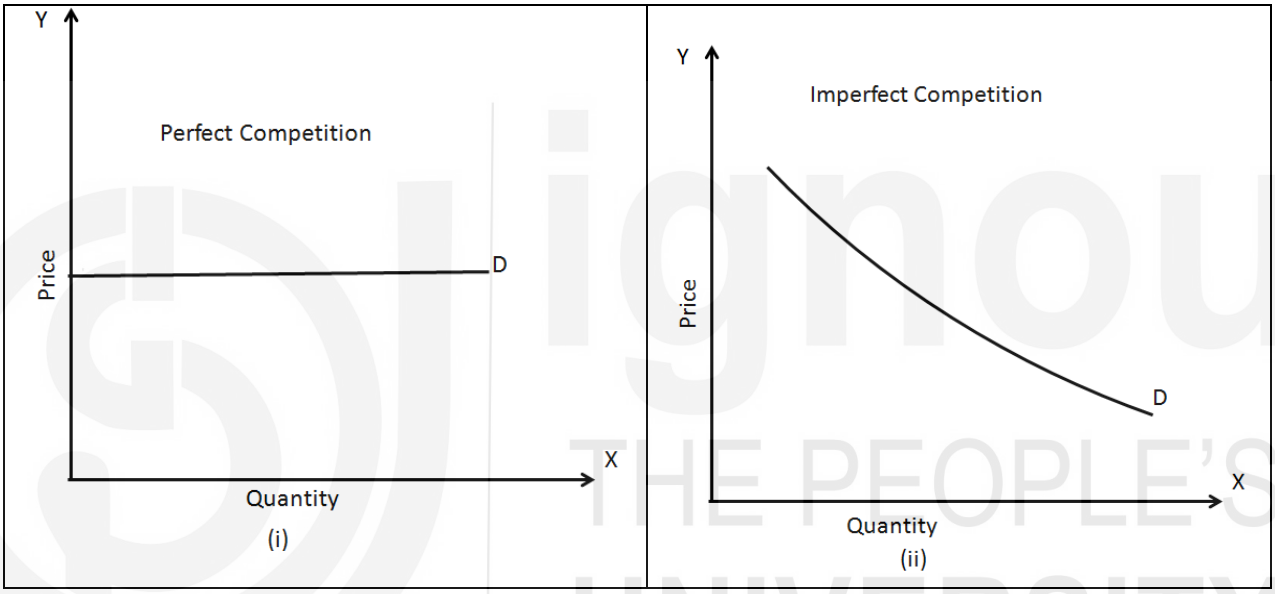


Figure 12.4 : Demand Curve of a Firm

12.9 MARKET STRUCTURE AND REVENUE

The determination of equilibrium in a market requires not only a schedule of supplies and suppliers' prices but also a schedule of demand and buyers' prices. The buyers' price is the average revenue which a supplier would earn by selling a unit of commodity. When the total number of units sold is multiplied by price i.e., by average revenue, we have what is called total revenue. The revenue accruing to a supplier by the sale of an extra unit of his commodity is called marginal revenue. For example a supplier supplying one unit of his commodity, marginal revenue from the sale of say the 2nd unit will be equal to the difference between total revenue from the sale of two units and the sale of one unit. If the price is equal to 50 paise then total revenue from one unit will be 50 paise and that from two units will be 100 paise. Therefore, revenue from the extra unit i.e., the second unit will be 100 paise - (minus) 50 paise i.e., 50 paise. This is marginal revenue. This is shown in Table 12.2.

Table 12.2 Total Revenue, Average Revenue and Marginal Revenue of a Firm under Perfect Competition

(In Paise)

Quantity	AR (Price)	TR	MR
1	50	50	50
2	50	100	50
3	50	150	50
4	50	200	50
5	50	250	50
6	50	300	50
7	50	350	50
8	50	400	50
9	50	450	50
10	50	500	50

The Price or Average Revenue of a firm remains the same in perfect competition because it is only in that market that by varying the supply of a commodity, asupplier is unable to influence the price. The supplies of a firm are an insignificant proportion of total supply and therefore, he has to accept the price as given. He can sell whatever he desires whether more or less at that price but he cannot lower or raise the price. That is why perfect competition is characterized by a horizontal demand curve.

A demand curve shows not only the amounts of commodity buyers are willing to demand, but also the prices at which they want to do so and accordingly, a demand curve is a buyer's price curve also. Further, since the buyer's price is average revenue for the supplier, the demand curve can be called the buyers' price curve as well as the supplier's average revenue curve. Thus, the average revenue curve in a perfectly competitive market is horizontal.

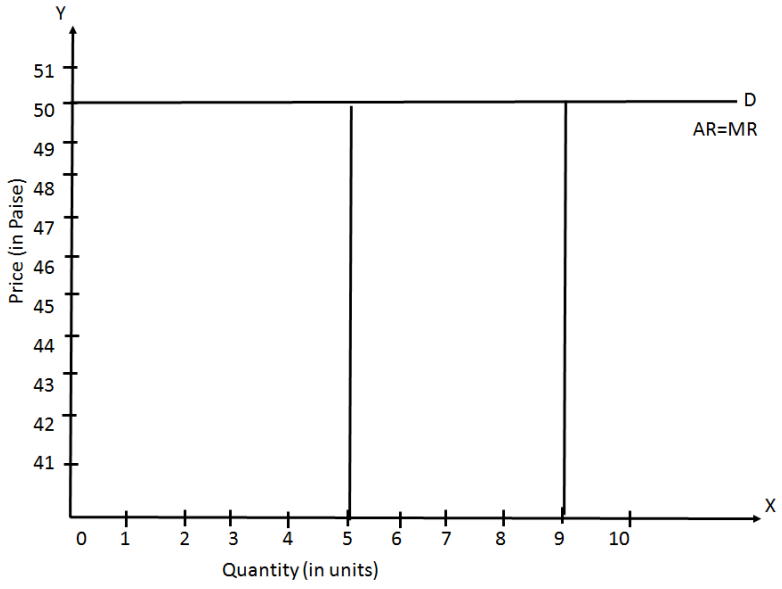


Figure 12.5 : Average Revenue Curve and Marginal Revenue Curve of a Firm under Perfect Competition

Look at Figure 12.5 where since the demand curve D is horizontal, no matter what quantity is demanded and supplied; the price or average revenue will be the same i.e., 50 paise. It can also be seen, as shown in table 12.5 that with an increase in supply, the price, that is, average revenue remains unchanged and marginal revenue will be equal to average revenue. So, in perfect competition, the average revenue curve can also be regarded as representing marginal revenue at various levels of quantities sold.

It has been shown that no single supplier, under perfect competition, will be in a position to influence the price of the commodity, but all sellers together can certainty do that. Thus, it is for an individual firm only that the demand curve is horizontal and not for industry as a whole.

Look at Figure 12.6 where the demand curve for an industry is shown. At supplies Q and Q', we have two different prices -PQ and P'Q'. At higher supply OQ', the price P'Q' is lower than at the lower supply OQ, where the price is PQ. Thus, higher supply can be sold only at a lower price and not a higher price. So, in perfect competition, an industry's demand curve will be sloping downwards while a firm's demand curve will be horizontal.

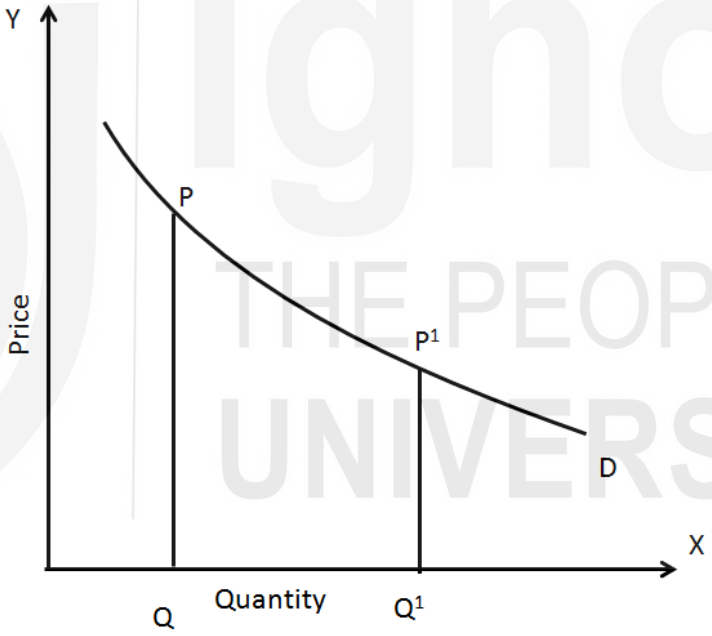


Figure 12.6 : An Industry's Demand Curve under Perfect Competition

Let us analyze the average revenue curve or demand curve of a firm under imperfect competition. The firm will be in a position to influence the price and so, it can be expected to vary its output and charge the price accordingly. It can sell a higher amount at a lower price and lower amount at a higher price because, given the tastes and incomes of the buyers of the commodity, this is the only possibility open to it. Buyers going in for a larger demand will find their marginal utility from the commodity reduced, and, therefore, their price for the larger quantity can only be lower than before. On the other hand, with smaller supplies, buyers finding their marginal utility going up will agree to pay higher price than before. Thus, the average revenue curve of a firm in imperfect competition will be as shown in Figure 12.7.

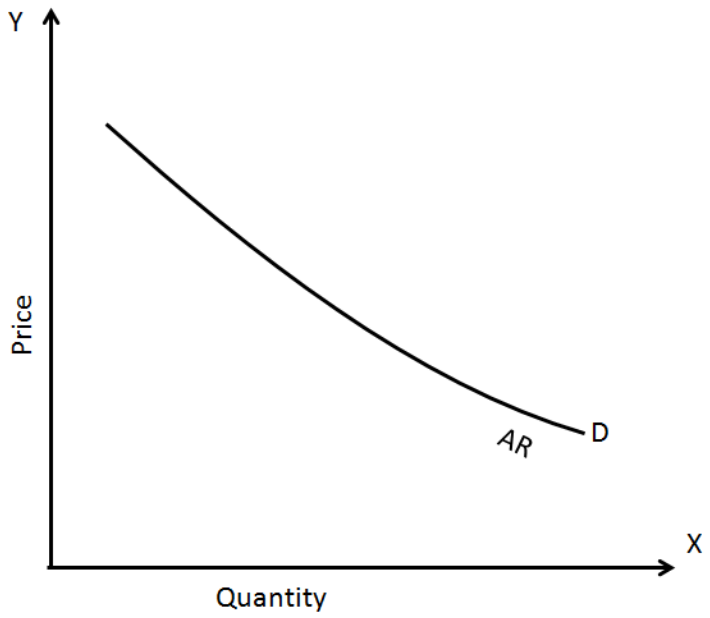


Figure 12.7 : Average Revenue Curve of a Firm under Imperfect Competition

What about marginal revenue? Suppose when the supply is one unit and the price is 50 paise, but as the quantity to be sold increases to 2 units, the price becomes 49 paise. Now marginal revenue, i.e., revenue accruing from the second unit will be the difference between total revenue when 2 units are sold i.e. 98 paise and when 1 unit is sold i.e. 50 paise. The marginal revenue 98-50= 48 paise whereas average, revenue is 49 paise.Thus, when the average revenue declines, marginal revenue becomes lower than the average revenue. Further, as the following table (12.3), willshow, while marginal revenue declines along with average revenue, it does so at a faster rate so that the gap between average and marginal revenue goes on becoming wider with a large output.

Table 12.3: Total Revenue, Average Revenue, and Marginal Revenue of a Firm under Imperfect Competition

Quantity (In Units)	AR (in Paise)	TR (in Paise)	MR (in Paise)
1	50	50	50
2	49	98	48
3	48	144	46
4	47	188	44
5	46	230	42
6	45	270	40
7	44	308	38
8	43	344	36
9	42	378	34
10	41	410	32

The marginal and average revenue curves under imperfect competition are shown in the Figure 12.8

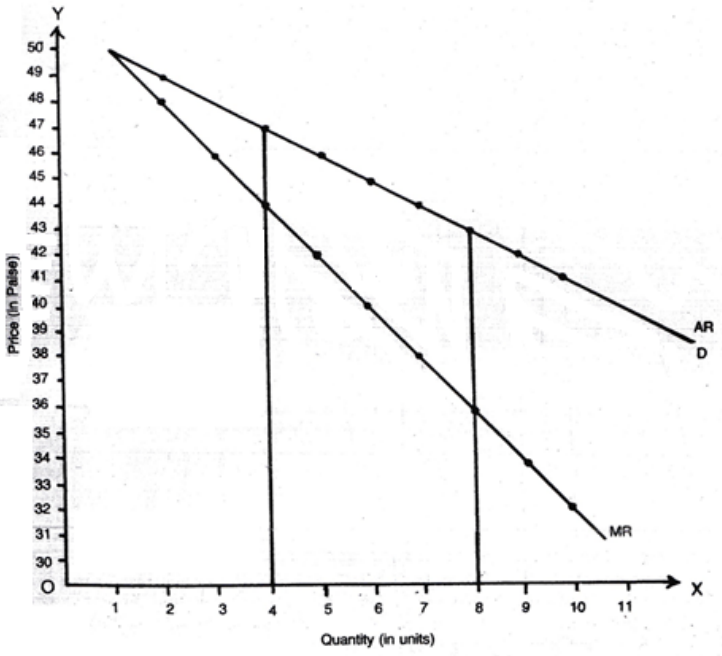


Figure 12.8 : Average Revenue Curve and Marginal Revenue Curve of a Firm Under Imperfect Competition

As quantity increases from 4 units to 8 units, average revenue decreases from 47 to 43paise and marginal revenue decreases from 44 to 36 paise. We can easily see that the gap between average and marginal revenue increases with rise in the level of quantities sold.

Case of Oligopoly One peculiar case of imperfect competition is oligopoly. It is a market situation in which the number of sellers is so small that each seller controls a large part of market demand and can manipulate price but cannot ignore the reactions to a price change by rival firms. Sometimes, the sellers in oligopoly collude to maximise profits by manipulating price. They also try to maximise their sales by non-price competition.

When there is no price-collusion and each tries to set his own price, an interesting situation can emerge. Before considering this situation, we might recall the average revenue curve representing normal conditions of imperfect competition. In such a demand curve, a larger quantity supplied is accompanied by lower average revenue and a smaller quantity supplied by higher average revenue. This is possible because all the sellers in the market agree to sell more at a lower price and less at a higher price and retain their share of the market. No one likes to use the price weapon to push others out. So a typical firm's average and marginal revenue curves will be sloping downwards.

In oligopoly, with price-competition, such a behaviour of curve is disrupted which is shown in Figure 12.9. Suppose at a point of the average revenue curve K, an oligopolist feels like raising his price. Then for every such price increase above K, he may lose a part of his share of the market to other oligopolists, to an extent that in spite of a higher price, he will get lower total revenue. This means that above the point K i.e., at higher prices, an oligopolist's demand curve will show higher elasticity than the usual demand curve. It will, in other words, become flatter. On the other hand, below K,

any attempt by the oligopolist to outsell others by charging a lower price would compel rivals to charge lower price. In this case, he will not be able to increase his share of the market and the situation will be similar to the one of the normal average revenue curve under imperfect competition.

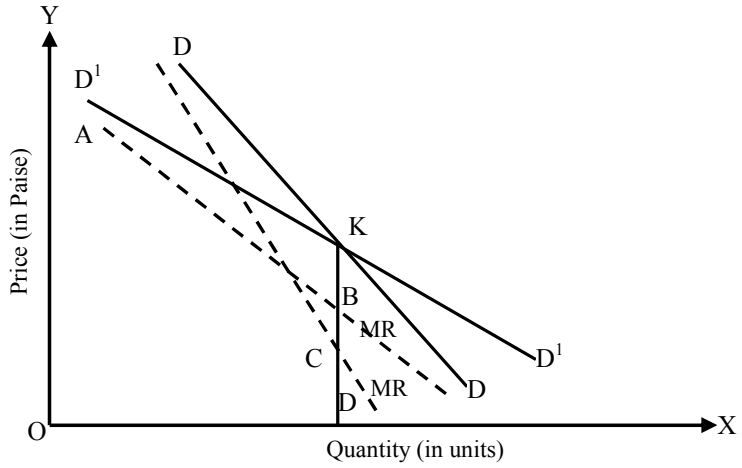


Figure 12.9 : Average Revenue Curve of a Firm under Oligopoly

In Figure 12.9, we see that owing to price competition amongst oligopolists, KD will be demand curve at higher prices upto K and KD will be the demand curve at lower prices after KD^1 is flatter and shows higher elasticity than the old portion of the demand curve KD. However, below K, the demand curve will be as before, namely, KD, The full picture of the demand curve will thus be as shown in Figure 12.10.

It can be seen that this is a picture of the demand curve or average revenue curve which is different from the usual downward sloping demand curve in imperfect competition. The oligopoly demand curve according to some economists tends to be **kinked**, as this one is at point K, which is the point from where the oligopolist attempts to raise or lower his price.

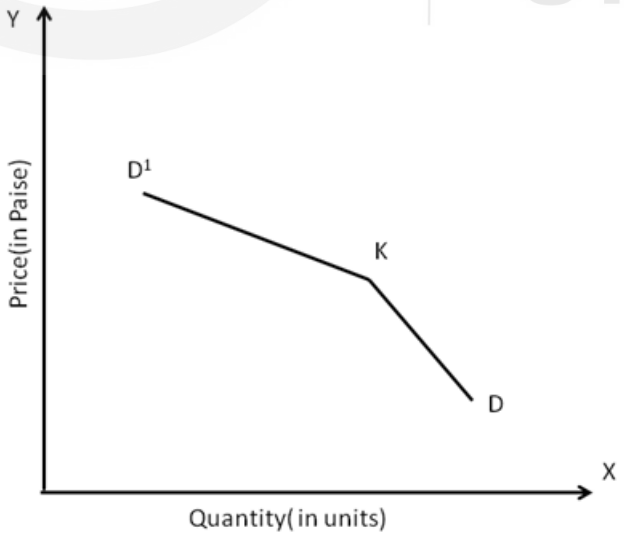


Figure 12.10 : A Demand Curve of a Firm under Oligopoly

Now, if this is the picture of average revenue in oligopoly, how will marginal revenue be shown? Going back to Figure 12.9, we find that we have two

marginal revenue curves. One is MR^1 corresponding to KD" (i.e., the flatter demand curve) and the other MR corresponding to KD (i.e., the normal demand curve).

Since, we may not have a kinked demand curve in oligopoly the relevant marginal revenue curve will be MR nor MR^1. It will be AB upto K and CD after K when the usual demand curve is relevant. Thus, marginal revenue curve in oligopoly with a kinked demand or average revenue curve will be discontinuous as shown in Figure 12.11

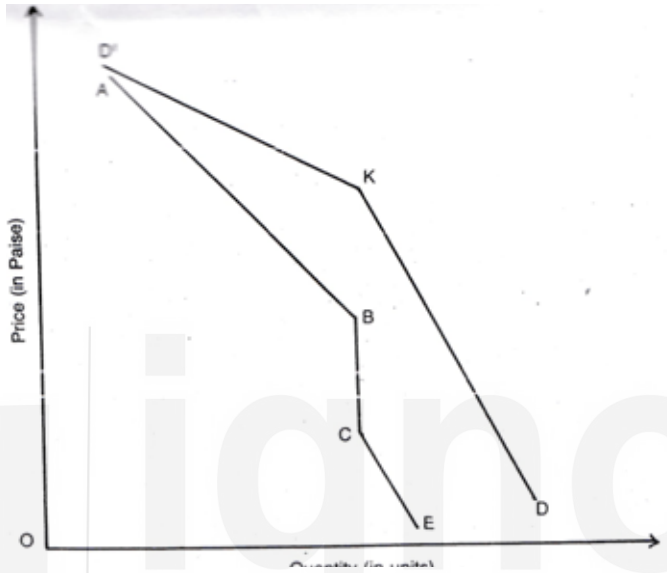


Figure 12.11 : Marginal Revenue Curve of a Firm under Oligopoly

MR curve will be ABCE such that B and C are vertically below K. It may be noted that the marginal revenue curve here is discontinuous. Both average and marginal revenue curves are sloping downwards but both have unusual shapes, if the demand curve is kinked.

BRAIN TEASERS

1. **A firm is contemplating to produce its 10th unit of output, and finds its marginal cost for the 10th unit is Rs. 7.50 and its marginal revenue for the 10th unit equals Rs. 30. What advice would you give to this firm?**

   Ans. A firm would be in equilibrium at the level of output where the *MR = MC.* In this case, since *MC > MR,* the firm would be advised to cut down its output level.

2. **A firm produces output at a constant marginal cost of Rs. 6 and has no fixed costs. The demand curve facing the firm is indicated in table below:**

   (i) Determine the firm's profit-maximising output, price and profit.

   (ii) Show that by producing more or less output the firm would

decrease its profit.

(iii) Explain what happens to marginal revenue when output is raised from 15 to 20 units.

Price (Rs.)	*Quantity Demanded (Units)*
12	0
10	5
8	10
6	15
4	20

Ans. (i) Profit-maximising output is one where *MR* = *MC.* We calculate *MR* for different levels of output as follows:

At the output level of 10 units, *MR* = *MC.* Therefore, the firm will produce 10 units; sell it at a price of Rs. 8 per unit. At this level of output *TR* = Rs.80 and *TC* = Rs. 60. The firm makes a total profit of Rs. 80 – Rs. 60 = Rs**.** 20.

(ii) If the firm produces 4 units, it's*TR*= Rs**.** 40, *TC* = Rs. 24. It makes a total profit of Rs**.** 16. If the firm produces 15 units, it's*TR* = Rs.90, *TC* = Rs.90. It makes no profit.

Price (Rs.)	Q	*TR*	*MR*	*MC*	*TC*
12	0	0	—	—	0
10	4	40	10	6	24
8	10	80	6	6	60
6	15	90	2	6	90
4	20	80	-2	6	120

(iii) *MR* becomes negative.

3. At the quantity where *MR* equals *MC,* the following data apply: *AFC* = Rs. 8, *AVC* = Rs. 15, Price = Rs. 20.

Should the firm produce in the short-run or in the long-run?

Ans. The firm should produce in the short-run, since Price >*AVC.*

The firm should not produce in the long-run, since profits are negative.

Check Your Progress B

1) What is the difference between perfect competition, oligopoly and monopoly?

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2) Differentiate between total revenue, average revenue and marginal revenue.

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3) Are the following statements **True** or **False**?

i) Equilibrium is good while disequilibrium is bad.

ii) Long period equilibrium requires no change in plant and equipment.

iii) Suppliers expect a price which is equal to marginal utility of the commodity to him.

iv) Equilibrium necessarily means equality between marginal cost and average cost.

v) Perfect competition is possible only when the number of buyers and sellers is large.

4) Choose the most appropriate answers from the given alternatives.

i) Perfect knowledge is a characteristic of

a) Monopoly

b) Oligopoly

c) Monopolistic competition

d) Perfect competition

ii) If the demand for a commodity rises

a) Price will fall

b) Price will increase

c) Price will remain same

d) Effect on price will depend upon how supply also behaves

iii) Market means

a) a City

b) Group of buyers and sellers

c) a particular locality

d) Group of gathered people

iv) In imperfect competition, marginal revenue is

a) Greater than average revenue

b) Smaller than average revenue

c) Equal to total revenue

d) Equal to average revenue

12.10 LET US SUM UP

In a market, sellers and buyers of commodities try to protect their respective interests. The sellers wanting a price which at least compensates them for their marginal cost of production and buyers want a price which is not higher than themarginal utility of the commodity. The sellers build a supply schedule and supply curve while buyers a demand schedule and demand curve. When the two curves are put together, a price is determined at their point of intersection. This is equilibrium price because what the sellers are willing to supply at this price is equal to what the buyers are willing to demand.

With shifts in the position of these curves, the equilibrium price will change, rising when demand increases, supply remaining the same and falling when supply increases, demand remaining the same. The precise shapes of supply and demand curves will be influenced by the market form or market structure. So far as the demand curve is concerned, it will indicate quantities demanded at various prices. And since price is always equal to average revenue, the demand curve can be considered to be the average revenue curve (i.e., the revenue which will accrue to the seller from the sale of an average unit of this commodity).

In perfect competition, average revenue will be depicted by a horizontal straight line. In imperfect competition, average revenue will fall as the quantity supplied becomes larger. As for marginal revenue in perfect competition is concerned, it will be the same as average revenue so that the same curve will be the demand curve, price curve, average revenue curve, and marginal revenue curve. In imperfect competition, this will not be so because marginal revenue will be lower than the average revenue and it will fall at a rate faster than average revenue. While demand curve, price curve and average curve will be different. If average revenue slopes downward, marginal revenue curve will also slope downward but it will be steeper than average revenue curve. In the case of oligopoly, a firm's average revenue curve will be kinked.

12.11 KEY WORDS

Average Cost: The total cost divided by the number of units of the commodity produced.

Average Revenue: Total revenue divided by the number of units of the commodity sold. It is the same thing as the price of the commodity.

Dynamic Equilibrium: Where the forces operating on an economic unit balance but remain changing with time.

Equilibrium: Balance between forces operating upon an economic unit at a given time.

Equilibrium Price: That price of a commodity at which the quantity which the sellers are willing to sell is equal to the quantity which the buyers are willing to buy.

Imperfect Competition: The market situation in which the seller can exercise control over his price.

Long Period Equilibrium: A balance between forces operating upon an economic unit as can be achieved by changing plant and equipment.

Macro Equilibrium: Equilibrium concerning the entire economy of a country including its relations with the rest of the world.

Marginal Cost: The amount by which total cost of a commodity rises when an extra unit of the commodity is produced.

Marginal Revenue: The amount by which total revenue rises when an extra unit of the commodity is sold.

Micro Equilibrium: Equilibrium relating to a small part of an economy likesay, equilibrium in the market for a single commodity.

Momentary Equilibrium: A balance between the forces operating upon an economic unit as can be achieved without a change in output (i.e., by just varying flows from a given stock of the commodity).

Monopolistic Competition: That market in which the seller is able to influence the price not because he sells a significant part of the output but because of product differentiation.

Monopoly: That market situation in which there is a single seller.

Oligopoly: The market situation in which the sellers are so few that each can control and influence the price of the commodity.

Perfect Competition: That state of the market in which the individual firm or seller has no control over the price of his commodity.

Short Period Equilibrium: A balance between forces operating upon an economic unit as can be achieved by changing output but without change in plant and equipment.

Static Equilibrium: Where the forces operating on an economic unit balance but remain unchanged throughout.

12.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress A

4 i) more ii) short period equilibrium iii) dynamic equilibrium

iv) unchanging v) intended sales.

Check Your Progress B

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

4 i) d ii) d iii) b iv) b

12.13 TERMINAL QUESTIONS

1) What does equilibrium mean? What is the relevance of time to equilibrium?

2) What is a market? Explain market equilibrium of a commodity diagrammatically.

3) What are the characteristics that have to be considered while identifying a Market structure?

4) Explain the marginal and average revenues of a firm in both perfect and imperfect competition.

5) Explain the nature of Average Revenue Curve and Marginal Revenue Curve of a firm under Oligopoly.

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

UNIT 13 PERFECT COMPETITION

Structure

13.0 OBJECTIVES

After studying this unit, you should be able to:

- specify the characteristics of perfect competition
- explain the difference between marginal cost and average cost
- indicate how the marginal and average cost curves should be drawn
- explain why average and marginal costs are equal when average cost is minimum
- explain what is the shape of the marginal cost curve in the short period and where
- a competitive firm's equilibrium is determined .
- distinguish between short and long period cost curves
- differentiate between a firm's short period equilibrium and long period equilibrium
- explain how demand and supply curves relating to a competitive industry are drawn.

13.1 INTRODUCTION

In Unit 12 you have learnt the concept of equilibrium and how it was determined in a market. Demand and supply need to be understood in the context of specific markets if we have to understand fully their significance for price determination. For equilibrium, we need to know a firm's marginal cost besides its marginal revenue. The way a firm's marginal cost behaves with increase in output in the short period; depends on the operation of laws

of variable proportion. Similarly, the behaviour of marginal cost of a firm, in the long period, with increase in output, depends on the operation of laws of returns to scale. **A firm's equilibrium is determined at a point where its marginal revenue is equal to marginal cost.**

In this unit, you will learn about the equilibrium of a firm in the short as well as long period. You will also know the problems which arise while determining an industry's equilibrium under perfect competition in the short as well as the long period.

13.2 CHARACTERISTICS OF PERFECT COMPETITION

Let us study the equilibrium of a firm under perfect competition. **Perfect competitive market is characterized by the existence of a large number of sellers such that one single seller sells an insignificant proportion of the total supply of the commodity**. It is obvious that when a seller controls such a small part of the market, he cannot influence the price that exists in the market. All he can do is to sell whatever he wants to at the price which is already prevalent. Thus, in perfect competition, there is no determination of equilibrium price for a firm. What the firm can do is to take the ruling price as given and decide its level of output with a view to maximise its profits (total revenue-total cost). The profits get maximised at the level of output where marginal revenue is equal to marginal cost.

For perfect competition to exist, the other conditions which must be satisfied are as follows:

1) The commodity produced by different firms of an industry should be homogeneous i.e., the size and quality of product produced should be the same.

2) There should be free entry and exit i.e., any firm which wants to leave the industry can do so without any restrictions. Similarly, if a new firm wants to join the industry, it can also do so.

3) There should be perfect knowledge of the market on the part of sellers such that only one price prevails in the market.

4) There should be no transport cost such that a buyer can buy from any part of the market without spending any money by way of transport.

Given perfect competition under which a firm takes the price, determined for an industry, the demand curve for a firm would be horizontal to x-axis as shown in Figure 13.1.

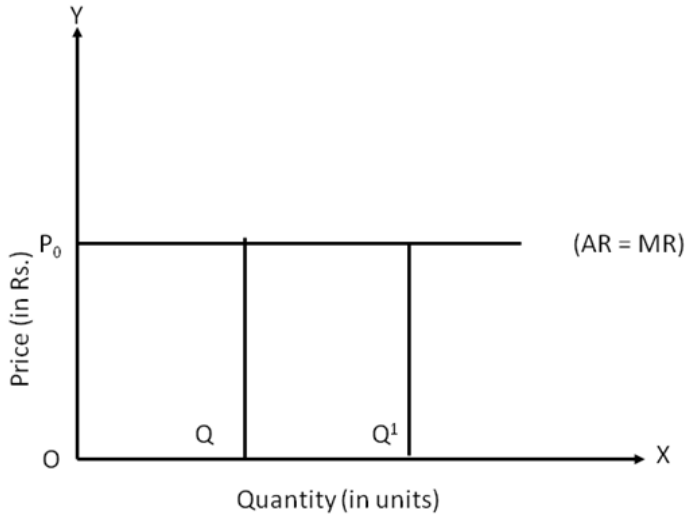

Figure 13.1: Demand Curve of a Firm under Perfect Competition

On x-axis is measured quantity in units and on y-axis price in rupees. At a price of OPo the quantity demanded can be OQ or OQ'.

Since in perfect competition, a firm is helpless to influence the price of the commodity, it is rightly treated as being a **price-taker rather than a price-maker** and it faces a horizontal demand curve. A horizontal demand curve faced by a firm under perfect competition can also be referred to as its average revenue curve as well as marginal revenue curve.

Along with perfect competition, economists sometimes talk **of pure competition** as well. They do so because they think that the latter is more realistic than the former which is almost impossible to come across in actual life. For **pure competition**, they postulate the following three conditions:

i) Number of firms are very large
ii) Product is homogeneous
iii) There is free entry and exit of firms in the market.

The demand curve in both perfect as well as pure competitive markets is considered horizontal for a single firm. How much a firm will produce, given the price, will depend upon the behaviour of average and marginal cost of a firm with variation in quantity produced given average and marginal revenues. **The equilibrium of a firm is given at a point where its marginal revenue is equal to marginal cost because it is only at this point that profits of a firm get maximized.**

13.3 A FIRM'S SHORT PERIOD EQUILIBRIUM UNDER PERFECT COMPETITION

To understand the equilibrium of a firm under perfect competition, in the short period, it is essential to study the behaviour of average cost and marginal cost with increase in the level of output in the short period when the size of the plant is unchanged.

How will the marginal cost curve behave in the short period? This would depend upon the particular law of production in operation at that time. If law of increasing returns operates marginal cost would fall; if law of constant returns operate it is constant, and when the law of diminishing returns operates, it rises. Since all factors of production in the short period are not variable, marginal cost will be falling at first and rising afterwards. It will be falling first because of the indivisibility of the fixed factors and rising afterwards because of excessive use of the fixed factor. In the beginning, given the capacity of a machine, as more variable factor say, labour is engaged, every additional labourer gives a higher productivity and, therefore, cost on account of the variable factor falls. After the machine has crossed its optimum capacity the opposite happens. Thus, the marginal cost curve has been shown in Figure 13.2.

Figure 13.2: Marginal Cost Curve of a Firm under Short Period

Average cost can be divided into three components. Component one shows average fixed cost, component two shows average variable cost and component three shows average total cost consisting of average fixed cost plus average variable cost. So far as the average fixed cost is concerned, it necessarily falls downward with more output because average fixed cost is equal to total fixed cost divided by output. Since total fixed cost is fixed in the short period by definition, the increase in level of output reduces average fixed cost. As more production takes place, average fixed cost declines and when a very large output is sought to be obtained from a given total fixed cost, fixed cost of producing an average unit of the commodity will be very low and tends to reach zero. Look at Figure 13.3 where the average fixed cost curve has been shown.

FOR MORE CLARITY!

The Average Cost is the per unit cost of production obtained by dividing the total cost (TC) by the total output (Q). By per unit cost of production, we mean that all the fixed and variable cost is taken into the consideration for calculating the average cost. Thus, it is also called as Per Unit Total Cost.

The behaviour of the average total cost will depend upon the marginal cost, which represents the variable cost. Since marginal cost declines in the

beginning but rises later, the average total cost of a firm will also first fall and then rise.

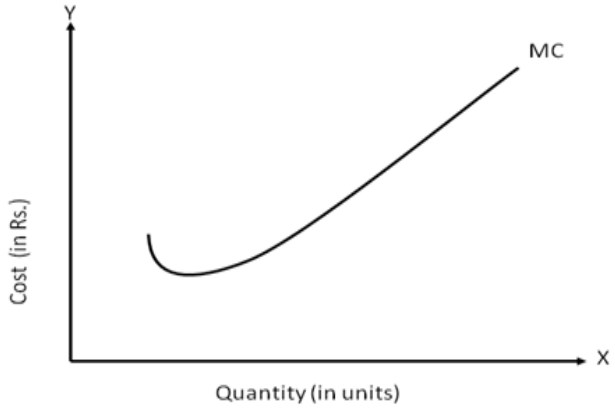

Figure 13.3: Average Fixed Cost Curve of a Firm

Marginal cost is the cost of producing an extra unit and it also gives the rate at which the total cost would change with rise in output. If the cost of the extra unit falls, it implies that the average cost of earlier units was higher. Whenever marginal cost is falling (this will happen under increasing returns) the average cost will be higher than marginal cost. However, the average cost (while being higher than the marginal cost) will also be falling, because with the decline in marginal cost, the average cost should also decline.

In case a firm is experiencing diminishing marginal returns and the marginal cost of production is rising, then marginal cost would be more than the average cost of the earlier units. Hence, the marginal cost will be higher than the average cost. So under diminishing returns, average cost curve while being below the marginal cost curve would rise with a rising output. Look at Figure 13.4 where average fixed cost, average variable cost, average total cost and marginal cost of a firm in the short period have been shown.

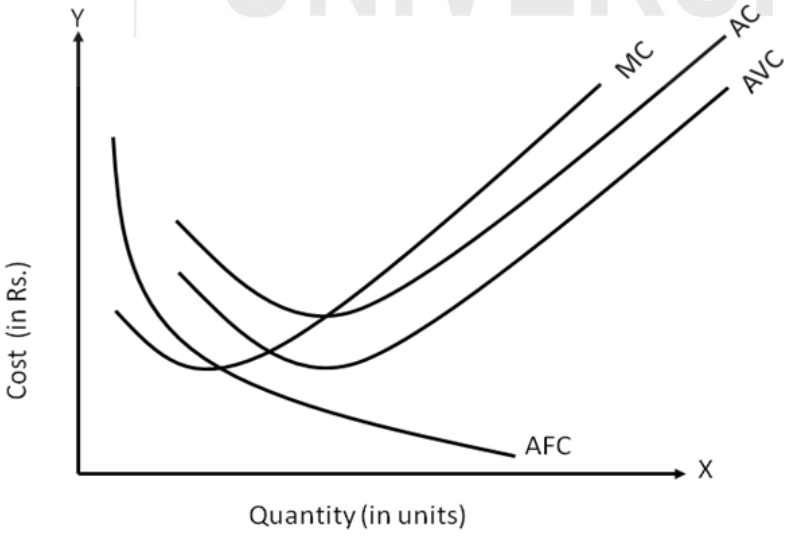

Figure 13.4: Average Variable Cost Curve, Average Total Cost Curve and Marginal Cost Curve of a Firm

It is clear from Figure 13.4 that marginal and average cost curve first fall and then rise and further marginal cost curve necessarily passes through the

minimum point of the average cost curve. Why should this be so? The answer lies in the fact that as we move from a situation of increasing returns to that of diminishing returns, we have the operation of constant returns when marginal and average costs are equal to each other. It is also worth noting that the gap between AC and AVC is getting reduced signifying the fall in average fixed cost with increase in output. Marginal cost curve passes through the minimum point of average variable cost curve as well as average cost curve.

The points at which MC curve cuts the AVC and AC cost curve help us to identify shut-down point and break-even point of a firm respectively. This is shown in Figure 13.5

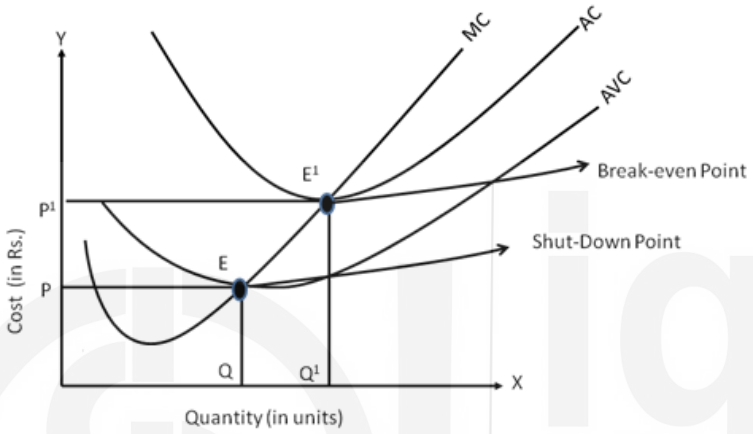

Figure 13.5: Shut-down Price and Break-Even Price of a Firm

The minimum point of the average variable cost curve E indicates the minimum compensation a firm must get in order not to be compelled to shut-down its establishment. In the figure, OP price is just able to cover average variable cost and total revenue will be OQEP which is also the total variable cost. If price falls below OP, total variable cost remains OQEP but total revenue will be less than OQEP. Thus, the firm will not be able to cover even its total variable cost at a price less than OP and therefore will be compelled to shut-down its establishment. The firm can forego its fixed cost in the short period but not its variable cost. It is because of this reason that variable cost is referred to as **Prime Cost** and fixed cost as **Supplementary Cost.** The minimum average variable cost constitutes the shut-down point of a firm.

In case, the price of the commodity equals the minimum average cost say OP', the total revenue accruing to the firm is OQE'P' which is equal to total cost. At price OP' total revenue is equal to total cost and the firm will be able to cover normal profits which are included in total cost. The firm will be able to cover its fixed as well as variable cost including normal profits. In case, price is higher than the average cost viz., OP' the firm will be able to make abnormal profits. This will help the firm to take its output beyond break-even point. But in the long period it will not remain a sustainable position, since other firms finding that abnormal profits are being made, will jump into the market. This will help in raising the total supply which in turn will bring down the price and make the abnormal profit disappear. What is being suggested is that just **as the minimum point of the average variable cost**

curve is the shut-down point for the firm, the minimum point of the average cost curve is the break-even point. It is possible for a firm in the short period to be anywhere above the shut-down point but it cannot afford to operate below the shut-down point.

The decision to vary the output on the part of the firm depends on whether the additional unit of output adds to total profits (i.e., total revenue minus total cost). The cost of an additional unit of output is marginal cost and the revenue from it is marginal revenue. If marginal cost is more than marginal revenue, the additional unit of output implies fall of total profits and the firm will contract its output. If marginal cost is less than marginal revenue, the additional unit will add to total profits and the firm will expand its output.

A firm's equilibrium is possible only when its marginal cost is equal to marginal revenue and at that point total profits will get maximized and the firm needs neither to expand nor contract its output. Thus, if the firm stops production earlier than a point where marginal revenue equals marginal cost, it foregoes some profits that it would have earned by more production. If it raises production beyond that point it finds its total profits reduced. In other words, **a firm's total profit can be maximum only at output at which marginal cost equals marginal revenue.**

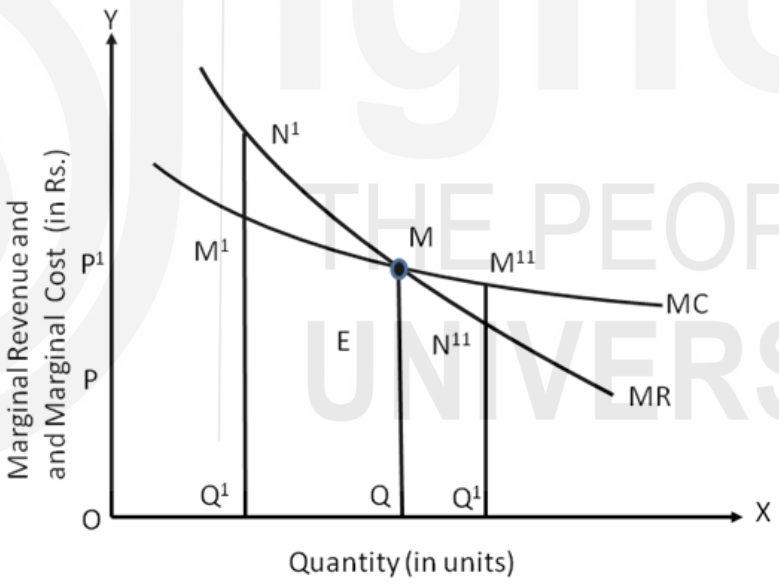

Figure 13.6: Stable Equilibrium of a Firm

The equality of marginal revenue with the marginal cost of a firm is referred to as a necessary condition of equilibrium. The sufficient condition of equilibrium is what is also known as stability condition. If a firm finds it profitable to expand its output beyond the point where marginal revenue is equal to marginal cost, then initially the equilibrium must have been unstable. A situation of unstable equilibrium implies that the equality between marginal cost and marginal revenue does not assure that the firm remains disinclined to expand its output. Thus, it is not always true that if marginal cost and marginal revenue are equal, equilibrium achieved will be stable. If marginal cost curve cuts the marginal revenue curve from above, the equilibrium is not stable. On the other hand, if the marginal cost curve cuts

the marginal revenue curve from below, it is a case of stable equilibrium. Therefore, we can say that while equality between marginal cost and marginal revenue is a necessary condition for equilibrium, it is not sufficient condition for equilibrium. The sufficient condition for equilibrium is that the marginal cost curve cuts the marginal revenue curve from below. This has been shown in Figures 13.6 and 13.7.

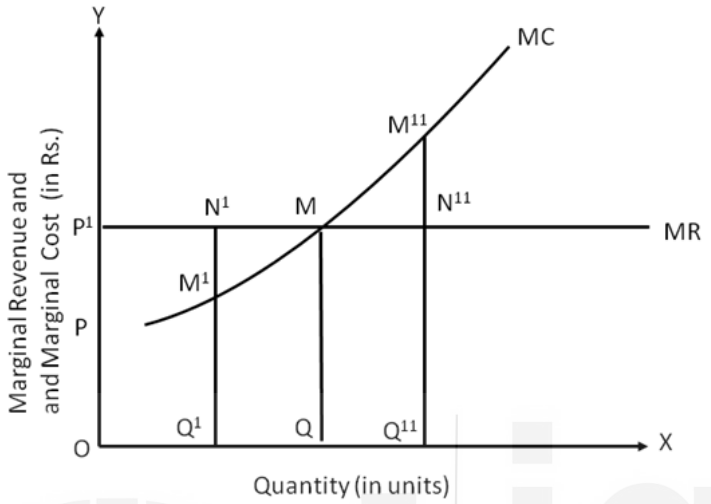

Figure 13.7: Stable Equilibrium of a Firm

Look at Figures 13.6 and 13.7 where marginal revenue is equal to marginal cost at point M and MC curve cuts MR curve from below, such that the equilibrium level of output is OQ. The expanding output beyond OQ will be unprofitable and producing less than OQ will result in a situation of non-maximization of total profits. Hence, point M represents stable equilibrium.

The equilibrium of a firm in the short period under perfect competition can be studied now once the necessary and sufficient conditions of equilibrium have been introduced. It has already been explained that a firm's equilibrium could be either at the shut-down point or anywhere above it in the short period. This gives various possibilities of short period equilibrium of a firm under perfect competition.

Equilibrium at Shut-down Point

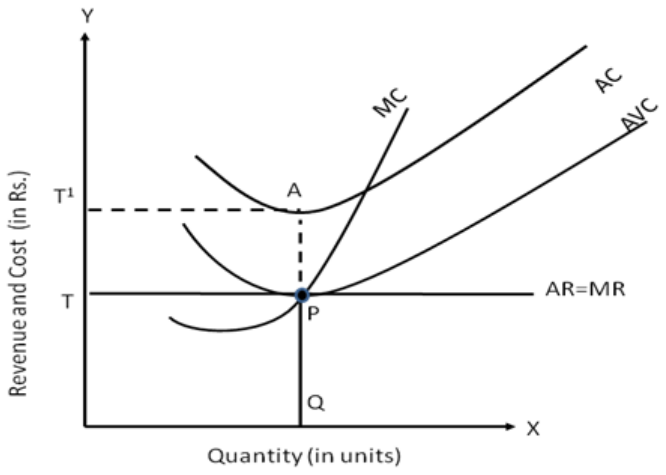

Figure 13.8: A Firm's Equilibrium at Shut-down Point under Perfect Competition

Look at Figure 13.8 where P is the shut-down point. If the AR curve, a horizontal line under perfect competition passes through P, the output OQ will enable the firm to charge the prevalent price PQ. The firm will get the minimum average variable cost which is PQ so that the firm will forego its fixed cost only, but recover its variable cost in full. Further price (or average revenue) will be equal to marginal revenue. If average variable cost is minimum, marginal cost would be equal to average variable cost at P, marginal cost will be equal to marginal revenue also. At P the marginal cost curve is cutting the marginal revenue curve from below. Therefore, equilibrium is stable.

FOR MORE CLARITY!

Economic equilibrium is a state in a market-based economy in which economic forces – such as supply and demand – are balanced. Economic variables that are in equilibrium are in their natural state assuming no impact of external influences.

This equilibrium will not last long because at OQ output while the price is only PQ, the average cost is AQ so that OQ multiplied by AQ i.e., total cost is more than OQ multiplied by PQ i.e., total revenue. The total loss of the firm will be TP (=OQ) multiplied by AP which is equal to 'IPAT'.

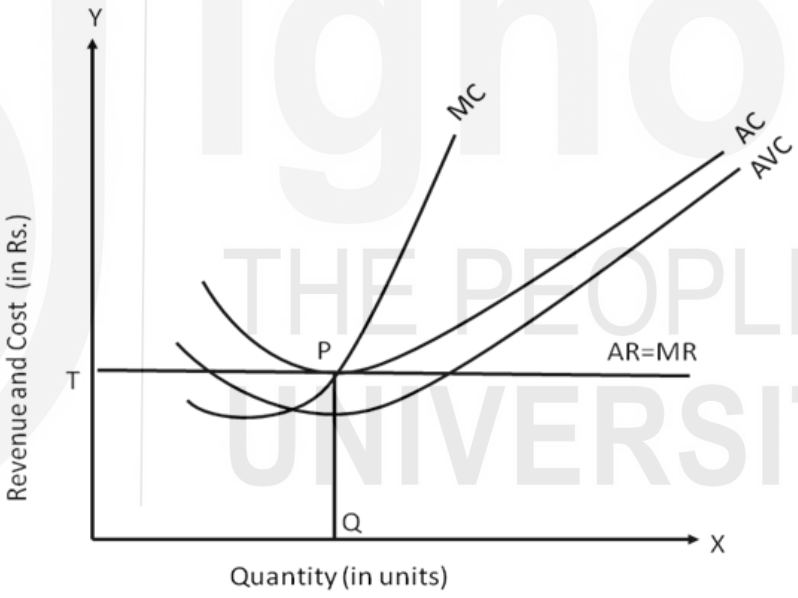

Figure 13.9: A Firm's Equilibrium at Break-even Point under Perfect Competition

Look at Figure 13.9 where P is the break-even point since with OQ output and PQ average cost, the firm's total cost is OQPT which is also equal to total revenue. Once again price and marginal revenue are the same. Further Price=AR=MR=MC=AC. The firm makes only normal profits which are included in average cost. There are no super-normal profits. MC curve cuts MR curve from below and hence the equilibrium is stable.

Equilibrium at a Point above the Break-even Point

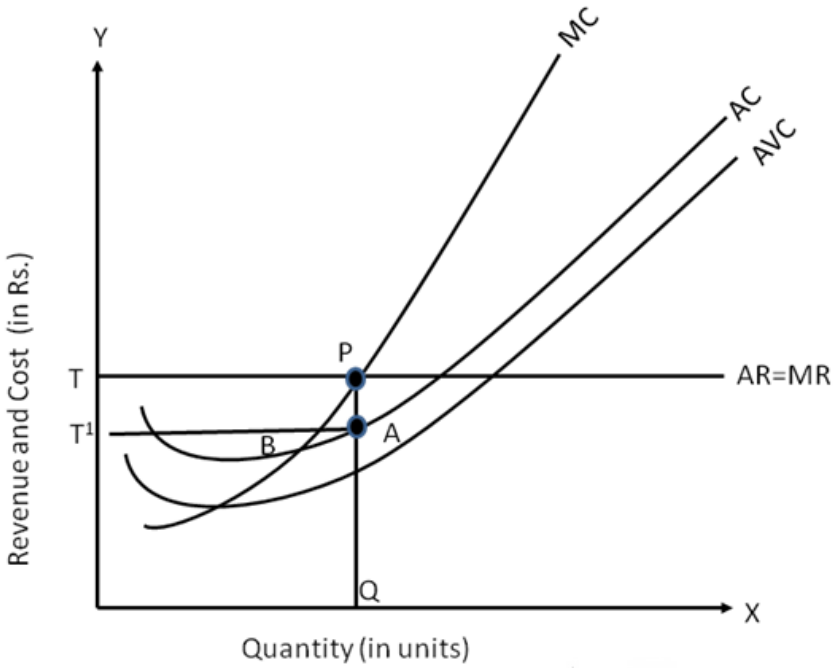

Figure 13.10: A Firm's Equilibrium above Break-even Point under Perfect Competition

Look at Figure 13.10 where P lies above the break-even point B. And PQ is the price which is equal to marginal revenue but is also equal to marginal cost. However, the average cost corresponding to OQ is AQ which is lower than the price. Therefore, PQ ×OQ i.e., the total revenue equal to $OQAT^1$. The firm is making abnormal profits equal to T^1APT.

Hence, short period equilibrium of a firm can be characterised by loss at the shut-down point, or no-profit no-loss (with only normal profit) as at the break-even point or abnormal profits as at points above the break-even point. The firm's equilibrium will be determined by the position of the AR curve and MC curve. In between shut-down point and the break-even point, the firm's equilibrium will invariably be characterised by loss rather than by abnormal profits.

13.4 A FIRM'S LONG PERIOD EQUILIBRIUMUNDER PERFECT COMPETITION

While discussing the long period equilibrium of a firm under perfect competition, an important point to remember is that the cost curves relevant for equilibrium will be the long period average and marginal cost curves.

FOR MORE CLARITY!

Perfect competition is a type of market structure where products are homogenous and there are many buyers and sellers. It is held as the ideal market structure for economies to operate in. Whilst perfect competition does not precisely exist, examples include the likes of agriculture, foreign exchange, and online shopping.

How do we come to these long period curves of the firm? The long period is made up of short periods, their number depending on the time taken to make adjustments in plant and equipment in relation to changes in the demand for

the commodity. We can construct long period cost curves only by carefully considering the short period cost curves that a firm has gone through. We take certain specific portions of each of the short period average cost curves corresponding to shifts in the plant and equipment of the firm from one short period to another and join them to arrive at long period average cost curve.

The distinction between fixed cost and variable cost is no longer relevant since all costs are variable costs in the long period. The long period average cost curve is also U-shaped but it is much broader than a short period average cost curve. Given the long period average cost curve, we can derive long period marginal cost curve, given the average and marginal revenue.

A long period marginal cost curve passes through the minimum point of the long period average cost curve such that long period marginal cost will be equal to the long period average cost at that point. The long period equilibrium of a firm under perfect competition is shown in Figure 13.11.

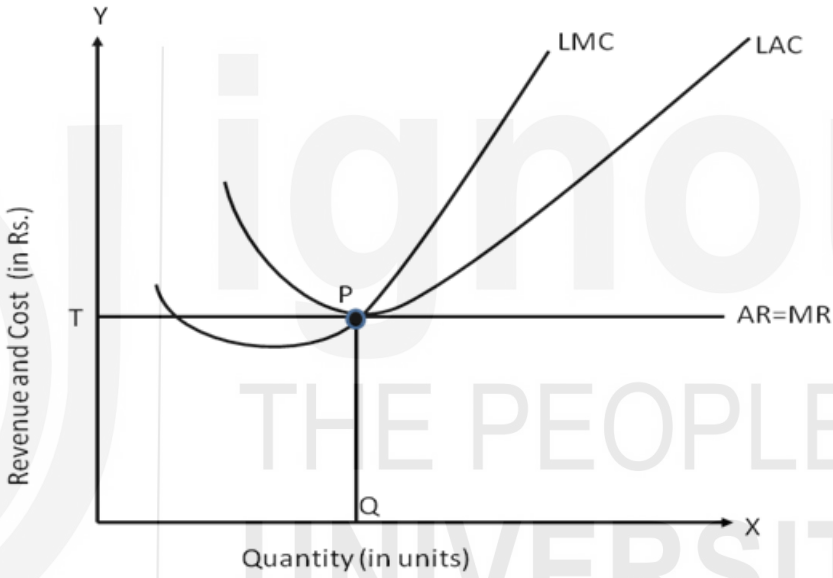

Figure 13.11: A Firm's Equilibrium in the Long Period under Perfect Competition

An average and marginal cost curves are based on a long period in which plant and equipment has also been allowed to be varied from one short period to another. The equilibrium of a firm has to be one which leaves no room for desire for a further adjustment to demand conditions. At the point of equilibrium P/AC = AR = MR = MC and the firm is making only normal profits. Any attempt on the part of a firm to earn more than normal profits will result in new firms entering an industry which will force the firm to again enjoy only normal profits. Similarly, a firm in the long period, under perfect competition, cannot undergo loss because some of the existing firms will quit the industry.

Check Your Progress A

1) What do you mean by the equilibrium of a firm under perfect competition?

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2) Distinguish between short period and long period equilibrium of a firm under perfect competition.

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

i) A firm's equilibrium is determined at a point where its marginal revenue is equal to marginal cost.

ii) Marginal cost curve passes through the minimum point of average variable cost as well as average cost curve.

iii) The minimum point of average variable cost curve is the shut-down point for the firm.

iv) A firm's profit can be maximum only at output at which marginal cost is more than marginal revenue.

v) A long period marginal cost curve passes through the minimum point of long period average cost curve.

13.5 AN INDUSTRY'S EQUILIBRIUM UNDERPERFECT COMPETITION-SHORT PERIOD

Like a firm's equilibrium, an industry's equilibrium can also be determined with the help of the forces of demand and supply. An industry's equilibrium can be analyzed in the short as well as long period.

The demand and supply curves of an industry are merely aggregates of demand and supply curves relating to the various firms comprising an industry. Look at Figure 13.12(i) and Figure 13.12(ü) where these relationships have been shown.

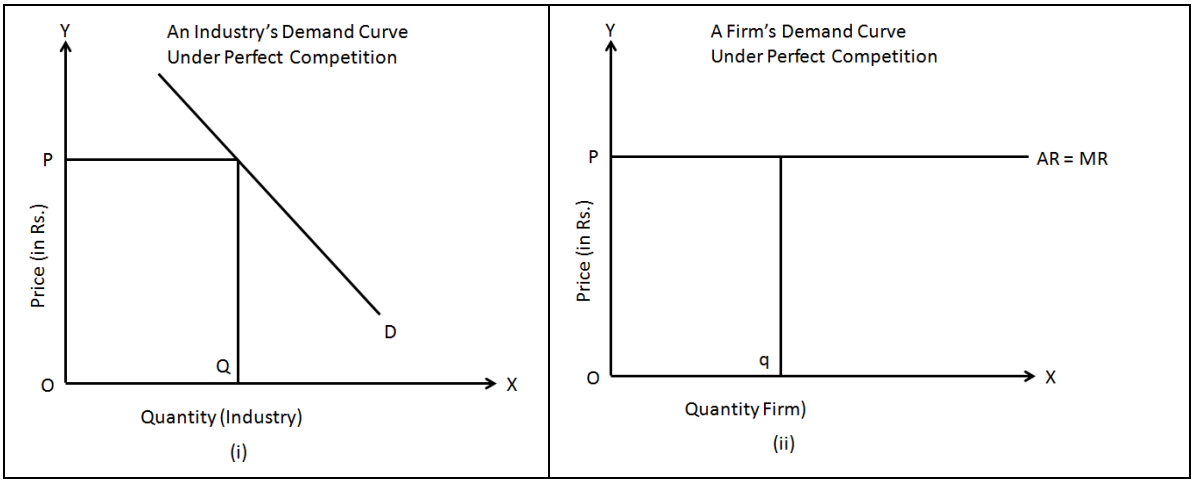
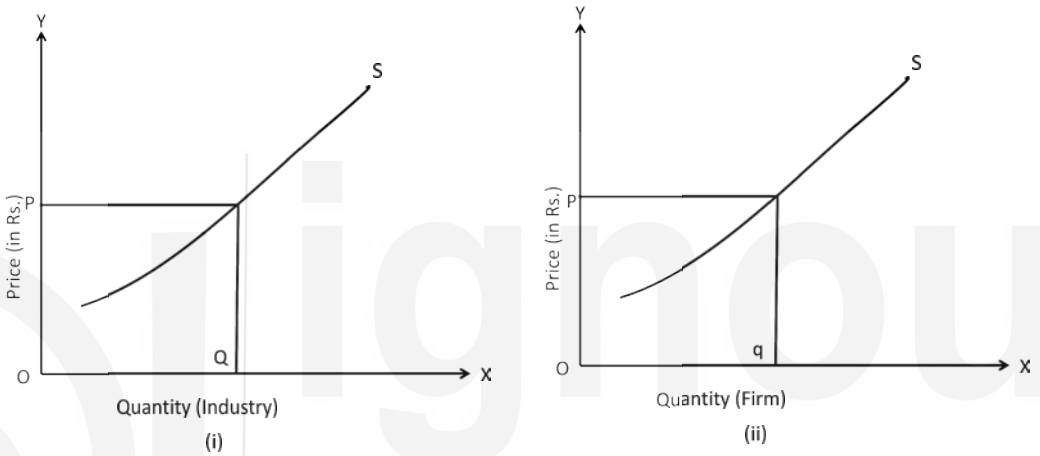


Figure 13.12: Relationship between demand and supply curves relating to various firms

The amount OQ and the demand curve for the industry is the sum total of quantities at given prices shown in the curves of various firms one of which is drawn in the diagram (Figure 13.12 (ü)] above. Quantities like Oq could be read from the demand curves of other firms not shown here and added to give an industry's demand at price OP. At other prices also, quantity demanded could be aggregated to give other points of an industry's demand curve.

The same method would be used to derive the supply curve of the industry. Look at Figures 13.13(i) and (ii) which indicate, OQ supply at OP price is made up of Oq supply coming from the firm represented in Figure 13.13(ii) plus the supplies of all other firms not shown here, at the same price.

Figure 13.13:Supply curve of a firm and supply curve of an industry



It may be remembered that distances in the two diagrams are not identical because these are differences in scales applied to the two curves.

Thus a typical short period equilibrium price of an industry can be determined by the construction of the supply and demand curves of an industry. Look at Figure 13.14

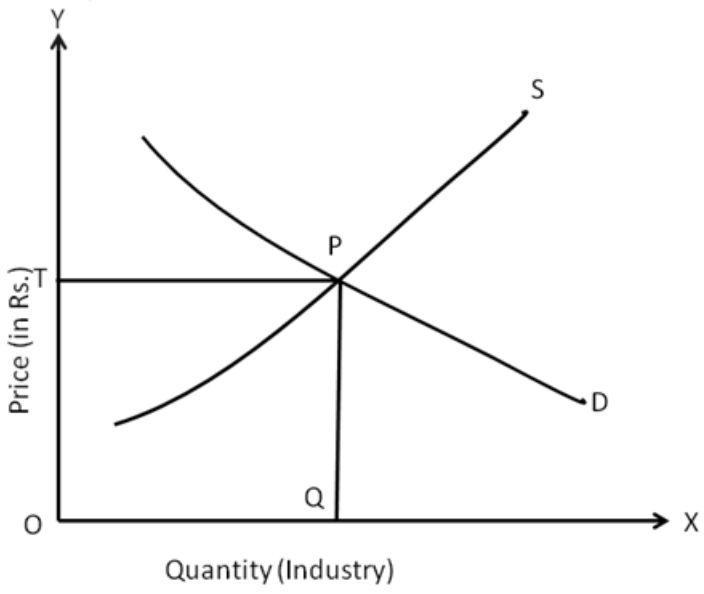


Figure 13.14 : Short Period Equilibrium of an industry

which shows the demand curve and supply curve of an industry intersecting at a point P. OT is the market price at which OQ is the quantity demanded as well as quantity supplied. Any price more than or less than OT will generate forces which will force the price to come back to equilibrium where quantity demanded is equal to quantity supplied.

The firms in the short period will have various situations some of which may be enjoying abnormal profits, some losses and some may be just at the break-even points. But what will be the tendency for the industry as a whole and how will it reach equilibrium?

In the case of the individual firm, it is the marginal cost of that firm which is crucial to the determination of its equilibrium. In the case of the industry, it is the marginal firm whose behaviour will determine the position of the equilibrium in the short period.

A marginal firm is supposed to be the firm which has the highest marginal cost or it is the most inefficient firm in the industry. In the short period, this firm may either make profits or suffer losses. If the marginal firm is making profits despite its having the highest marginal cost, other firms will be making still greater profits and expand output. Therefore, the total supply of output in the industry will expand tending to bring down the price and to reduce the profitability of the marginal firm. As long as the marginal firm makes any profit whatsoever, temptation for other firms to expand output and to raise the total supply will be unavoidable, until the marginal firm makes no profit. Opposite of this will happen when the marginal firm suffers losses. In that case, some non-marginal firms which may not be having as high marginal cost as the marginal firm may still be suffering losses and therefore contract output and thus reducing the total supply of output and resulting in rise in price of the commodity. The rise in price will reduce the loss of the marginal firm. It is only when the losses have completely disappeared that the tendency for some firms to contract output will stop and it is only then that the industry will be in short period equilibrium. It is to be noted that the number of firms in an industry remains fixed in the short period.

13.6 THE LONG-RUN COMPETITIVE INDUSTRY'S SUPPLY CURVE

Firms under perfect competition have to adjust their respective supplies and marginal costs of production to the prevalent price in the market in such a manner that they make neither any abnormal profits nor suffer any losses. What happens to the supply curve of industry in such a situation? The answer to this question may be attempted first from the point of view of short period and then from the point of view of the long period. How can the long period supply curve in the competitive industry be derived?

The supply of the industry is merely the sum total of the supplies at a given price of all the firms which constitute the industry. We have of find out the quantities being supplied by each firm at a given price. Suppose q_1, q_2, q_3..... are being supplied by firms 1,2,3..... at price P. Then the total of q_1,

q_2, q_3..... will be the quantity supplied by the industry at price P. Likewise, we can sum up the quantities supplied at other prices. In deriving a long period supply curve of an industry, we consider only that part of the firm's supply in the short period which can be meaningfully related to the long period. Whatever may be the nature of the marginal cost price relationship in a short period, in the long period it has to be such that not only is the firm compensated for its variable cost, the price should leave sufficient margin to cover the firm's fixed cost also.

From the point of view of a long period, the supply and the marginal cost which are meaningful for the firm and, therefore, also for the industry are the supply and marginal cost at the break-even point E. By adding together such supplies of various firms, we can get at the given marginal cost and an aggregate of which will be a point on the long period supply curve of the industry. Similarly, by taking the break-even points for the other short periods, we can get other aggregate supplies being shown by points on the industry's supply curve. Thus each point on the supply curve of industry is an aggregate of the supplies of firms at the break-even points.

How will the supply curve of the industry look like when supplies corresponding to the break-even points of the individual firms or the equilibrium points of the various firms are sought to be reflected in the supply curve of the industry? This depends on how as a result of the changing number of firms in the long period, marginal cost of production behaves. If the firms in the long period are operating under constant returns to scale and therefore marginal costs are constant, the supply curve of the Industry will tend to be horizontal. If, however, under pressure of rising demand for factors, factor prices rise and therefore marginal cost of production of firms also goes up. Then from thereon, supply curve of industry will begin to rise showing that since marginal costs are higher, prices will increase with a greater supply. It could also be that because of certain reasons marginal cost declines and, therefore, the industry is able to supply more of its output at lower prices. The supply curve of an industry under this situation would be sloping downwards from left to right.

Normally there are two possibilities: (i) availability of various factors of production at increasing factor prices or (ii) the possibility of internal economies arising from entrepreneurial or organisational efficiency. If the first possibility occurs which is most likely, expansion of industry cannot take place except at rising marginal cost of production. This is because with higher factor prices in the wake of expansion, the cost of producing the extra unit of the commodity will rise. If that happens, the rise in the number of firms will lead to higher price. The other possibility of increasing returns in the long period could occur if there were internal economies due to better organisational abilities etc.

This last possibility has been a matter of controversy. It has been argued if any firm would be in such an advantageous position that by pushing forward

its production, it can lower its marginal cost. Then with the price being given, it will go on expanding its output and profits at the cost of other firms. In fact, the situation may arise in which just a few firms enjoying the internal economies would remain in the market and the rest would be driven out. This means that increased returns are incompatible with perfect competition since in perfect competition the number of firms has to be very large by definition.

External economies resulting from some special common facility provided by the industry itself can also reduce marginal cost of production of the various firms in the industry. In industry, for instance the setting up of Training Institute in turn improves the skill and efficiency of the workers enables rise of productivity and reduces marginal cost all round. However, such reduction in marginal cost due to external economies is not a very likely possibility unless there external economies can be internalized by a firm.

13.7 AN INDUSTRY'S EQUILIBRIUM UNDER PERFECT COMPETITION-LONG PERIOD

The demand curve of an industry will be the aggregate of the demand curves of all the firms comprising the industry. This demand curve will be falling to the right indicating that price in an industry remains variable, and further that a lower price will go with a larger quantity demanded and a higher price with a lower quantity demanded.

By combining the demand and supply curves, we get to know the equilibrium of the industry in the long period. If the supply curve is rising, we get the equilibrium of an industry as shown in Figure 13.15.

If the supply curve shifts to the right suggesting more supplies at a given price, the equilibrium price will be lower. If the supply curve shifts to the left, it will be higher. Similarly, if the demand curve shifts to the right implying a greater demand at the same price, the equilibrium price will rise provided supply curve remains unchanged. If the demand curve moves to the left indicating less demand at the same price, equilibrium price will fall. Increase in supplies in the long period could be because of improvement in techniques of production-say, using electric power in place of animal power. In India, he useshigh yielding varieties of seed which brought about green revolution also increased food supplies in the country.

Similarly, in the long period, tastes of people for a given commodity may improve or even go down. If the liking for the commodity improves or if the buyers' income goes

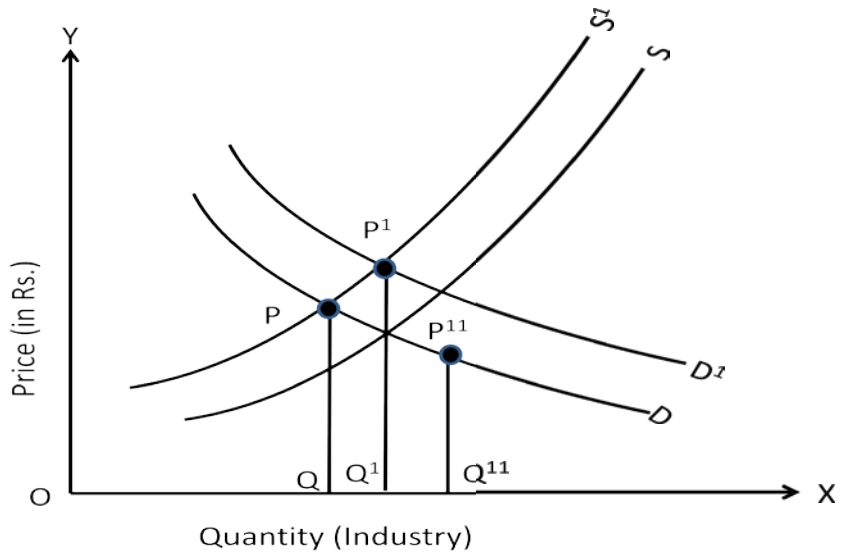


Figure 13.15 : Equilibrium of the Industry in the Long Period

up even if their taste remains the same (since with a higher income they may decide to buy more of the commodity at the same price), the demand curve will shift to the right.

In case the long run supply curve of industry is horizontal or falling to the right, the equilibrium price will be determined as shown in Figures 13.16(i) and 13.16 (ii) respectively.

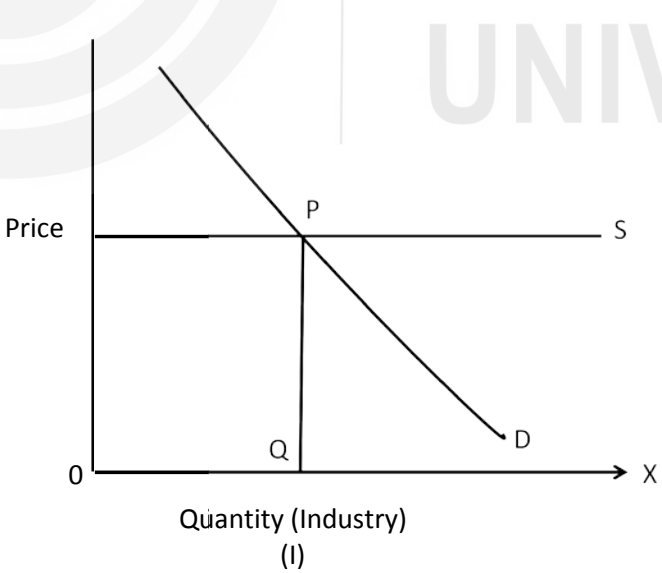


Fig. 13.16(i): Equilibrium of the Industry the long Period under Increasing Returns

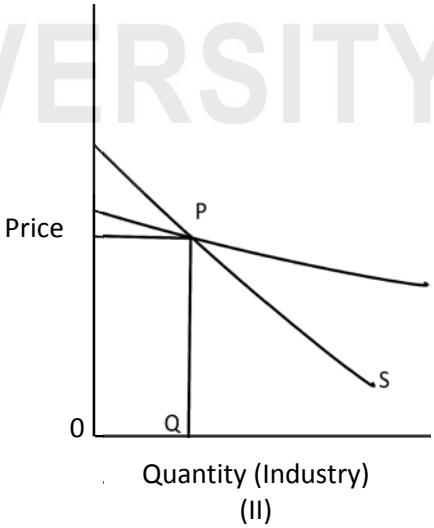


Fig. 13.16(ii): Equilibrium of the in Industry in the Long Period under constant Returns

It is the case of a falling supply curve resulting from internal and external economies which is least likely under conditions of perfect competition

Check Your Progress B

1) What do you mean by supply of an industry?

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2) What is the difference between short period and long period equilibrium of an industry under Perfect Competition?

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

i) In the case of the industry, it is the marginal firm whose behaviour will determine the position of the equilibrium in the short period.

ii) If the firms in the long period are operating under constant returns to scale, the supply curve of the industry will tend to be horizontal.

iii) In the long run if the demand curve shifts to the right, the equilibrium price will fall, the supply curve remaining unchanged.

iv) If the liking for the commodity improves or if the buyer's income goes up even if their taste remains the same, the demand curve will shift to the right.

v) In the short period, the point of intersection of the firms will show losses, abnormal profits or normal profits.

4) Choose the most appropriate answer among the given.

i) Marginal cost equals average cost when average cost is

a) highest

b) lowest

c) zero

d) negative

ii) Equilibrium under perfect competition requires that

a) Marginal revenue is higher than marginal cost

b) Marginal revenue is lower than marginal cost

c) Marginal revenue is equal to marginal cost

d) Marginal revenue is higher than average revenue.

iii) Shut-down point is the one at which

a) Price is equal to average cost

b) Price is equal to total cost

c) Price is equal to variable cost at its minimum point

d) Price is equal to marginal cost at its minimum point

iv) Long period average cost curve of a firm is

a) sum of short period average cost curves

b) sum of short period marginal cost curves

c) envelope of short period average cost curves

d) None of these.

v) Long period marginal cost curve of an industry would fall because of

a) difficult availability of factors of production

b) Fixity in the supply of factors of production

c) External and internal economies

d) Competition amongst firms comprising the industry.

13.8 LET US SUM UP

A perfectly competitive market has firms each of which feels helpless to influence and change the price of the commodity. Equilibrium of a firm in such a condition requires that a competitive firm adjusts its output appropriately to the given price. This adjustment will naturally depend upon supply of and demand for the commodity. Since the demand curve is horizontal, the supply curve of the firm has to so behave that it intersects or touches the horizontal demand curve somewhere. Where will the point of intersection or tangency be? The answer will depend on whether we are discussing a firm's short or long period equilibrium. If it is short period equilibrium, the point of intersection or tangency could either show losses, abnormal profits, or normal profits. If it is the long period, the point of equilibrium should show only normal profits and would occur in a situation in which average revenue, marginal revenue, average cost, marginal cost are all equal to one another.

In equilibrium of an industry under perfect competition, the short period equilibrium is best analyzed in terms of the behaviour of the marginal firm with the number of firms fixed. The long period equilibrium is analyzed with the help of an industry's **demand curve** (derived by summing up demand curves of individual firms) and **supply curve** of an industry (derived by summing up the marginal cost curves of individual firms). When the marginal cost curves are summed up, an industry's supply curve can be a horizontal straight line or a curve sloping upwards depending upon the case of availability of factors of production in the long period. The supply curve of

an industry could also be falling to the right because of increasing returns occasioned by external and internal economies. But this is not a very likely possibility.

13.9 KEY WORDS

Break-even Point: The point at which price is equal to minimum average cost.

Diminishing Returns: It indicates that the additional output of a unit of the variable factor is less than that of the previous units.

Fixed Cost: A firm's expenditure on production which will have to be incurred no matter even if the production is zero. ·

Increasing Returns: It indicates that the additional output of a unit of the variable factor is more than that of the previous units.

Marginal Firm: The firm which is additional to the number of existing firms in an industry.

Shut-down Point: The point at which price is equal to minimum variable cost.

Variable Cost: Costs that vary with the level of production; These costs are also known as direct costs or prime costs, and are the only costs that rational decision maker consider.

13.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress A

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

Check Your Progress B

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

4 i) b ii) c iii) c iv) c v) d

13.11 TERMINAL QUESTIONS

1) Why should equilibrium between marginal cost and marginal revenue be a necessary condition for equilibrium of a firm?

2) At the minimum point of the average cost curve, the marginal and average costs should be equal. Why?

3) Show how short period equilibrium of a firm under perfect competition would be determined.

4) Explain an industry's short period equilibrium in conditions of perfect competition.

5) Why is it unlikely that long period supply curve of a competitive industry is downward sloping?

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

UNIT 14 MONOPOLY

Structure

14.0 OBJECTIVES

After studying this unit, you should be able to:

- distinguish between perfect competition and monopoly
- describe short period equilibrium and long period equilibrium
- explain price discrimination under monopoly.
- appreciate the measures that government can take to regulate monopoly.

14.1 INTRODUCTION

In Unit 13, you have learnt why a perfectly competitive market is important for a free market economy. It really enables production of commodities at lowest possible average cost in the long period and at prices which are equal to marginal cost of production. There is no waste of resources since production remains at the optimum level.

When we have monopoly, all these advantages disappear. Production is generally below optimum and the price is higher than marginal cost of production. The monopolist controls such a substantial portion of the market that he can dictate the price to his customers. Of course, he cannot go beyond the limits of the demand curve nor can he charge so high a price that the buyers are compelled to look for substitutes or his own high profits begin to attract new rivals in the market. Within such limits, he can, however, so fix his price that his surplus over average cost of production is maximum.

In this unit, you will learn the concept of monopoly, equilibrium of monopoly in short and long period and price discrimination. You will also learn monopoly and economic efficiency in comparison with perfect competition and the ways through which the government regulates monopoly.

14.2 CONCEPT OF MONOPOLY

While discussing market structures in Unit 12, we had referred to monopoly as a market situation with one seller only. However, such a pure or absolute monopoly is as rare a phenomenon as pure or perfect competition. It is possible that a particular seller commands an overwhelmingly large proportion of the market. But it is very unlikely that he has command over the whole market. Such a likelihood exists more in economies where the ownership of means of production is entirely in the hands of the state and where the Government is itself a monopolist. This does not happen in mixed economy of the type we have in India. However, where natural monopolies are concerned such as suppliers of drinking water or of electricity or particular means of communication and transport or of health, the element of monopoly can be overwhelming.

FOR MORE CLARITY!

The word monopoly has been derived from the combination of two words i.e., 'Mono' and 'Poly'. Mono refers to a single and poly to control.In this way, monopoly refers to a market situation in which there is only one seller of a commodity.

The usual monopolies are those which do not have just a single seller but in which one of the sellers has a large measure of control or command of the market and, therefore, over the price at which he likes to sell his output. This has to be contrasted with perfect competition in which a seller has no choice in respect of the price at which he desires to sell his commodity.

We have referred to such a case as being one of normal imperfect competition earlier. However, we should be clear that we are not referring to absolute or pure monopoly but only to situation of a disproportionately large seller.

The Case for and Against Monopoly

When the classical economists had suggested that the economy working according to the principle of the free market was the best, they had clearly implied that there would be keen competition amongst the suppliers of goods in the market. Their idea was that once in their search for maximising their gain, the sellers began to produce more and more of output, the situation will serve the interests of the society best. Growing production of goods and services will encourage division of labour, large-scale production, lower marginal and average costs, lower prices and more wealth.

In fact, classical economists believed that things would necessarily work out in this manner, increasing the economic welfare of both the individual and the society, provided the market was not interfered with. Here you may ask a question how and why the mere fact of some individual producers and sellers making some personal gain or profit will bring about this transformation. The

answer lies in the fact that when other people find that profits are being made in the production and sale of a particular commodity, they feel attracted by the prospect of making such profit themselves. In fact, as long as profits are made by the existing producers in the market, new producers joining the market is a natural tendency. In consequence, the number of producers will go on becoming larger and the competition amongst them keener with time. You can see the advantage to the society by such a competition as each producer will now try to outsell the other and in the process minimise his cost of production. The gain to the society would be more division of labour, larger scale of production, larger output, lower cost and lower prices. This is the reason why economists have regarded perfect competition as an ideal market situation.

The more we move away from the competitive market to the monopoly one, the gains listed above become more unlikely. On the other hand, when fear of competition does not exist, or has been reduced, it will lead to monopolistic market. It is likely that the producers will not feel compulsion to go for further division of labour or raise the scale of production or minimise the cost or to lower their prices. Thus, the gains attributed to a free market economy begin to disappear once we move from a competitive market to a monopolistic one.

Economists sometimes suggest that the monopolist is an unusual creature and may not be guided solely by profit motive. He may be given to a desire to expand his output and his scale of production even if there are no compulsions. You may also note that a higher profit may yield high income while a larger scale of production provides a larger command over wealth including capital and other assets. Thus, if a person is interested in commanding a larger amount of economic resources, he may raise the scale of his output by looking at this total revenue rather than on the rate of return on his investment.

You may now ask the question; Can any producer maximise his total revenue without keeping in mind his cost of production? In fact, a monopolist tries to maximise his 'net monopoly revenue' but not really the total revenue. In this effort, he does try to handle his cost with care. (You will study in detail about this later in this Unit.) One of the ways in which the monopolist handles his cost is through innovation and technological change.

What is technological change?

It is common knowledge that the different techniques of production are not equally efficient. For example, in cooking, the cost of fuel wood is different from the cost of kerosene. Likewise, soft coke has one efficiency, gas another, electricity yet another and so on. A rational cook uses the technique which helps in reducing his cost. Similarly, in all other productive activities, different techniques have different efficiencies and costs of production attached to them. Any rational producer, including the monopolist will choose his technique with such a consideration in mind.

A monopolist to so change his technique of production that he is able to control his cost not mainly because of the fears that his competitors might

outsell him (he has no worthwhile competitor) but because this way he can expand his scale of production and enjoy considerable prestige and economic power in the market. The point to be noted is that while profit maximisation is a desire of the monopolist like all other types of producers, he has in addition, some other motive as well.

There can be various reasons why a producer turns a monopolist. There are, as has been pointed out, natural monopolies resulting from exploitation of some minerals located in small geographical areas-say a mineral like gold-and it may not be meaningful for a large number of producers to mine and exploit a small area. At the other end of the spectrum, there would be the supply of a service like clean drinking water for which extensive network of pipes is to be laid down. This is a job in which duplication by many producers will be extremely wasteful.

Apart from natural monopolies, there are those which result from grant of patents or other legal protections. Sometimes, the government provides exclusive rights to particular companies to trade in particular areas and this leads to emergence of monopoly. Lastly, there can be monopolies resulting from progress in technology, evolution of new techniques and methods of production or new products. It is possible that a particular firm or enterprise has evolved a method of producing a particular commodity which no one else knows about and this enables it to become a monopoly.

Whatever may be the reasons for the emergence of monopolies, their existence is a departure from the conditions which perfect competition considers ideal for society's welfare. However, there is one advantage which could go in the favour of a monopolist. Monopolist seeking innovation and technological change is an advantage to society. It may not be easily available from perfect competition. It may be noted that innovation is an activity which involves large expenditure and, therefore, requires a risk which the monopolist may take but the perfect competitor may not. As you know in perfect competition a producer controls an insignificant proportion of the market and operates on a slender margin of profit. Beyond his normal profit, he does not earn any surplus in the long period. He may, therefore, not be able to commit large resources to innovation.

We can, therefore, say that monopoly is not an unmixed evil. And even though the monopolist has power to manipulate his price and exploit his buyers, he works for large-scale production and division of labour and technological progress. He may be able to supply the commodity at a price which is lower than the price which prevails under perfect competition. The question, however, is whether the monopolist will work in these directions. There is nothing inherent in the structure of the monopoly market which would suggest monopolist will necessarily work in these directions.

Does monopoly lead to mis-allocation of resources?

Another point that has to be kept in mind and which reflects rather unfavourably on monopoly vis-a-vis competition is that monopoly tends to distort optimum allocation of resources. In perfect competition, as you know, price is equal to marginal cost of production, at the point of optimum

production. In such situations, the producer is unable to make any gains at the cost of his buyers. Not merelythat since all producers will be doing the same, there will be no tendency for resources to flow from one producer to another and conditions of optimum production all around will obtain. However, in monopoly, prices never equal marginal cost. It is always higher. In monopoly also marginal revenue and marginal cost have to be equal for a profit maximising equilibrium. However, since average revenue (that is, price) will necessarily be higher than marginal revenue, price will automatically be higher than marginal cost. The resources are best allocated only when price is equal to marginal cost and not when price is more than marginal cost. Hence, allocation of resources in monopoly would be less than optimum. So we can say that monopoly leads to allocation of resources.

As monopoly leads to mis-allocation of resources, governments have to evolve measures of economic policy which are anti-monopoly. They may, as in India, impose restrictions on the total investment which the monopolist can make. They may also regulate the price or control his attempt to influence the market through exaggerated or misleading advertisements. After all, when the monopolist charges higher price than the marginal cost of production, he earns surplus, which in conditions of competition would have really gone to the buyers. Therefore, by compelling the monopolist to keep his price in check the government reduces his surplus to benefit the society at large. Of course, because of government's interference, he may desist from research and innovation and thereby produce a higher cost situation. He may also not expand his production further and cause an adverse impact on employment and income generation.

14.3 EQUILIBRIUM IN A MONOPOLY MARKET

We have discussed the concept of monopoly. Now let us study how the monopolist's equilibrium is determined.

As the monopolist is in a position to influence the market; he becomes a price-maker, and not a price-taker. He is not helpless to accept the price that is ruling in the market. He can, depending on the power or influence that he has, change the price. There is another important characteristic of monopoly. A monopolist does not have to fear and, therefore, bother about the price of other commodities in the market because theoretically there would be no substitute for his commodity. In fact, it is because of this reason, he enjoys the power to influence the price. When we say that the monopolist can determine his own price, it does not mean that he can determine whatever output he wants and charge whatever price he likes. That obviously is impossible. If the monopolist chooses to fix his price, he will have to keep output flexible and decide upon only that output which can be sold at that price. On the other hand, if he chooses to fix his output, he cannot decide his price to sell that output. Thus, in spite of the fact that the monopolist is a powerful producer, he cannot produce as much as he wants and also charge whatever price he likes. He can either decide his output and let the price be determined by the requirements of equilibrium or decide the price and let his output be adjusted accordingly.

But where exactly should the equilibrium price be determined? As in case of Perfect competition, here also, the time element in respect of which equilibrium has to be determined will be an important factor. In case, we are determining equilibrium price for a short period, there will be one type of consideration while in case of a long period, there will be another type. Let us first consider the short period.

14.3.1 Short Period

First of all, a general statement about the situation in respect of the supply curve of a monopolist may be made. In monopoly, the marginal cost curve will not be the supply curve. We have already described the supply curve of a producer as one which indicates various amounts of the commodity that are intended to be supplied at various expected prices. We had also said that the producer will like to keep in mind his cost of production, particularly marginal cost so that (provided the price was such that he was compensated for the marginal cost corresponding to the intended supply) he would regard that supply as worthwhile. On this premise, the producer's marginal cost curve could be treated as his supply curve.

In case of a monopolist, however, price is not equal to marginal cost of production. Therefore, he will not consider himself as having been properly compensated if he expected a price which was equal to marginal cost. For this reason, his marginal cost curve cannot be taken to be his supply curve.

There is another aspect related to the matter of the supply curve in monopoly which derives from the fact that as the monopolist can influence the price of his commodity, his main interest will be in the demand curve that he encounters in the market. We have already noted that the monopolist does not have unlimited powers in respect of his price. He can charge the price subject to the limits of the demand curve which he faces, the more sloping is the demand curve which he faces, the more sharply he can vary or change his price. On the other hand, with a flatter demand curve, the variability in price will be smaller. The monopolist cannot charge a price which is outside these limits.

This suggests that elasticity of demand for the monopolist's product will be an important factor enabling him to influence the price. This does not however mean that (only when the elasticity of demand is zero or less than one) the monopolist will be able to charge a higher price. In order to be able to understand this statement look at Figure 14.1 where a demand curve has been shown.

It is clear from the above figure that as long as the monopolist's equilibrium is determined at any point above E_1 the price that he would charge would be higher but the elasticity of demand of the product will also be more than one. In fact, if we were to move down in some point below E the equilibrium price would be very low and also the elasticity of demand will be much less than unity. Thus, it would not be correct to suggest that it is only when the demand is inelastic that the monopolist is able to charge a higher price.

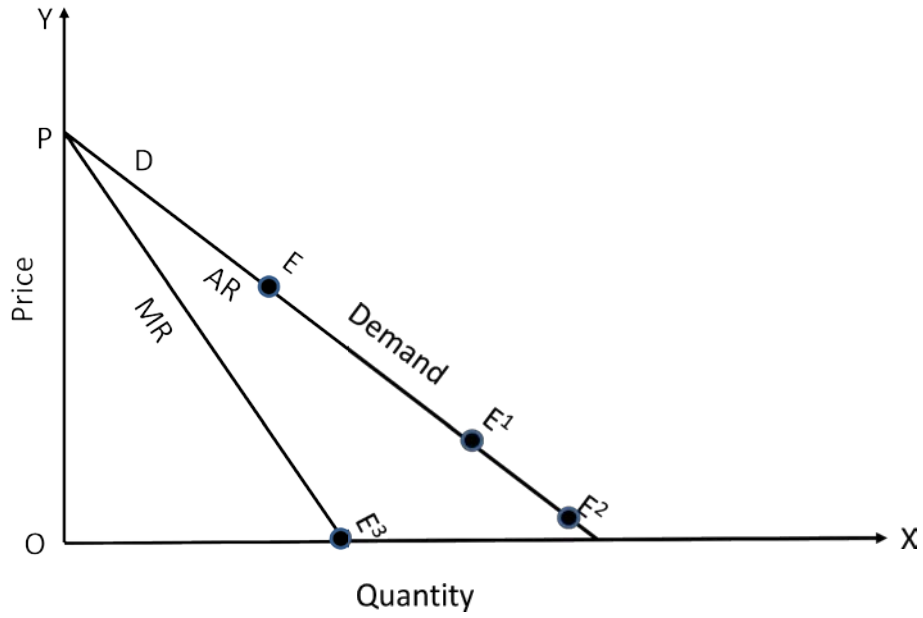

Figure 14.1 : Monopolist's Equilibrium and Elasticity of Demand

Look at Figure 14.1 where at point E_2 ,marginal revenue will be negative and equilibrium will not be possible. In fact, even at point E_3 where the marginal revenue is zero, equilibrium will not be possible because it would imply that the marginal cost of the monopolist is zero (equilibrium necessarily means equality between marginal revenue and marginal cost) which is a ridiculous situation.

We will thus see that the monopolistic equilibrium leading to the charging of a higher price is best determined when the elasticity of demand for the product is either equal to or greater than one but not so low as to be zero or near zero.

Having seen the importance of the demand curve and the elasticity of demand for the product, we may now refer to the kind of considerations that characterise the determination of monopoly price in the short period. The monopolist would not accept a price which does not cover his average variable cost of production. In case the price is less than average variable cost, his total revenue will be less than his total variable cost. In such a situation, he will prefer not to produce the commodity.

This, of course, is possible when his price is equal to average variable cost and he, therefore, continues to produce the commodity. The prices can be either equal to or lower than or higher than his average cost (average of both the fixed and variable costs). If the price is equal to average cost, total revenue is equal to total cost (both variable and fixed) and monopolist will neither be suffering a loss nor earning a surplus. On the other hand, if his price is more than average cost, his total revenue will be more than total cost and he will be making abnormal gains. The monopolist will be suffering a loss only when the price is less than average cost of production and, therefore, the total revenue is less than total cost.

The thing that has to be kept in mind is that the average and marginal cost curves that will help in determining monopolist's equilibrium price will both relate to a short period. Look at

Figure 14.2 where equilibrium characterised by abnormal gains has been shown.

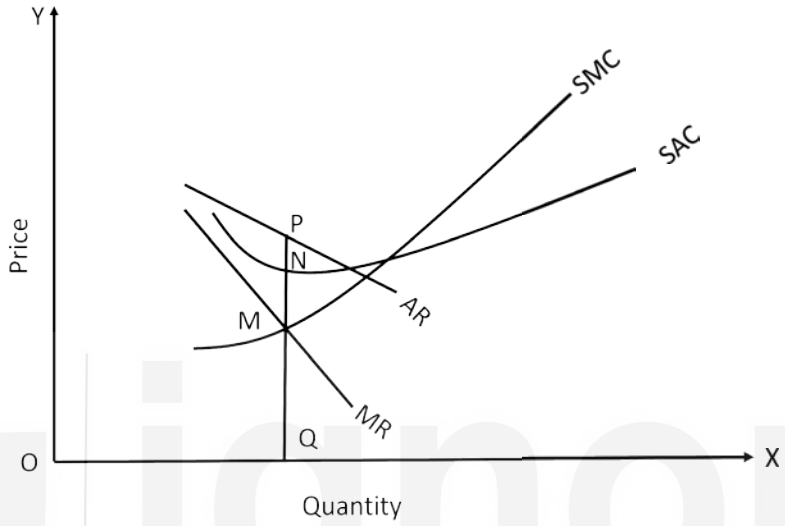

Figure 14.2 : Short Period Equilibrium under Monopoly by Abnormal gains

Look at Figure 14.3 where equilibrium characterised by losses has been shown.

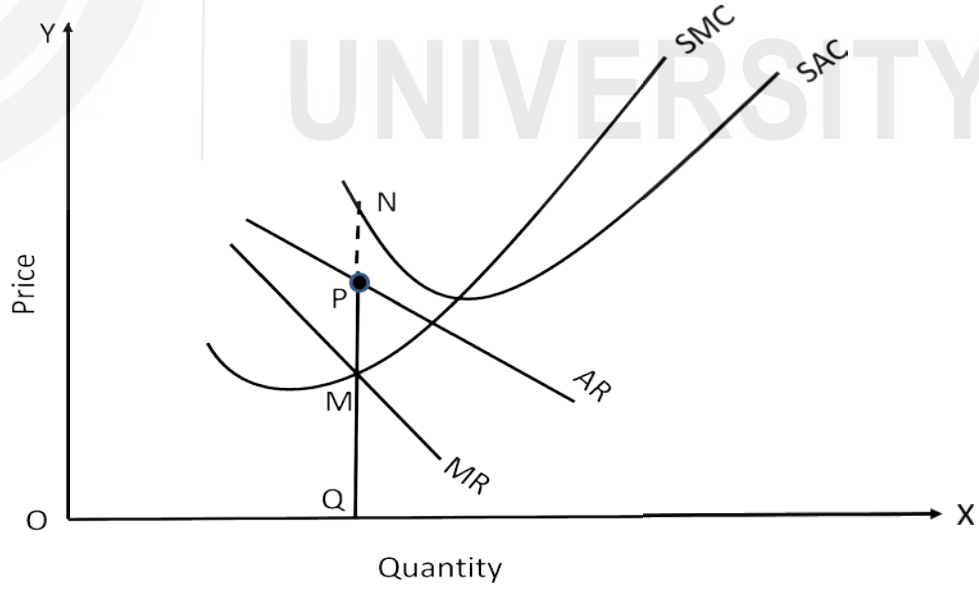

Figure 14.3 : Short Period Equilibrium under Monopoly by Losses

Look at Figure 14.4 where monopoly equilibrium characterised neither by abnormal gains nor by losses has been shown.

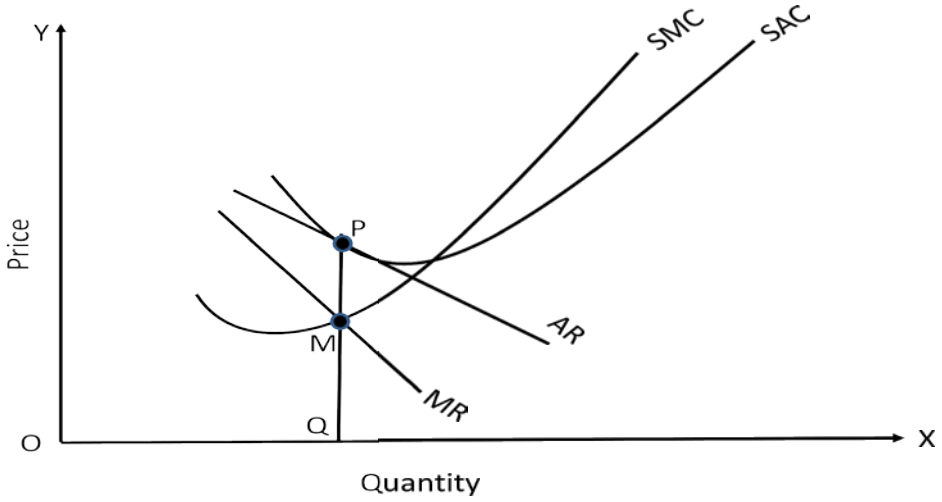

Figure 14.4 : Short Period Equilibrium under Monopoly neither by Abnormal Gains or any Losses

Remember that in all cases of equilibrium, the marginal cost curve has to cut the marginal revenue curve from below otherwise as was pointed out, in Unit 12, the equilibrium achieved will not be stable. Further, the short period equilibrium is at all one which has to remain valid only for a short period and in course of time, should change. It is because of the possibility of change (one short period gives way to another) that the monopolist in spite of all his power, will tolerate losses or a no-profit-no-loss situation.

14.3.2 Long Period

In the previous discussion, we analysed short period equilibrium of a monopolist suggesting that it could be characterised by either loss or profit or by no-profit no-loss situation. However, there is no question of a monopolist suffering losses or his being in a no-profit no-loss situation in the long period. After all, as a monopolist he has some influence on the price and he is bound to use the influence at least in the long period such that he earns a surplus over his cost of production.

How do we determine the monopoly price which reflects the real power of the monopolist? Alfred Marshall raised this question and tried to answer it in his own way. He said the equilibrium price of the monopolist in the long period will have to be one which gave him maximum net monopoly revenue. According to him, net monopoly revenue corresponding to a given output is the difference between total revenue and total cost for that output. Look at Figure 14.5 where at OQ output and PQ price the total revenue would be OQ × PQ.

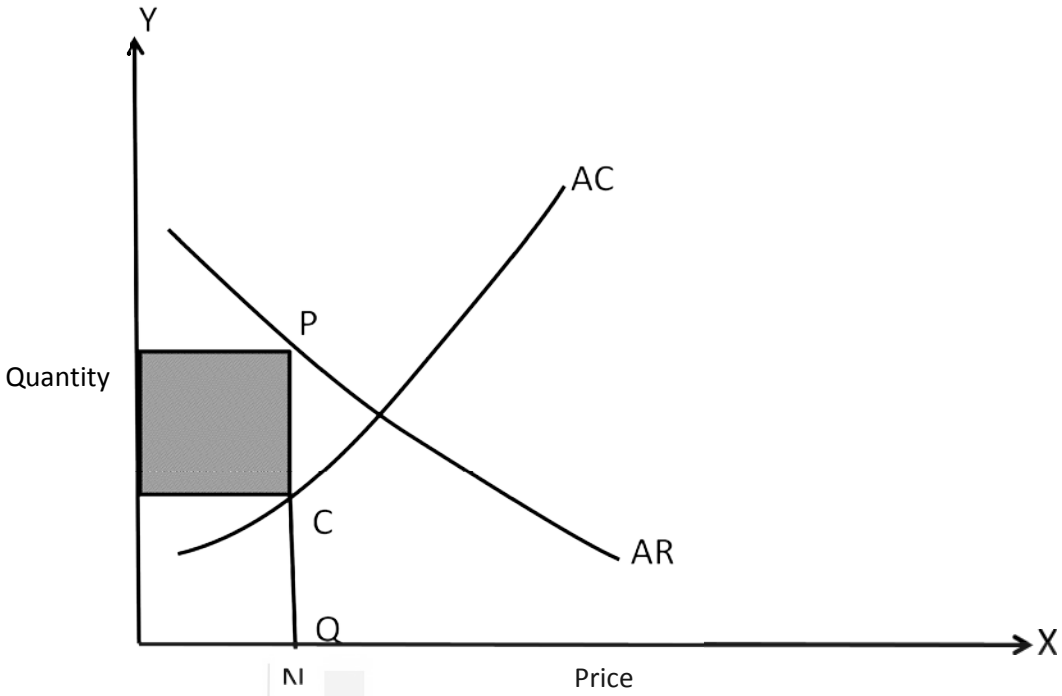

Figure 14.5 : Long Period Equilibrium under Monopoly

On the other hand, since QC is the average cost corresponding to OQ output, QC×OQ would be the total cost. We can thus say that (PQ×OQ) minus (QC×OQ) the shaded area in Figure 14.5 is the net monopoly revenue. Marshall's view was that only where this difference was maximum, the monopolist will be in equilibrium in the long period. The output corresponding to which the difference was the maximum would indicate not only what should be produced but also the price at which it would be sold in the market. Both the output and price assuring maximum net monopoly revenue will have been determined.

How is the position of maximum net monopoly revenue to be found out? Marshall had suggested that the monopolist would do that through a process of trial and error. Look at Figure 14.6 in which a number of outputs can be considered along with their prices and average costs and the difference between total revenues and total costs thus sound out.

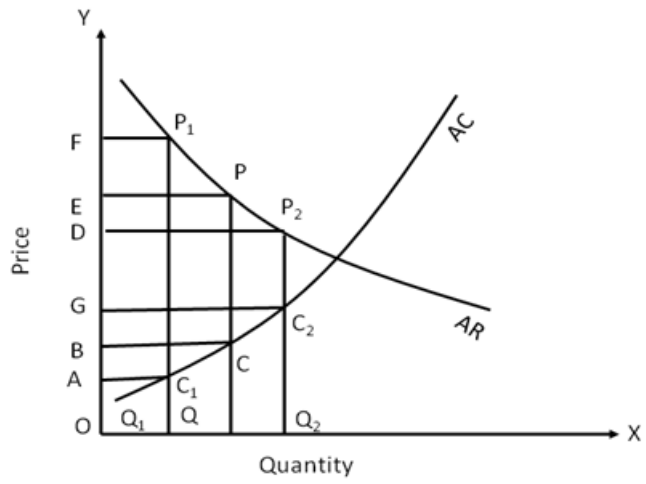

Figure 14.6 : Long Period Equilibrium Under Monopoly with various Output

The net monopoly revenues for these outputs OQ_1OQ_2 and OQ are AC_1, P_1,F, BCPE and GC_2 P_2D respectively. Since the rectangle BCPE is the largest, the. monopolist will produce OQ output and charge PQ price.

Post Marshall economists say that the long period equilibrium of the monopolist can be found through intersection of marginal revenue and marginal cost curves, which has been shown in Figure 14.7.

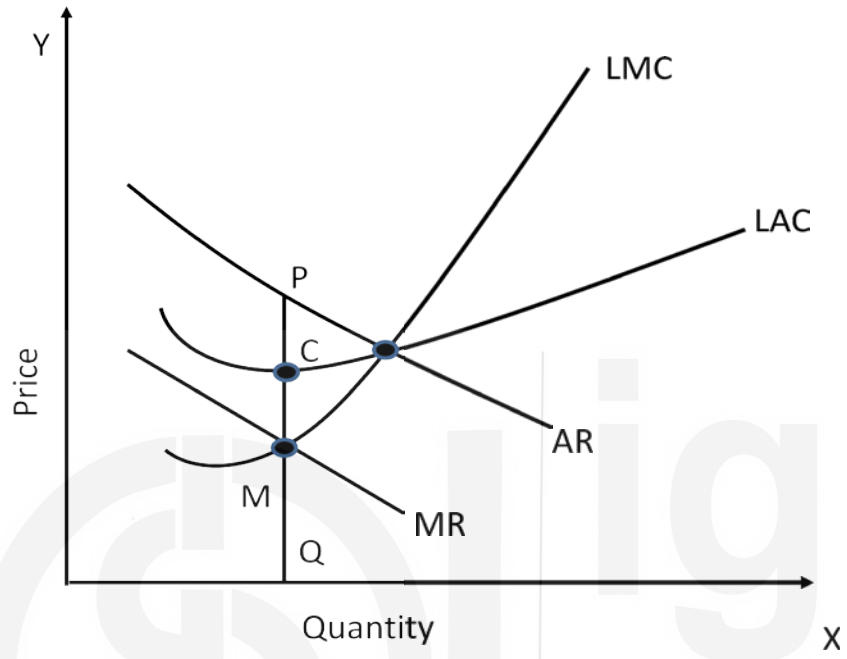

Figure 14.7 :Long Period Equilibrium Under Monopoly by Marginal Revenue and Marginal Cost Curve

It can be seen from Figure 14.7 that corresponding to the point where marginal revenue is equal to marginal cost, the monopoly output is sold at a price which is higher than the average cost of production. And so he necessarily earns a surplus. Not only that, since marginal revenue is equal to marginal cost, profit is maximum. The surplus of the monopolist is also maximum here.

In the short period at the point of intersection of the marginal revenue and marginal cost curve, the price of his commodity turns out to be higher than the average cost, he makes a profit, he may prefer to remain at the same position of equilibrium in the long period as well.

If he does that, the short period equilibrium will also become his long period equilibrium. He would not like to change because there is no compulsion to do so. Look at Figure 14.8 where long period equilibrium of a monopolist has been shown.

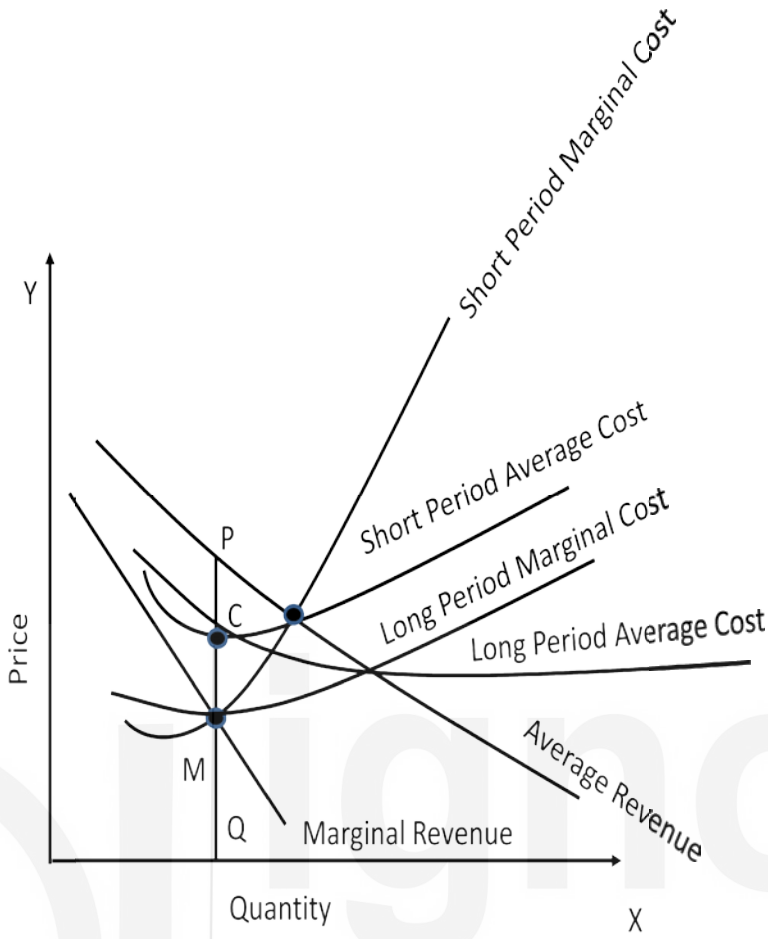

Figure 14.8 :Long Period Equilibrium Under Monopoly showing Maximum Net Monopoly Revenue

Check Your Progress A

1) What do you mean by technological change?

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2) Differentiate between Short Period and Long Period Equilibrium under monopoly.

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

i) Besides profit maximisation the monopolists have some other motive as well. ii) In monopoly marginal revenue and marginal cost have to be equal for a profit maximising equilibrium.

iii) Monopolists are the price-takers and not the price-makers of the market.

iv) In monopoly, the marginal cost curve is equal to the supply curve.

v) The monopolist will not accept a price which does not cover his average variable cost of production.

14.4 PRICE DISCRIMINATION UNDER MONOPOLY

Price discrimination means that for the same commodity the price charged differs from buyer to buyer as from market to market. Charging different prices from different buyers or different groups of buyers or from different markets is not uncommon. Lawyers or doctors can charge different fees from different clients. Likewise, a producer can sometimes charge a lower price in one market and higher one in another. The phenomenon of dumping in international trade is an example of price discrimination.

The two conditions which need to be satisfied if price discrimination is to be practised are: (i) The supplies of the commodity purchased at a lower price should not be resalable at a higher price, and (ii) demanders paying a higher price should not be able to transfer their demand to the market where price is lower. It is obvious that if these conditions do not obtain, price discrimination would not be possible. If buyers at a cheaper price can resell the commodity to those being made to pay a higher price, why should the latter agree to pay a high price at all? In such a situation, the seller would just not be able to enforce a differential system of prices. Likewise, if buyers facing a higher price can transfer their demand to a lower price market, the higher price market would cease to exist and only one price will rule everywhere.

While ‘no resale' or ‘no transfer of demand' is a necessary condition for price discrimination, they are not sufficient for inducing the practice. In order that a producer does in fact charge different prices for a given commodity, he should be assured that this way he is able to maximise his profits as well.

Of course, maximisation of profits requires equalisation of marginal cost and marginal revenue. How shall we interpret these two variables now that we have two markets instead of one? Shall we have two marginal cost curves and two marginal revenue curves? The answer is we will have one marginal cost curve and as many marginal revenue curves as there are markets in which different prices are to be charged, so that if we are considering two markets we shall have two marginal revenue curves, and so on.

Let us first understand why only one marginal cost curve would be meaningful. What needs to be appreciated is that a producer would not put up market-wise production units otherwise he will deprive himself of the advantage of economies of scale for supplying the commodity to the two

markets. He will rather produce at one place (unless there are some very special local advantages in respect of factors of production used) and then distribute his supplies market-wise. And since there will be one aggregate production for both the markets, there will be only one marginal cost curve to be considered for determining the point of maximum profit.

However, different markets are supposed to have different demand curves. In fact, it is because the demand curves in the markets being considered are not identical i.e., they are not having the same elasticity of demand at the same price, that the monopolist would be able to charge different prices in different markets. Thus, as we come to the demand side of the picture, we will have to postulate that the elasticity of demand for the commodity being supplied by the monopolist is different in different markets.

Now since the demand curves are different, the average revenue curve, being another name for the demand-price curve, will also be different in different markets. Following this, the marginal revenue curves will also be different. Since for reasons of analytical convenience, we are assuming two markets, we will have two marginal revenue curves to consider along with just one marginal cost curve. What is it that we have to do next?

Step one, is to first determine the aggregate output at which marginal cost would be equal to marginal revenue. But how do we know the marginal revenue for an aggregate output for the two markets? The answer is simple: we just add up the individual marginal revenue curves of the two markets.

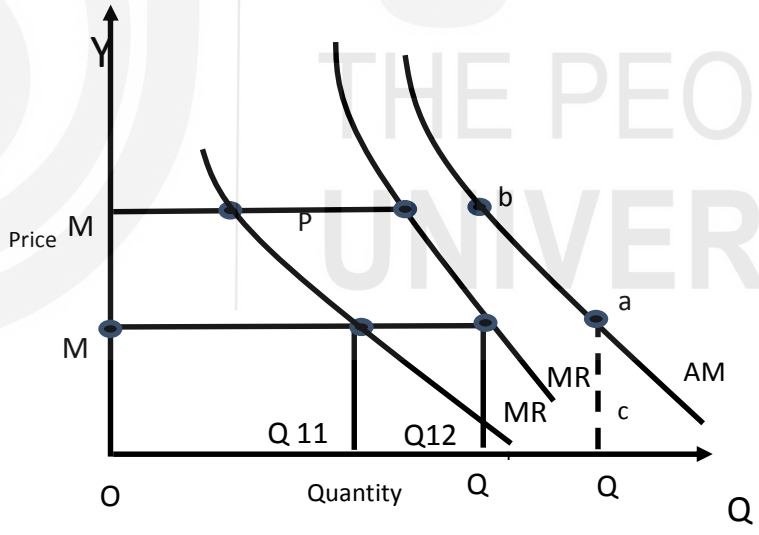

Figure 14.9 : Price Discrimination Under Monopoly

The procedure for summation is that we take the demand in market 1 corresponding to a given marginal revenue and then the demand in market 2 corresponding to the same marginal revenue, add up the two demands and show the aggregate with a point corresponding to the given marginal revenue. Look at Figure 14.9 where at OM_1 marginal revenue, the demand in market 1 is OQ_2 while at the same marginal revenue the demand in market 2 is OQ_1. We then add up OQ to OQ and get a sum like OQ_1, being the demand for an aggregate output for the two markets, corresponding to OM. In other words, OQ_1,=OQ_{11}, +OQ_{12},,. I Let the point showing the situation be ‘a'. Likewise

we can consider marginal revenue OM_2, and the aggregate output OQ2 corresponding to this marginal revenue. We then get another point 'b': and so on. By joining the points a, b,..... etc., we get the curve which shows marginal revenues at various aggregate demands of the two markets.

Step two. Where 'aggregate' marginal revenue curve intersects the marginal cost curve, the monopolist's equilibrium will show maximum profit from the two markets. We fix this point of intersection at M. Study Figure 14.10 carefully

Step three. Once the aggregate output in the two markets has been determined, we have only to work out the distribution within the limits of the demand curve pertaining to each of the two markets.

Step four From the point of intersection of the aggregate' marginal revenue curve and the marginal cost curve, we draw a horizontal straight line cutting the marginal revenue curves of market 1 and market 2 at points M_1 and M_2.

Step five At point M_1 we draw a vertical line P, S, from the demand curve of market 1. Likewise at point M_1 we draw a vertical straight line P,S, from the demand curve of market 2

OS_1, will be the output supplied by the monopolist in market 1 at price P_1, S_1, and ..:: OS_2, the output supplied in market 2 at price P_2,S_2.

It may be noted that in market 1, the marginal revenue is MS, which is the same as the marginal cost MS. By drawing a horizontal straight line from the point of intersection of 'aggregate' marginal revenue and marginal cost curve i.e., M we have assured that MS, = MS i.e., in market 1, marginal revenue is equal to marginal cost. Likewise, we can see that in market 2 also, marginal revenue $M^{11}S_2$ = MS, the marginal cost.

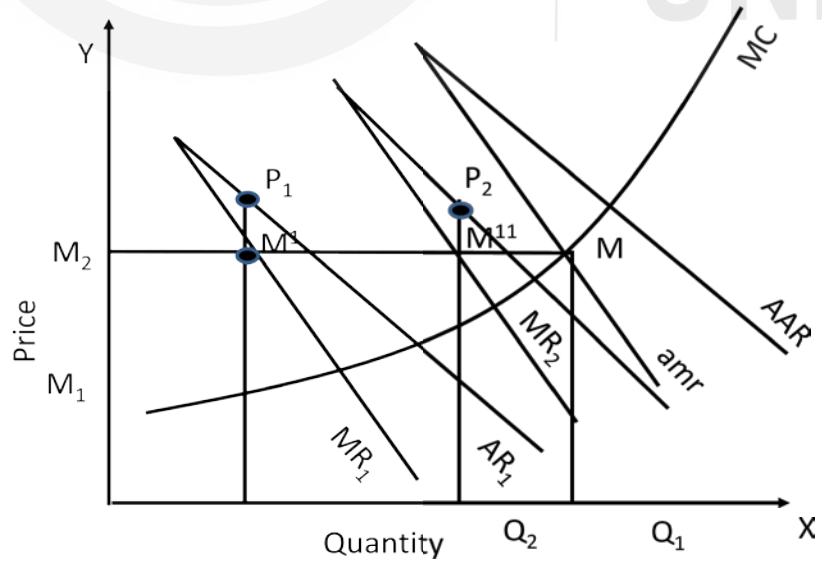

Figure 14.10 :Price Discrimination of Monopolists Showing Maximum Profit

The significant thing that is to be noted is that price P_1S_1, of market 1 is different from price P_2S_2, of market 2. That is why it is a case of price discrimination-same commodity, same producer but two different prices because the demand curves in the two markets have different elasticities.

14.5 MONOPOLY AND ECONOMIC EFFICIENCY: COMPARISON WITH PERFECT COMPETITION

We have already noted that price in monopoly is not equal to but higher than marginal cost of production. Suppose it so happens that an industry which had a large number of firms competing with one another gets monopolised. Then the same falling demand curve earlier that of the competitive industry will now be faced by the monopolist.

This demand curve becomes his price or average revenue curve and corresponding to this average revenue curve, there is a marginal revenue curve sloping downward but

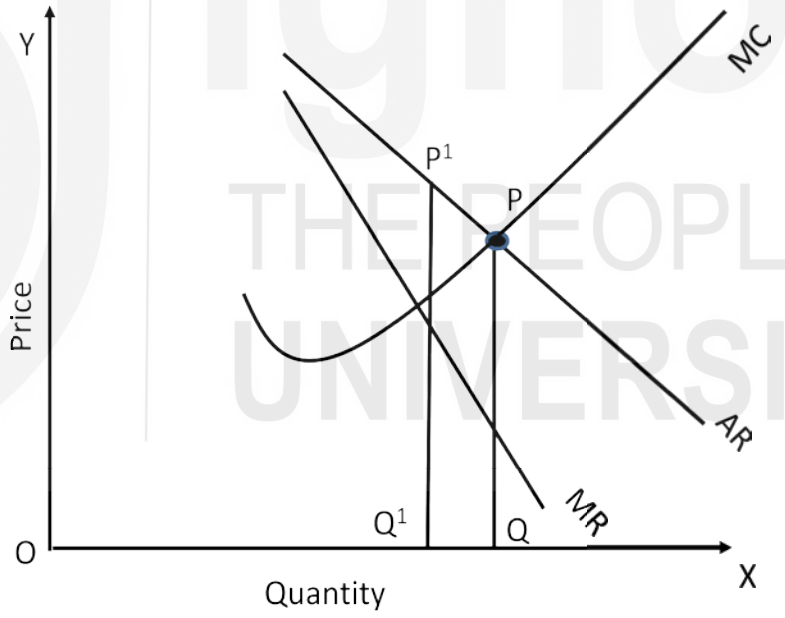

Figure 14.11 : Short Period Equilibrium of an industry

would be lying below the average revenue curve. Another point to be noted is that the marginal cost curve of the monopolist may either be the same as in the case of competitive industry or different. If it is different (and there could be valid reasons for the difference) it will have its own implications for the equilibrium of the monopolist. However, if the marginal cost is the same, the total output supplied by the monopolist would be lower than what the competitive industry would have supplied. (competitive industry's equilibrium would have taken place at point P where the price is equal to the marginal cost of production.) The monopoly price Q_1P_1 will be higher than the competitive industry's price QP.

It may, however, be repeated that the higher monopoly price and the lower monopoly output (as compared to what could happen in conditions of perfect competition) are due to the fact that the marginal cost curve of the monopolist has been assumed to be the same as that of the competitive industry.

Marginal cost, after monopoly has replaced competition can be different, for the following reasons:

1) In perfect competition, there are a number of producers each managing with a smaller output and, therefore, a smaller scale of production. In monopoly, the output supplied are large and therefore, scale of production will be very much larger.

2) Secondly, since there will be centralised organisation for production and sale now, there will be further economies in cost available to the monopolist.

3) The monopolist is given to innovation which he can afford better than the perfect competition. Because of his larger turnover from larger output, he can further reduce his cost by adopting better techniques of production.

Thus, it is not always true that monopoly would result in a higher price and a lower output.

There are other reasons also why monopoly price may not be higher than price under perfect competition.

The monopolist may be afraid that if he charged high price, the consequent surplus that he would earn may induce potential producers to try to produce if not the same, then a similar commodity. In such a situation, the monopolist's own sale and profit could be adversely affected. Therefore, the monopolist may avoid charging a higher price for his commodity. Secondly, the monopolist may have a name and prestige resulting from his command over resources which he would not like to see spoiled by the impression that would go round that he was a greedy, profit-seeking person. In order not to be known as a producer out to exploit his customers, he may keep his price low.

Thirdly, the monopolist could as well compel Government intervention to regulate his price if he showed any tendency to exploit his customers. Thus, it is as much likely that monopoly price is the same or lower than competitive price as that may be higher. For that reason, it is as much likely that the monopoly output is the same or higher than that in competition as that is lower. Even if monopoly price is lower and monopoly output higher than in perfect competition, can we say that monopoly is an efficient form of market structure? The answer is ‘no’ for two reasons.

Firstly, since the monopoly price is always higher than marginal cost of production, the monopolist gains at the cost of his customers. We have already seen that in conditions of perfect competition, the producer earns no

surplus at the cost of his customers because he keeps his price equal to marginal cost.

Secondly, monopoly suffers from what may be described as technical deficiency. This is due to the fact that in all conditions of imperfect competition including monopoly, equilibrium tends to take place when the average cost of production curve is falling rather than rising. In such a situation equality between marginal revenue and marginal cost (as a number of previous diagrams explaining equilibrium would show) necessarily takes place before the lowest point of the average cost curve i.e., before the optimum point. **This means that monopoly output is generally less than optimum output.** Further, this would suggest that the average cost of producing the commodity is higher than what it could be. This also shows that the resources are not being optimally exploited and to the extent that this is so, they are idle and being wasted.

14.6 REGULATION OF MONOPOLY

In view of the fact that the monopolist has a tendency to charge a price which is higher than the marginal cost, the Government may regulate monopoly price to prevent exploitation of the consumer. What happens if the Government does that? Look at Figure 14.12 where P_1, Q_1, is that price which a monopolist is charging at present and suppose further that the Government forces the monopolist such that his price is now P_2Q_2. We can easily see that not only the new price is much lower than the old one and the new output OQ_2, is higher than the old output OQ_1, but also that the new regulated price is one which is equal to the average cost of the monopolist. This implies that his total revenue is equal to the total cost of production and, therefore, he is not making any profit at the expense of the customers. This price will certainly be in the interest of the consumers but it will still not be like the one in perfect competition. In perfect competition price is equal to marginal cost of production whereas in the diagram below that is not so. In fact, even though the monopolist is not earning any abnormal profit, the price is higher than the marginal cost. It is possible for the Government to bring the price down to the level of marginal cost and fix it at the point P_3. However, in that case the monopolist will remain in a state of permanent loss because at P_3 ,the average cost of production is higher than the marginal cost and since the price has been made equal to marginal cost, total revenue will be less than total cost of production. Unless, a method is devised to compensate the monopolist for this loss, he may as well stop production. The only way in which Government can regulate monopoly, if it is desires that the consumers do not pay a price higher than marginal cost of production is for it to provide a subsidy to the monopolist. However, the provision of subsidy may have other problems. But when subsidies are financed through deficit financing, inflation would occur and this would inflict losses on the consumer in other ways. Provided subsidies are financed through taxes, this also would affect consumers adversely unless a neutral scheme of taxation for the purpose has been devised, which is not quite easy.

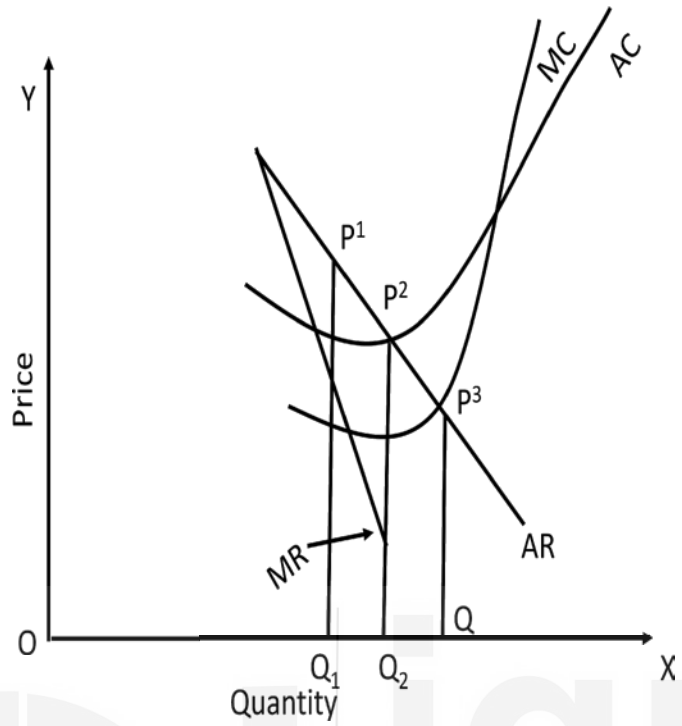

Figure 14.12 :Regulation of Monopoly

Check Your Progress B

1) What do you mean by Price Discrimination?

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2) Distinguish between monopoly and perfect competition.

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

i) Maximisation of profits requires equalisation of marginal cost and marginal revenue.

ii) Different markets are supposed to have different demand curves.

iii) In monopoly price is lower than the marginal cost of production.

iv) Monopoly output is generally less than optimum output.

v) Government may regulate the monopoly price because monopolist has a tendency to charge a price which is higher than the marginal cost.

4) Choose the appropriate answer among the following alternatives.

i) The monopolist has command over

a) whole market

b) small market

c) large market

d) none

ii) Monopolist is a

a) price taker

b) price maker

c) one who does not bother about the price of the market

d) one who is very much anxious about the market price.

iii) The price under monopoly is

a) higher than marginal cost of production

b) lower than marginal cost of production

c) higher than average cost of production

d) lower than average cost of production.

iv) In the imperfect competition including monopoly equality between marginal revenue and marginal cost takes place

a) at the optimum point.

b) after the optimum point.

c) before the optimum point.

d) at any point.

14.7 LET US SUM UP

While perfect competition is the ideal, monopoly is a fact of life. In actual life, we do not have perfect knowledge, perfect mobility, etc., and, therefore, individual producers are not as helpless to influence the price of their commodity as they are when these conditions are present. Nor is the number of sellers in a market always so large that an individual seller may control just an insignificant proportion of the total market.

While the forces helping to determine equilibrium price in monopoly are the same as in perfect competition, namely, those of demand and supply, their relative roles do change in between these two markets. For example, the marginal cost curve which plays such a vital role in perfect competition, ceases to be that important. It no longer serves as a supply curve because price charged by a monopolist always tends to be higher than marginal cost.

Thus the only use of the marginal cost curve is that it helps to fix up the point of intersection between itself and the marginal revenue curve. The monopolist takingadvantage of his monopoly power likes to fix his price in a way that his net monopoly - revenue is maximum. And such a price can be only the one at which marginal revenue is equal to marginal cost. So a marginal cost curve is necessary for determining a monopolist's equilibrium but it does not truly serve as his supply curve.

Maximum net monopoly revenue, however, is something which a monopolist must earn in the long period. In the short period, he could as well suffer a loss in case at the point of equality of marginal cost with marginal revenue, the average revenue was lower, than average cost. However, in the long period the monopolist can so act on the cost and revenue curves that he is able to reach a position of maximum net monopoly.

Monopoly leads to production which is less than optimum. To that extent, therefore, it is inefficient, wasteful and harmful to the interest of the consumers and the society. That is why Governments in modern economies like to regulate the function of monopolies.

14.8 KEY WORDS

Aggregate Marginal Revenue: The marginal revenue corresponding to aggregate demands of two or more than two markets under discriminating monopoly.

Monopoly: The state of the market in which one seller has a disproportionately large measure of control or command of the market and, therefore, over the price at which he likes to sell his output.

Natural Monopoly: The situation in which it is so natural for a producer to become a monopolist. Suppliers of drinking water or electricity are examples of a natural monopoly.

Net Monopoly Revenue: The difference between total revenue accruing to a monopolist from a given output and the total cost of that output.

Price Discrimination: The kind of a monopoly situation in which the monopolist is able to charge different prices for the same commodity from different buyers in the same market or in different markets or different prices even for different units of the commodity from the same buyer.

14.9 ANSWERS TO CHECK YOUR PROGRESS

Check your Progress A

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

Check your Progress B

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

4 i) c ii) b iii) a iv) c

14.10 TERMINAL QUESTIONS

1) What is monopoly? How does this concept differ from that of perfect competition?
2) Explain the case for and against monopoly.
3) What is net monopoly revenue? When is it that it is maximum?
4) Explain the determination of a monopolist's equilibrium in the long period.
5) How will be the equilibrium be determined under degree of price discrimination in monopoly
6) Explain with a simple diagram how government can attempt to control the price charged by a monopolist.

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

UNIT 15 MONOPOLISTIC COMPETITION

Structure

15.0 OBJECTIVES

After studying this unit, you should be able to:

- explain the significance of product differentiation and the role of advertisement in promoting sale in a monopolistic but competitive market
- identify the reasons on account of which the free entry of new firms into the market could become difficult
- explain how the aggregate average cost of production curve is derived and how equilibrium price and output, determined with such a cost curve would differ from that determined by average cost of production curve only.
- explain the short period equilibrium and long period equilibrium
- differentiate between monopolistic competition and perfect competition in respect of price and output in the two situations
- explain how monopolistic competition could be inefficient and wasteful.

15.1 INTRODUCTION

You have learnt that perfect competition and monopoly represents extreme situations each almost opposite to the other. It is possible that in the earlier stages of industrialisation, we had situations which were similar to, if not the same as, perfect competition. The number of sellers producing an identical good was large but there was no attempt to innovate and have product

differentiation. Subsequent industrialisation created conditions for the setting up of 'big business' and ‘large houses' - something similar to monopoly. It also motivates smaller producers to outsell their rivals by trying to supply differentiated products in the market. Now the situation of a large group of producers seeking to produce not identical but slightly different commodities to outbid their rivals could not be described as perfect competition. Nor of course, it be described as monopoly because of the very large number of sellers involved. It was, therefore, described as monopolistic competition. On account of the largeness of number, it remained a case of competition all right but because each producer would try to appear to be the sole producer of a differentiated product, it was something of a monopoly too. Hence the name ‘monopolistic competition'. In this unit, you will learn the emergence of non-competitive markets and barriers to entry in monopolistic competition and the short period and long period equilibrium under monopolistic competition.

15.2 EMERGENCE OF NON-COMPETITIVE MARKETS

It has already been mentioned above that in actual life we tend to have imperfect rather than perfect market. In unit 12, while discussing the structure of markets, we mentioned that depending on the number of sellers, the homogeneity of the product, the elasticity of demand for the commodity and some other factors, markets will differ from one another. In monopolistic competition, the number of sellers is large and each seller commands only a small proportion of the total output. This is in - contrast to oligopoly where each seller controls a significant portion of the market demand, the seller in monopolistic competition can influence the price of his commodity. This is what distinguishes him from a seller in perfect competition. How does it happen that even while controlling a small part of the total market, the seller would be able to influence the price of the commodity.The answer lies in the fact that the seller can indulge in product differentiation. This does not happen in perfect competition because by definition, that is a state of the market where the product supplied by any and every seller is the same.

What happens when a producer is able to supply some product which is a little different from the one which the others are supplying? The fact that his product is different from that of the rest, he can charge a different price according to the quality of his product. This gives him the capacity to influence the price.

However, even while being a little different from that of the others, his product is not such that other products of the market cannot at all be substituted for it. Thus, if he tries to raise his price too much, he may lose his customers who will then switch over to the substitutes. Thus the extent to which the producer under monopolistic competition can influence the price for his product is rather limited. But in so far as the power to influence the price is concerned, the competition but one sloping downwards to the right.

The two important features of monopolistic competition are as follow.

i) **Product differentiation to develop brand loyalty:** One is that through various means particularly product differentiation, a monopolist competitor is all the time trying to develop brand loyalty amongst his buyers. Whenever he puts across a new quality of the product in the market, he hopes to carry his buyers on to the new product. He also does so with a measure of control over the price which he charges from his old as well as new buyers. This, in other words, means that a new product enables him to have a new demand or average revenue curve. Now, if it is remembered that a new product being qualitatively different from the old one it will also involve change in the average cost curve. We can say that monopolistic competition, a shift in the average cost curve, brings along with it a shift in the average revenue curve as well. This points to a kind of interdependence between average cost and average revenue curve which is a peculiar feature of monopolistic competition. This has, however, not to be confused with interdependence amongst sellers (which is, we shall see later a characteristic of oligopoly).

ii) **Non-Price competition:** The second feature of this market is that since the number of sellers is very large and each seller can influence the price of the commodity to some extent, sellers make tremendous efforts to attract buyers towards their products. In this effort, they engage in non-price competition. It can be easily seen that price competition always carries with it the risk of retaliation. Therefore, as far as possible the monopolist competitor tries to engage in various forms of non-price competition,

One such form is known as advertising. This advertising can broadly be of three types: 1) informative, 2) persuasive, 3) exaggerated, false and misleading.

Informative advertising aims at providing the market the details about the usefulness, effectiveness and long-run cheapness of the product in clear and honest terms. Such an advertising can only be welcomed because it adds to the knowledge of the buyers. and sellers and to that extent enables building up a healthy market situation.

The persuasive type of advertising is aimed at diverting the buyers with such information as may even by playing upon their weaknesses. Toothpaste advertisements often use dentists to recommend the products to the potential comsumers.

The third type of advertising is that in which qualities or characteristics which are not to be found in the product are advertised in order to misguide the buyers. Such business propaganda violates ethical norms and cannot, therefore, be looked at with favour. In India, the Monopolies and Restrictive Trade Practices Commission (MRTPC) is empowered to take action against monopolists who engage in unfair trade practices.

The communists have often questioned the propriety of wasting so much money on advertisements. It is interesting that in certain countries the expenditure on advertising tends to be as high as that on research and

innovation. This is not very desirable because whereas expenditure on research builds up innovation and technical change and raises productivity, advertising confers no corresponding benefit.

The expenditure on advertising is regarded as a selling cost of the commodity, i.e., we talk of two costs of a commodity instead of one. One is production cost and the other selling cost. Production cost comprises the cost incurred on the various inputs which go into the output of a commodity-plant, equipment, raw materials, labour etc. Selling cost, on the other hand, is the expenditure incurred on making a product acceptable to the buyers. The expenditure on advertisement can easily be seen as a major item in the selling cost of the product.

The shape of the cost of production curve which has been discussed in the previous units should be familiar. How will the selling cost curve be drawn? In this connection it has been suggested that the average selling cost curve will also be like the average cost of production curve. It will first fall with the rising output and then rise.

Figure 15.1 : Selling Cost Curve

That is to say it will also be like the familiar U-shaped average cost curve. The reason for such behaviour of the selling cost curve is almost the same as in the case of average cost of production curve. In the beginning, advertising expenses incurred will induce more than proportionate increase in the sale of the commodity but later they will induce a less than proportionate increase. Suppose the selling cost goes up by 5%, then in the earlier stage the sales could go up by 10%, or more than 5%, so that the selling cost per unit of output will go down. However, this happens upto a point. But when beyond that point selling cost is raised by 5%, sales might increase by 2% or 3% or at any rate by less than 5%. Obviously the selling cost per unit of output will fall with rising output unto a point but beyond that point it will rise and so the selling cost curve will also be a U-shaped curve like the production cost curve. This has been shown in figure 15.1.

Look at Figure 15.2 where the aggregate average cost curve in which selling cost is includedvis-a-vis the production cost curve has been shown.

At OQ output, CQ is the aggregate average cost in which selling cost is included but CQ is the production cost. Therefore,CC^1 is the selling cost. Thus the distance between the two curves is a measure of the selling cost being incurred by the producer

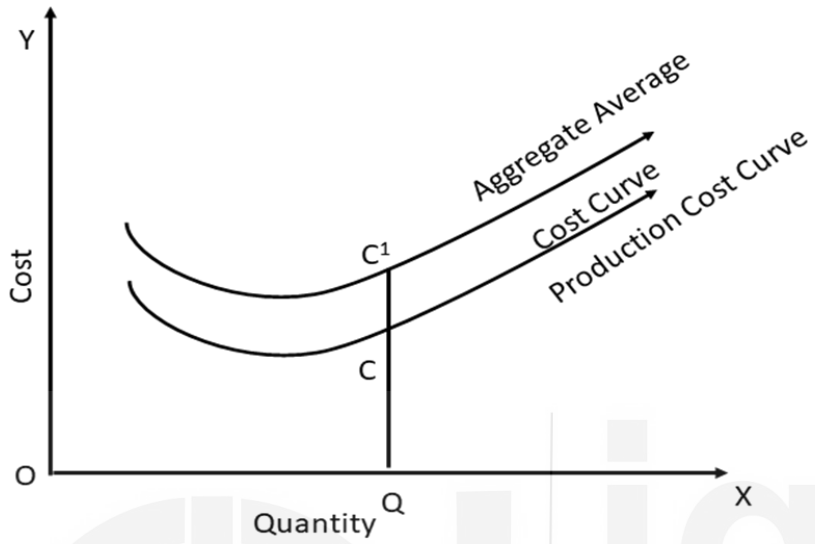

Figure 15.2 : Aggregate Average Cost Curve and Production Cost Curve

One reason why conditions of monopolistic competition emerge is rather simple. It is that the factors which make for the existence of the perfectly competitive market are often not to be found in real life. These factors are perfect knowledge, perfect detachment between buyers and sellers and perfect mobility. We may also add yet another factor which is talked about, namely, irrationality of the buyers even though imperfect detachment may include this factor. It is not uncommon for some buyers to equate quality with a higher price. Once the seller has become aware of this weakness of his buyers, he may charge a higher price even though he does not control any significant part of the market.

15.3 BARRIER TO ENTRY AND MONOPOLISTICSTRUCTURE

One of the effective ways of assuring that the producer will not have everything his own way and the benefits of production will be passed on to the consumer also is to assure that there are no barriers to the entry of new producers into the market. For instance, if there is on the part of any producer, the tendency to charge a price higher than average cost of production and thereby earn abnormal profit. In such situation, the fear that other producers might be attracted by higher profit and start producing the same commodity can be a powerful deterrent against the tendency. However, the entry of other producers is not as easy as may be supposed. When the classical economists had suggested that the free market system was the best for a society, they had assumed that markets would be completely free in

respect of entry or exit of firms involved in the process of production. That is how the notion of perfect competition was developed and that is why a perfectly competitive market structure came to be regarded with favour. Somehow the history of the market in free market economies does not indicate that perfect competition has become stronger with time. On the other hand, what we see is a wide variety of imperfect competition. You have already learnt about monopoly and now let us discuss monopolistic competition. Both of these are market structures which differ from perfect competition and in both producers are able to create conditions which benefit them more than the society. However, barriers to entry are a feature of monopoly rather than that of monopolistic competition.

There are various reasons behind barriers to free entry of firms in a market as discussed below:

1) **Control over supply of raw materials:** The producer who has already established himself may be having crucial control over the supply of raw materials required in the production of the commodity. In such a situation, intending firms may decide to keep out because they may have difficulty obtaining raw materials from the already established firms. This naturally leads to a kind of indirect barrier to the entry of new firms in the market.

2) **Limited supply:** The extremely limited supply of the raw material and in case some firms are already using it (say, gold or any such mineral) for their production, newer firms could not be easily accommodated because the raw material is very limited in supply.

3) **Absolute cost advantages:** The absolute cost advantage which the existing firms will have in comparison with the intending ones. This is because the momentum of early start has built up their scale of production large enough to give them the advantage of economies of scale. The firms intending to enter the market will have to first manage a large amount of resources so that they also can make the minimum investment. This is comparable to that of the already established firm. It is not every firm which can pick up courage to plunge into the market with such a large amount of investment.

4) **Large expenditure on advertising & product differentiation:** The established firm may be spending lot of money on advertisement, product differentiation etc. Larger is such expenditure, the more it is likely to discourage free entry of firms into the market.

5) **Rivals antagonised approach:** Rivals may use thefts, bribery and canvassing of workers of other establishments to the extent that the quality of the product of a rival is spoiled and its sale in the market is damaged.

6) **Government's interference:** The-Government may have already granted legal rights by way of patents and other provisions to an existing firm with the result that it has a monopoly over the processes of production of the concerned commodity. Naturally this will prevent the other firms from producing the same commodity.

7) **Natural monopoly:** There may be a case of natural monopoly. As is well-known, such monopolies, say water supply or power generation, are spatially so extensive. This involves so much expenditure that it may be wasteful for many producers to try to duplicate the infrastructure involved in the production and supply of these goods to the people.

8) **Moderate price policy:** Sometimes barriers to entry can be the consequence of the already established firms deliberately pursuing a moderate price policy.

9) **Secretive firms:** Sometimes the existing firms are so secretive about their operations that the intending firms do not get any idea of the former's costs, sale and profits at all. Such secrecy acts as a barrier to the entry of intending producers.

It will thus be seen that there can be many factors acting as barriers to the entry of firms in a market. As long as we do not have a method for removing these barriers, the competitive market structure cannot become a reality. On the other hand, lack of fear from potential producers and their competition emboldens existing firms to exploit the market in a manner that the balance advantage is tilted against the society.

It may, however, be once again pointed out that in the market structure which we call monopolistic competition, there is, by hypothesis, no barrier to the entry of firms into the market. Even so the monopolistic competition, as we will see later, does not confer the same benefits on the society which perfect competition does.

Check Your Progress A

1) Distinguish between monopolistic competition and monopoly.

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2) What do you mean by non-price competition?

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

i) In actual life we have a perfect rather than imperfect market.

ii) In monopolistic competition the number sellers are large and each seller commands large proportion of the total output.

iii) According to classical economists, the free market system was the best for a society.

iv) Government interference poses a barrier to free entry of the firms in the market.

v) Selling cost curve first fall with the rising output then rise.

15.4 ÉQUILIBRIUM IN A MONOPOLISTIC COMPETITION

Individual firm's equilibrium under Monopolistic Competition

The demand curve for the product of an individual firm is downward sloping. Since, the various firms under monopolistic competition produce products which are close substitutes of each other, the position and elasticity of the demand curve for the product of any of them depend upon the availability of the competing substitutes and their prices. Since, close substitutes for its product are available in the market; the demand curve for the product of an individual firm working under conditions of monopolistic competition is fairly elastic. Thus, although a firm under monopolistic competition has a monopolistic control over its variety of the product but its control is tempered by the fact that there are close substitutes available in the market and that if it sets too high a price for its product, many of its customers will shift to the rival products.

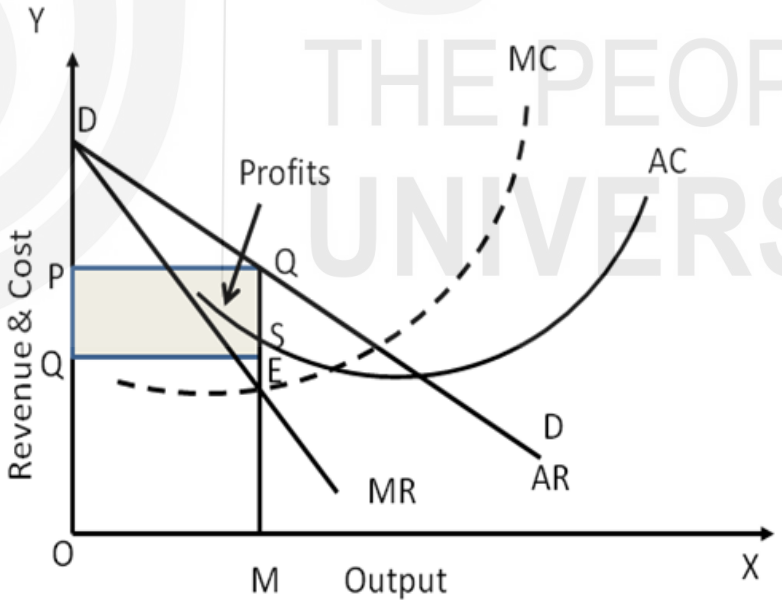

Figure 15.3 : Individual Firm's equilibrium under monopolistic competition (with profits)

The individual equilibrium under monopolistic competition is graphically shown in figure 15.3

DD is the demand curve for the product of an individual firm, the nature and prices of all substitutes being given. This demand curve DD is also the average revenue (AR) curve of the firm. AC represents the average cost curve of the firm, while MC is the marginal cost curve corresponding to it. It may

be recalled that average cost curve first falls due to internal economies and then rises due to internal diseconomies.

Given these demand and cost conditions a firm will fix its price and output at the level which gives its maximum total profits. Theory of value under monopolistic competition is also based upon the profit maximisation principle, as is the theory of value under perfect competition. Thus, a firm in order to maximise profits will equate marginal cost with marginal revenue. In figure 15.3, the firm will fix its level of output at OM, for at OM output marginal cost is equal to marginal revenue. The demand curve DD facing the firm in question indicates that output OM can be sold at price MQ=OP.Therefore, the determined price will evidently be MQ or OP. In this equilibrium position, by fixing its price at OP and output at OM, the firm is making economic profits equal to the area RSQP which is maximum. It may be recalled that profits RSQP are in excess of normal profits which represents the minimum profits necessary to secure the entrepreneur's services are included in average cost curve AC.

Thus, the area RSQP indicates the amount of supernormal or economic profits made by the firm.

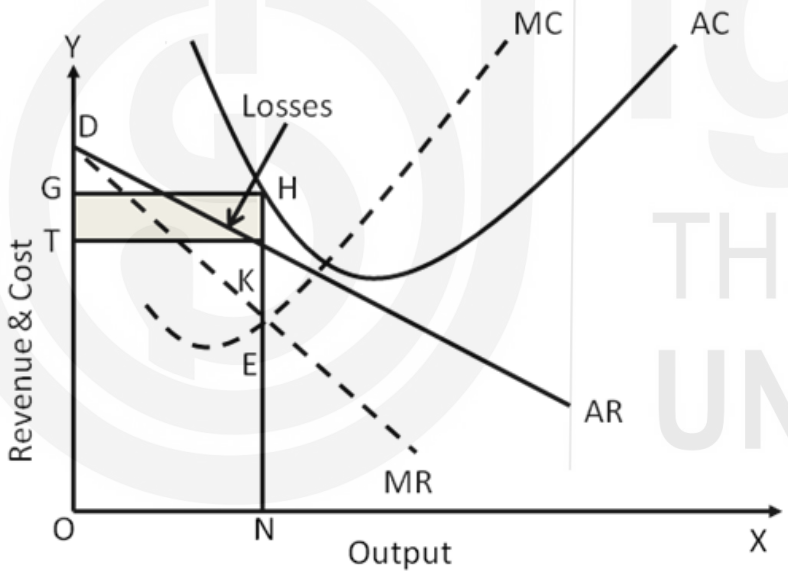

Figure 15.4: Individual Firm's equilibrium under monopolistic competition (with losses)

In the short run, the firm, in equilibrium, may make economic profits, as shown in above figure, but it may make losses too if the demand conditions for its product are not so favourable relative to cost conditions. Figure 15.4 depicts the case of a firm whose demand or average revenue curve AR for the product lies below the average cost curve throughout indicting thereby that no output of the product can be produced at positive profits. However, the firm is in equilibrium at output ON and setting price NK or OT by fixing price at OT and output at ON, it is rendering the losses to the minimum. In such an unfavourable situation there is no alternative for the firm except to make the best of the bad bargain.

We thus see that a firm in equilibrium under monopolistic competition, as under pure or perfect competition, may be making supernormal profits or losses depending upon the position of the demand curve relative to the position of the average cost curve. Further, a firm may be making only normal profits even in the short run if the demand curve happens to be tangent to the average cost curve.

15.5 FULL-COST PRICING

You have seen in the discussion of long period equilibrium that whatever the monopolistic competitor's surpluses in the short period, ultimately they are going to be wiped out. This happens because there being no barrier to the entry of new firms in the market, surpluses attract more firms. At the same time, when total output rises, his demand-price curve shifts downwards until price has become equal to average cost of production.

FOR MORE CLARITY!

Full cost pricing is a practice where the price of a product is calculated by a firm on the basis of its direct costs per unit of output plus a markup to cover overhead costs and profits.

Thinking that surpluses are going to disappear, supplier decides right from the start to fix his price just equal to average cost of production. This is also known as the method of full-cost pricing. Look at Figure 15.5 where the supplier straightway fixes his price at P_1 the point of intersection of his average revenue and average cost curves. He produces OQ output rather than first fix the price at P_1, for a short period and makes surpluses. After that it allows other firms to be attracted into the market and to cause a lowering of his average revenue curve to point $P_2$where-surpluses disappear, as they should, in the long period. The advantage in the full-cost pricing method is obvious. The producer ends up with a larger output than is possible under the other method of equating marginal cost to marginal revenue. The long period output in figure 15.5 is OQ_2, if perceived in terms of the marginal cost, marginal revenue equality but it is OQ when decided in terms of full-cost pricing.

The full-cost pricing principle is also known as the principle of mark-up pricing. It may not be quite feasible to act upon the marginal cost-marginal revenue equality principle, howsoever, theoretically impressive it may otherwise look to a producer. Finding out marginal revenue and marginal cost in actual market conditions and trying to equate they may be too trying and tedious business for him. He would rather prefer to make some tentative estimate of his average cost and mark-up the estimate by whatever is in his judgement the proper amount necessary to assure him

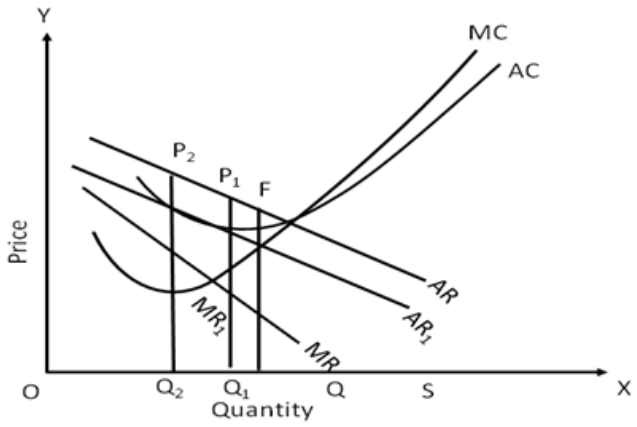

Figure 15.5: Full Cost Pricing

of the requisite compensation for his investment. It is this marked-up amount which would be the price he would prefer to charge. That is why the principle is also described as one of mark-up pricing.

15.6 DOES MONOPOLISTIC EQUILIBRIUM CAUSE RESOURCE WASTE?

Let us compare equilibrium under monopolistic competition with that under perfect competition.

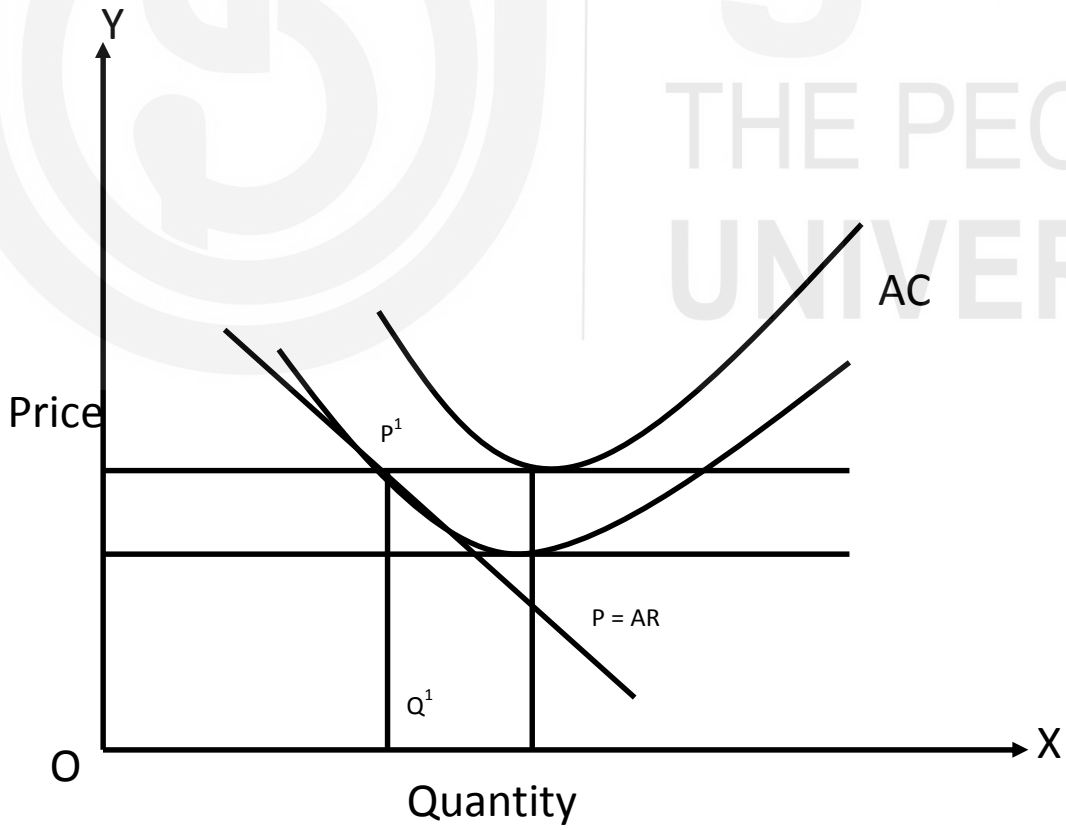

Figure 15.6 :Equilibrium Under Monopolistic Competition showing comparative Efficiency

Look at Figure 15.6 where $P^1Q^1$is the price and OQ^1 is the output at equilibrium under monopolistic competition. Assume the same price was to

rule and we were in a perfect competitive situation. Then the average cost curve will have to shift such that its minimum point touches (long period equilibrium under perfect competition always occurs at the point of tangency of the horizontal price line and the average cost curve) the price line indicating the price P^1Q^1. If the average cost curve is not to change, then perfect competition equilibrium will require a new price, the line indicating at point P tangency to the given average cost curve AC.

Thus in order to make the two market structures comparable, we either take the price to be the same in the two markets and allow appropriate change in the average cost curve or we take the same average cost curve and allow for change in price. If we change average cost curve, we have the interesting result that under perfect competition, producers put in a higher average cost for selling the commodity at the same price. However, since there is nothing to suggest that inputs in perfect competition should be inferior or costlier, we can infer that a higher average cost implies that when there is perfect competition, there is a better quality of the commodity available at the same price.

On the other hand, if the average cost curve is not changed and only the price is, the perfect competition equilibrium will give us a larger output OQ and a lower price PQ. Under monopolistic equilibrium, we may note, the output is OQ^1which is lower and price P^1Q^1 which is higher.

This rather simple comparison shows that in monopolistic competition buyers have either to pay a higher price or accept a lower quality of the product than under perfect competition. Thus compared to perfect competition, monopolistic competition is said to be less efficient.

The suggestion and the resulting controversy regarding waste which is implicit in monopolistic competition is due to following reasons:

i) When a large number of producers begin individually to produce and supply a product which is to be different from that of the rest. At the same time, when each producer's share of the market is insignificant, he cannot make full use of the economies of large-scale production. In other words, his average cost will tend to higher and the buyers to that extent will be adversely affected.

ii) The selling costs or expenses on advertisements which are more often persuasive or misleading rather than informative. Buyers are made to bear the burden of these advertisements both directly in the shape of higher prices and also through advertisements created loyalty to particular brands of the product. Such loyalty comes in the way of the emergence of truly competitive conditions in the market.

iii) The equilibrium picture of the monopolist competitor in which he maximises his profit at an output which is necessarily lower than optimum.

Chamberlin, who built up the idea of monopolistic competition, feels that while considering wastefulness of such a market structure, we should not lose sight of the variety of production which it makes possible. Consumer

satisfaction should not be taken to be based on price only; it should also be based on the fact that he has a larger choice in respect of the commodity he buys. In perfect competition all produce nearly the same quality of the commodity, in monopolistic competitions they produce different qualities and this is also an advantage which should be taken into account.

So far as selling or advertisement costs are concerned, while they may be wasteful, they could sometimes shift the aggregate average cost curve of a producer. This shift may go to such an extent that the point of equilibrium involves no idling and no waste of the inputs involved in production.

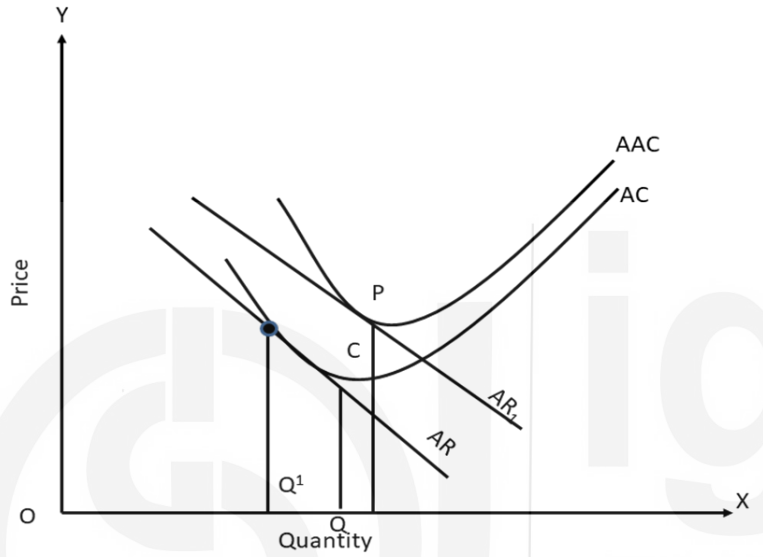

Figure 15.7 :Equilibrium Under Monopolistic Competition Showing the output in comparison with optimum output

Study Figure 15.7 carefully. After the selling costs are added to production costs, the aggregate average cost curve AAC has a point of tangency with the AR_1, curve at point P where the equilibrium output is OQ·On the other hand, the lowest average cost of production CQ^1 and the optimum output is OQ^1. It can be seen that equilibrium output OQ is higher than the optimum Output OQ^1.

Thus it may not always be that there is excess capacity and waste of resources. The selling cost may so shift the aggregate average cost curve that at equilibrium, the output is more, and not less than capacity output.

There is another situation leading to the same conclusion. And that is the one which was analysed earlier in connection with the full-cost pricing principle. You have seen that provided the monopolistic competitor and his eyes on a long rather than a short run adjustment, he could so fix up his equilibrium that his price was equal to average cost of production. You have also learnt that it is only in the short period that he can earn a surplus over his average cost. In the long period because of absence of barrier to entry of new firms, this surplus will disappear and he will have to produce at a price which becomes equal to his average cost and leaves him with no surplus at all.

Now if a producer under monopolistic competition practices full-cost pricing, his output could be larger than the optimum output. Of course, in full-cost pricing, there would be no room for maximising surplus as happens when there is equality between marginal cost and marginal revenue. At least in the short run, the scope for making abnormal profits exists. If there are producers who are interested in making such profits, then in their case equilibrium will take place at a point which comes earlier than that of optimum production. In their case, then idling and waste of resources would be unavoidable.

One aspect of inefficient production under monopolistic competition about which there is no controversy comes from the fact that here too, as under monopoly, price is not equal to marginal cost of production. We have referred to this issue in the discussion of monopoly, pointing out how and when price is not equal to marginal cost, a sub-optimal allocation of resources results. So in the sense that price charged by a monopolistic competitor is never equal to marginal cost but actually above it, allocate efficiency of this type of the market is always less than optimum.

Check Your Progress B

1) What do you mean by full-cost pricing?

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2) Define resource waste.

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

   i) In monopolistic competition demand curve slopes downwards.

   ii) In monopolistic competition average cost and average revenue curves are to some extent interdependent.

   iii) Monopolistic competitor produce different qualities of product.

   iv) In monopolistic competition buyers have either to pay a higher price or accept a lower quality of the product than under perfect competition.

   v) In the short period, the monopolistic competitor cannot earn a surplus over his average cost.

4) Choose the correct answer for the following questions.

i) In monopolistic competition the number of sellers is
   a) few
   b) five
   c) two
   d) large

ii) The demand curve in monopolistic competition is
   a) horizontal
   b) vertical
   c) sloping upwards to the right
   d) sloping downwards to the right

iii) Equilibrium price in monopolistic competition is
   a) equal to total cost of production
   b) average cost of production
   c) marginal cost of production
   d) none of these

iv) Selling cost curve tends to be
   a) horizontal
   b) always rising
   c) always falling
   d) U-shaped

v) Output in monopolistic competition is in equilibrium when
   a) marginal revenue is higher than price
   b) marginal revenue is equal to price
   c) marginal cost is higher than average cost

15.7 LET US SUM UP

Monopolistic competition signifies a market situation in which while the number of sellers is so large that each seller has only an insignificant part of the total market to cater to. The seller is not as helpless to influence the price of the commodity as in perfect competition.

Consequently, the demand curve facing him is not a horizontal straight line. Such a demand curve, we have seen in unit 13, means that the seller can sell his output at the ruling price but he cannot influence or change the price. In monopolistic competition this is not so. However, since the price can be changed to howsoever a limited extent that might be, the demand curve facing a monopolistic competitor will be like that of an imperfect competitor (i.e., sloping downward to the right). Naturally, therefore, the marginal

revenue for various levels of output will also be drawn in a similar manner. Further, the marginal revenue will be lower than average revenue.

With marginal and average cost curves being U-shaped, the intersection of the marginal revenue and marginal cost curves which would determine equilibrium could take place as in monopoly or imperfect competition but with one important difference. In monopolistic competition, because the number of sellers is very large and there is no barrier to entry of new firms, a seller cannot earn surplus over his average cost of production. The entry of new firm in attraction of earning similar surplus and the acute competition with the large number of existing firms will compel lowering of this surplus. This can go to such an extent that in the long period it completely disappears and price is just equal to average cost of production.

Thus in monopolistic competition marginal revenue has to be equal to marginal cost but average revenue has also to be equal to average cost of production ultimately. With a sloping demand curve, this can happen when that demand curve is tangential to the average cost curve just above the point of intersection of the marginal revenue and marginal cost curves. As it turns out to be, at such an equilibrium position, output will be lower than optimum while average cost will be higher than minimum. Thus in monopolistic competition, price should tend to be higher and output lower than what it could be in conditions of perfect competition. Further, because the output stops short of the optimum level, there is idle capacity and wastage of valuable resources in the former.

15.8 KEY WORDS

Full-cost pricing: When a seller fixes his price such that it is equal to his average cost of production, and he does not bother to equalise his marginal cost with marginal revenue and earns no abnormal profit.

Monopolistic competition: The state of the market in which a seller can influence the price of the commodity in spite of the fact that the number of sellers is very large and each seller controls only an insignificant portion of market supply.

Optimum output: The output which corresponds to the bottom point of the U-shaped average cost of production curve.

Product differentiation: When a seller tries to supply a different quality of the same commodity.

Production cost: The expenditure incurred on producing a commodity.

Selling cost: The expenditure incurred on the promotion of sale of a commodity.

15.9 ANSWERS TO CHECK YOUR PROGRESS

Check your progress A

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

Check your progress B

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

4 i) d ii) d iii) b iv) d v) d

15.10 TERMINAL QUESTIONS

1) Explain fully the concept of monopolistic competition.
2) What are the reasons behind the difficulties which come in the way of free entry of firms into a market?
3) Distinguish between production and selling cost. Show how the aggregate average cost curve of a monopolist competitor should be drawn?
4) How is the long period equilibrium under conditions of monopolistic competition determined?
5) What is full-cost pricing principle? Does it lead to a higher than optimum production?

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

UNIT 16 OLIGOPOLY

Structure

16.0 OBJECTIVES

After studying this unit, you should be able to:

- define oligopoly and enlist its characteristics;
- distinguish between monopolistic firm and an oligopolistic firm;
- explain the effects of interdependence on the equilibrium price and output under
- oligopoly;
- describe why oligopolists try to collude amongst themselves rather than compete;
- explain the implications of collusion.

16.1 INTRODUCTION

In units 14 and 15, you have learnt that in the absence of perfect competition, we get imperfect competition which could take either the form of monopoly or monopolistic competition. But these two categories of market do not exhaust all the situations under imperfect competition. Even when the number of sellers is more than one, though not large, there can be some features of the imperfection in the market which will remain to be understood and analysed. Where the number of sellers is large, capacity for product differentiation may give each seller a little power to influence the price of his commodity. This does not happen in perfect competition where the seller has no such power at all because there is no scope for product differentiation: On the other hand, under monopoly, the seller yields unquestioned power to

influence the price. In between the number of sellers may be so small that each of them commands a substantial share of the market. They can of course influence the price but are not free enough to do so for fear that other sellers might neutralise it. This creates a situation which is different from both monopoly and monopolistic competition. This situation is called oligopoly.

In this unit, you will learn the meaning and characteristics of oligopoly, and price and output equilibrium in an oligopolistic industry. You will also learn concentration and collusion under oligopoly and pricing without formal collusion. An economic evaluation of oligopoly will also be discussed.

16.2 CHARACTERISTICS AND KINDS OF OLIGOPOLY

The market structures are often identified by the number of sellers that happen to operate in them. If the number is large, we have a perfectly competitive market structure. If it is small, we may have monopoly and oligopoly. In oligopoly, the number of sellers is more than one but less than eight.

In oligopoly, a firm can influence price, output, quality, sale etc. while in monopoly one firm alone can do it without bothering about the reaction of other firms in the market.

In oligopoly then

a) each of the few sellers should command a substantial portion of the market.

b) each is, therefore, a serious rival to the other and there is a tendency towardsfierce competition.

c) no seller can fix his price, output, quality, production and advertisement cost, without trying to assess what the others are likely to do.

There can be various kinds of oligopolies. Oligopolies can be classified into perfect oligopoly and imperfect oligopoly. A perfect oligopoly is that in which the producers do not indulge in product differentiation.

This renders competition even more tricky in the sense that there can be endless price war. The price charged can settle anywhere between the maximum which is much above the average cost of production and the minimum which is equal to average cost. It can be seen why this should be the state of affair in a perfect

FOR MORE CLARITY!

An oligopoly is an industry which is dominated by a few firms. In this market, there are a few firms which sell homogeneous or differentiated products. Also, as there are few sellers in the market, every seller influences the behaviour of the other firms and other firms influence it. Oligopoly is either perfect or imperfect/differentiated. In India, some examples of an oligopolistic market are automobiles, cement, steel, aluminium, etc.

oligopoly. After all, one advantage of product differentiation is that the seller, even if he is charging a slightly higher price than the rest can hope to retain the same part of the market because his product is to some extent different. In fact, through advertisements he may even succeed in creating the impression that his product is superior. However, where product differentiation is absent, this limited scope also does not exist. In perfect oligopoly, there is hardly any need for advertisement and for incurring selling costs. All that remains is price competition and that too of the fiercest possible kind. In such circumstances, if any producer raises his price he can almost be sure of the reaction and one really does not know where this war of actionand reaction will take him. Thus starting with an initial price which may be well above cost of production perfect oligopoly may, because of price-war, end up with a price which is just equal to average cost of production. In conditions of perfect oligopoly equilibrium becomes even more difficult and the market remains in the grip of an uncertainty which may be greater than in the other types of oligopoly.

Unlike perfect oligopoly, imperfect oligopoly implies product differentiation. It can be seen that such a market will have some kind of non-price competition as well. There will be attempts to advertise product differences and to that extent dependence on only price competition will be reduced. Now to the extent that imperfect oligopoly admits non-price competition also, the price-war will produce uncertainty but possible not of the type which prevails under perfect oligopoly. Therefore, in imperfect oligopoly, the range within which price will move above the level of average cost can be smaller than that in perfect oligopoly. However, the limitation of range does not make price any more determinate under imperfect oligopoly than in the perfect one.

Thus, uncertainty and the consequent indeterminateness in equilibrium are unavoidable in oligopolistic market. For this reason, oligopolists agree to interesting organisational arrangements in order to survive. One such arrangement is known as a Cartel; another Merger; and another is a Ring.

Cartel is an arrangement whereby different oligopolistic firms join together not only to fix the price they would charge but also the share of the market each would be entitled to. It can be seen that in this arrangement they aim at some kind of joint profit maximisation. It may be noted that, however much a Cartel may desire to restrict the entry of other firms into the market, it does not have legal means of doing so. The OPEC (Organisation of Petroleum Exporting Countries) is a Cartel which seeks to fix the price of oil and also the sharing of the world oil market between the member countries. However, while agreeing on price and market sharing may be easy, policing the agreement can be difficult. This happens so because there is an inherent tendency on the part of producers to try to outwit other producers in ways which involve infringement of the common arrangement. The main thing in a Cartel which distinguishes it from a Merger is that the oligopolists retain individual control of their production unit. This does not happen in case of merger where the control of individual units also vests in a central organisation.

There is also an organisational arrangement known as Ring in which producers at the same stage of development try to combine with a view to charging a higher price.

The main purpose of all these different organisational arrangements is to assure that there is no price-war and that entry in the market is barred as far as possible. In fact, even in some of the principles of price determination in oligopoly, barring of entry is particularly kept in view. For instance, there is a limit-pricing principle which suggests that oligopolists try to charge such a price as is neither so high that excessive surplus may be earned, nor so low that there is very little surplus. Therefore, price charged is sought to be limited. The purpose behind the limit is to prevent intending producers from being attracted by excessively high profits.

The oligopolist has to guard against two kinds of fears. One is fierce rivalry which may lead to disastrous price as well as non-price competition and the other is possibility of entry of new firms into the market. Therefore, he tries to so fix his price that both these dangers can be avoided. What needs to be noted is that with such a price fixation there can be no uniquely determined price which could be appropriately called an equilibrium price. This means that while we have a number of tentative explanations of what an oligopolist would or should be wanting, we do not have any satisfactory theoretical explanation of the price at which he can be said to be in equilibrium.

16.3 MONOPOLISTIC AND OLIGOPOLISTIC FIRMS

An oligopolist cannot construct his demand curve as easily as a monopolist can. He may have great difficulty in arriving at his average and marginal cost curves because of the difficulty involved in finally deciding the quality of his product.

Look at Figure 16.1 where dd and cc curves are demand and marginal cost curves respectively of a seller when he has not to bother about the reaction of the other sellers in respect of his price or output. But if possible price or product reactions are considered, the shapes and positions of the demand and cost curves would not be the same. They will change to dd^1 and cc^1 respectively on the assumption of one type of price and product reactions. With more of such reactions, the two curves would change still further and soon, almost endlessly.

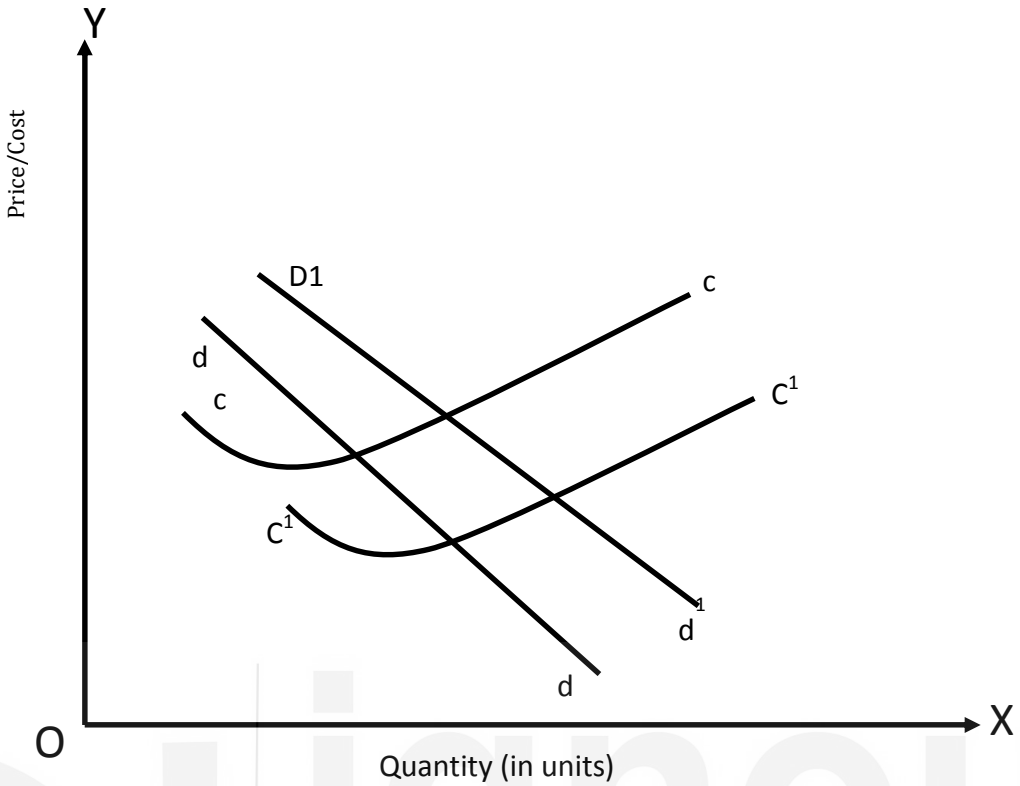

Figure 16.1 :Demand and Marginal Cost Curves of a Seller

The demand curve in oligopoly cannot be firmly drawn and therefore, the behaviour of marginal revenue curve also remains unpredictable. With such a state of affairs, arriving at equilibrium with the help of marginal revenue and marginal cost curves becomes very difficult.

It is suggested that because of this difficulty and because of the oligopolist not being in a position to know when exactly his profit is maximised, he sometimes likes to aim not at maximum but stable and secure profits.

The over-riding characteristic of oligopoly is inability of a seller to take independent decisions in respect of any of the factors like the price he charges, the quality of the product that he puts on sale, his cost of production, his advertisementor selling cost and his general market strategy. In so far as the fewness or smallness of number is one of the characteristics of oligopoly, it will be worth emphasising. But by itself fewness cannot give that idea of interdependence which makes oligopoly the serious challenge which it is to theory of value. It is, therefore, not surprising that we cannot claim to have a satisfactory answer to the problem of determination of equilibrium price and output in oligopoly.

16.4 PRICE AND OUTPUT EQUILIBRIUM IN AN OLIGOPOLISTIC INDUSTRY

We have already noted that interdependence is a fundamental characteristic of oligopoly. By the same token, it is independence which characterises a monopoly because a monopolist can take all his decisions without bothering

about what the rest of the market would do. This makes price determination under monopoly easier than under oligopoly.

Interdependence arises from the necessity, first, to assess the actual reaction of a rival to a seller's decision to charge a particular price or supply a certain output or a certain quality of the commodity etc. After that they guess what the rival would think of doing further in case the original seller made adjustments in the light of the first actual reaction. Consequently, interdependence comes to mean guessing about a whole lot of actual and assumed reactions and interactions leading to great uncertainty. This is not merely in respect of the determination of equilibrium but also about the operation of the entire business of the oligopolistic market.

If output is a function of all the possible prices others also can charge, the analysis becomes so involved and difficult that unless we make definite assumptions about the number of sellers involved, their possible prices, the quality of their output etc. we just cannot proceed with the analysis. What is worse is that an oligopolist will not only have to guess his rival's prices, output, quality etc., but also how these might change in case the oligopolist changed his own policies in response to these guesses. Such a change in the oligopolist's policies may necessitate fresh assessment of the reaction of rivals. In case this is to be done in respect of existing rivals, it is bad enough but in case this is to be done in respect of unknown rivals who might jump into the market if their entry cannot be barred, it is worse.

Various attempts at analysing equilibrium price and output under oligopoly have been made from time to time. Those which do not admit of a simple, elementary treatment are being left out of discussion here; others will of course be taken up. However, one important point regarding a complex situation may be noted. They have proceeded on highly restrictive assumptions. For example, often the assumption has been of two producers. We call a two-seller oligopoly by a special name**duopoly.** It can be seen why duopoly is less difficult to handle. With a larger number of sellers, the reaction-intersection possibilities multiply and along with that the uncertainties surrounding determination of equilibrium also arises. Sometimes the analysis would assume complete barrier to entry into an oligopolistic industry. This is also done for convenience. Other assumptions relate to rivals' reaction in respect of price and output. Analysis of duopoly has often tended to suppose that the other rival producer would keep his output or price unchanged even though the first one is free to change it. Even more highly restrictive assumptions, we cannot claim to have found a satisfactory answer to the problem of equilibrium price and output in an oligopolistic market.

Check Your Progress À

1) List the three characteristics of Oligopoly.

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2) Distinguish between monopolistic and oligopolistic firms.

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3) Differentiate between Cartel and Merger.

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

i) In an oligopolistic market a seller has no control over price.

ii) Oligopoly producers indulge in product differentiation.

iii) An oligopolist's equilibrium price and output tends to be indeterminate.

iv) Ring is an organisational arrangement where producers at the same stage of development combine with a view to charge higher prices.

v) In oligopoly the behaviour of marginal revenue curve remains unpredictable.

16.5 OLIGOPOLY-CONCENTRATION AND COLLUSION

When oligopolists collude, they attempt to maximise their profit jointly rather than individually. An individual's attempt at profit maximisation get bogged down into uncertainty and may threaten the very survival of an oligopolist. Therefore, oligopolists often either through some kind of a formal agreement or through an informal understanding manage to have common arrangements in respect of price, quality differential, sales promotion, market sharing, prevention of entry of other firms etc., so that all of them can survive. It is the very opposite of competition in which one tries to go ahead irrespective of whether anyone else remains or is eliminated from the market. With collusion, power over the market gets concentrated as if in one hand.

Look at Figure 16.2 where joint profit maximisation has been shown.

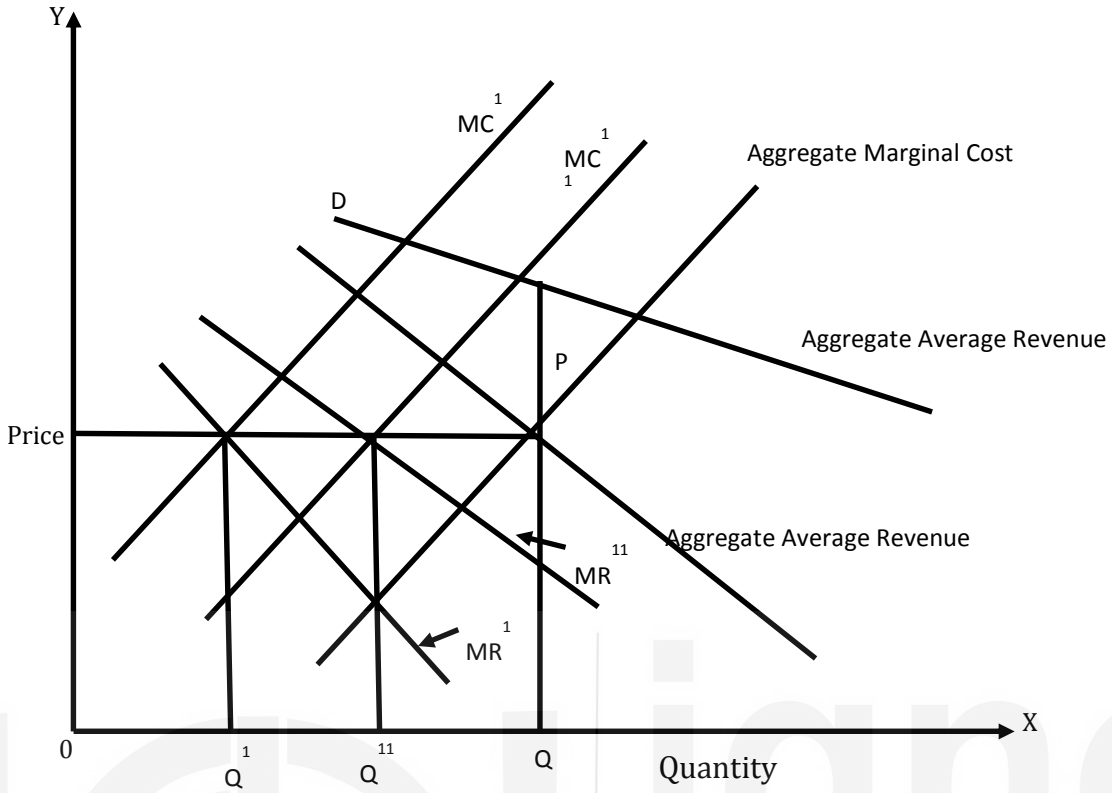

Figure 16.2 : Equilibrium of Oligopolists in a Situation of Collusion

Suppose for convenience, we assume only two oligopolistic firms in the market. Let the marginal revenue curve of firm 1 be MR^1 while that of firm 2, MR^{11}. The first thing which we may do is to have a combined marginal revenue curve for both the firms. The way to work out such a combined curve is the same as used in the case of discriminating monopoly. For a given marginal revenue, we find out the demands for output of firms 1 and 2. We then add up the two demands and corresponding to the marginal revenue given, we find the points. Likewise, for other marginal revenues.

By joining these points, we get a new curve labelled aggregate marginal revenue which shows various levels of aggregate demand for the output of both the firms corresponding to various levels of marginal revenue. Like the aggregate' marginal revenue, we can find the aggregate marginal cost curve also. This ‘aggregate' marginal cost curve shows various levels of aggregate output of the two firms and the various marginal costs which correspond to them. It can be seen that the point of intersection of the ‘aggregate' marginal revenue and the marginal cost curves at point P will give us the total output which the two oligopolistic firms will agree to supply to the market. Having got the output, we find out the price, which should be charged, from the aggregate' average revenue curve or the demand curve (DD) which also will be a sum of the individual demand curves of the two oligopolists. Thus both the price and the total output which maximise joint profit will have been determined.

The interesting features of such a solution to the problem of price determination under oligopoly may be noted. First while the firms will distribute their output in the manner indicated in the Figure 16.2 where it has been shown that firm I will supply OQ^1output while firm 2 will supply OQ^{11}output but they will charge the same price i.e., QP. This will be so because the firms have already agreed not to engage in a price war. Such a war could be ruinous to their interest. So output may differ but the price will be the same.

The outputs of the different firms will have to be such that their individual marginal costs are the same and are equal to their respective marginal revenues. It is only when these conditions are fulfilled that the equilibrium indicated in Figure 16.2 will be valid.

This solution looks very similar to the one relating to discriminating monopoly discussed in unit 15. But there is a basic difference which arises from the fact that whereas in discriminating monopoly, there are separate markets, each having a demand curve with elasticity different from the other, this is not true to oligopoly.

Such a solution to the problem of price determination is similar to what would happen if there was monopoly. Actually the two separate firms are separate only in name; in actual fact they are like different plants of a single producer. At least this is what they look like when we consider the procedure used for determining the price and for sharing of the output in between them.

16.6 OLIGOPOLISTIC PRICING WITHOUT FORMAL COLLUSION

It may be remembered, however, that collusive oligopoly can be informal also in the sense that the firms do not commit themselves to any particular agreement. They have a tacit understanding amongst themselves about the quality differences in the product to be sold, the price differences and output sharing and that they try to adhere to the understanding only broadly but not in detail. Sometimes such an informal collusion works better than the formal one. Even so, it remains a collusion and to that extent there is no competition and the benefits which could accrue to the consumer from competition are denied to them.

Suppose that the various firms continuing in an oligopolistic market do not aim at collusion at all, how will they fix their price in that case? In such a case again they would not compete but just accept an arrangement whereby the price to be charged is set by some particular firm in the market. Operationally what this means is that one particular firm is accepted as the leader and it is allowed the privilege to determine the price which others should also charge. This is what is described as the**price leadership solution.** It can be seen that in such a solution there is no particular agreement to share the market. Only the price is fixed and the destructive price-war is avoided.

Indirectly, however, the leader-firm naturally has the upper hand both in respect of the profitability of the price settled and also in respect of the share

of the market. In fact, the leader-firm may already happen to be the controller of a substantially larger part of the total market than the other firms are. This means that the price leadership solution is unlikely to be one with which the other oligopolist firms would be happy.

The case that we have just considered is one of leadership by a firm which is dominant in the sense that it has a larger share of the market, it produces on a larger scale and, therefore, controls a larger portion of the market. That, however, does not mean that there is only one kind of price leadership which is possible, namely that by the dominant firm. It is suggested that sometimes smaller firms can also be price-leaders and here, two kinds of smaller firms can be thought of.

One is that a small firm which inspite of its controlling only a small part of the market manages to keep its cost of production low. The advantage of such a firm is that it can charge a lower price without being a loser. The larger firms may accept this one as the price-leader because they may already be in a tight position due to their high cost.

The second kind of price-leadership by a small firm would be that where inspite of its smallness, the firm is vigilant and alert in respect of not merely the changes which are currently taking place in the market but also knowledgeable about the changes that are likely to occur in the future. Such a firm has the capacity to serve as a barometer of the market situation so that if it is satisfied that in view of its understanding of the market, price should be raised, then other firms will follow suit by raising the price. If on the other hand, the smaller firm felt the price could be lower, other firms trusting this firm's wisdom will also lower their price.

There can be problems in case of price leadership by a smaller firm if other firms have their own interpretation of the market situation which is different from that of this particular firm. In that case, price war may become unavoidable.

Now we can take up the case which is attributed to Sweezy model, given by Paul Sweezy, namely, determination of oligopoly equilibrium on the assumption that price-war is limited only to situations of price reduction. This happens in a manner that if one oligopolist lowers his price others will also lower it just to the extent that their respective shares of the market remain what they were before price reduction.

Further, in the event of raising his price, an oligopolist will lose part of his market to his rivals because they naturally may not be interested in raising the price.The economist Sweezy had suggested that within such a limit as this, namely, that if an oligopolist raised his price, his rivals would not do that.

The economist Paul Sweezy

At the same time and that if he lowered his price, they will lower their own to same extent, the average revenue curve i.e., the demand-price curve will have a kink at some point. The significance of the kink is that at the point of the kink the price charged will be such that any price higher than that, the rival will not be interested in matching while at lower prices they would report by lowering their own price. Look at Figure 16.3 where the shape of the demand curve has been shown.

At the point of kink namely point P other rivals will not raise their price, the demand for the productof the oligopolist will go down even more than it would in the ordinary downward sloping demand curve. This is the same thing as saying that this portion of the oligopolist's demand curve will become more elastic than before. It may be noted that the demand at the point of kink does not become zero even though other oligopolists are not raising their price because of product differentiation. However, a decrease in price by the oligopolist will be matched by corresponding decrease by the other oligopolists so that demand for the product of our oligopolist does not increase. In other words, from the point of kink downwards, the oligopolist's demand curve will have lower elasticity and will be similar in shape to the demand curve under ordinary imperfect competition.

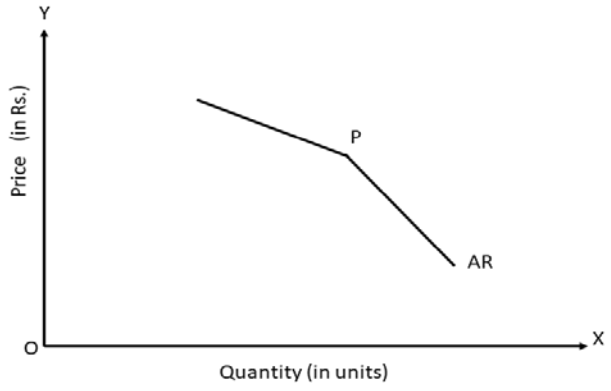

Figure 16.3 : Average Revenue of an Oligopolist

When the average revenue curve of the oligopolist is kinked, his marginal revenue curve becomes discontinuous as shown in Figure 16.4

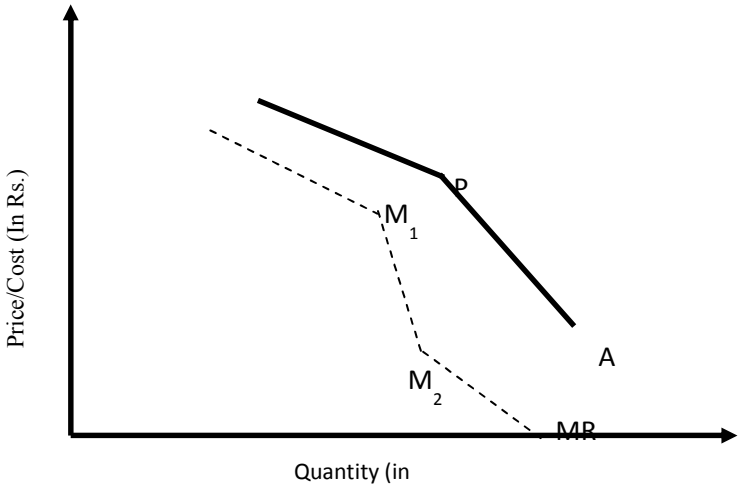

Figure 16.4 : Average and Marginal Revenue of an Oligopolist

With this special kind of average and marginal revenue curves, Sweezy seeks to determine an oligopolist's equilibrium by putting in the marginal cost curve. The equilibrium is shown in Figure 16.5.

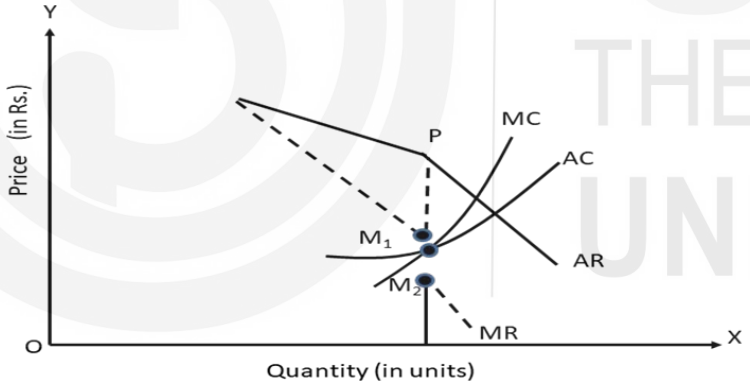

Figure 16.5 : Equilibrium of an Oligopolist

It will at once be clear from the Figure 16.5 that Quantity (in units) between the two points of discontinuity M_1 and M_2, there can be no point of intersection between marginal cost and marginal revenue. This means that in between these two points there is no determinate equilibrium.

Thus, the Sweezy solution based on a kinky demand curve is also not satisfactory because it does not impart determinateness to oligopoly equilibrium inspite of very limiting assumptions. However, one feature of the solution of oligopoly problem with the help of the kinked demand curve is encouraging and that is by referring to the kind, Sweezy explains why some type of price rigidity obtains in oligopoly. As can be seen, since by raising the price the oligopolist will not increase his own price. On the other hand, by lowering his price he would remain where he is because other oligopolists

will also lower their price, the inclination to experiment with price change could be absent. This only means that after fixing the price once, the oligopolist will not like to change it because the change is unlikely to be beneficial either way. Thus the Sweezy analysis has one merit in any case; it helps to explain why price under oligopoly tends to be rigid.

There are economists who take the view that in actual life oligopolists like monopolist competitors, do not prefer to go by the nice ties of marginal cost and marginal revenue. They prefer to fix price in such a way that after allowing for a certain mark-up which compensates them for the profit they consider that price as reasonable which is equal to average cost of production. This is similar to what we discussed in monopolistic competition and is called the principle of full-cost or administered or mark-up pricing.

Will this principle explain why oligopoly price tends to be rigid? The answer is that it will, provided the average cost curve of the oligopolist tends to be flat at the bottom as shown in Figure 16.6

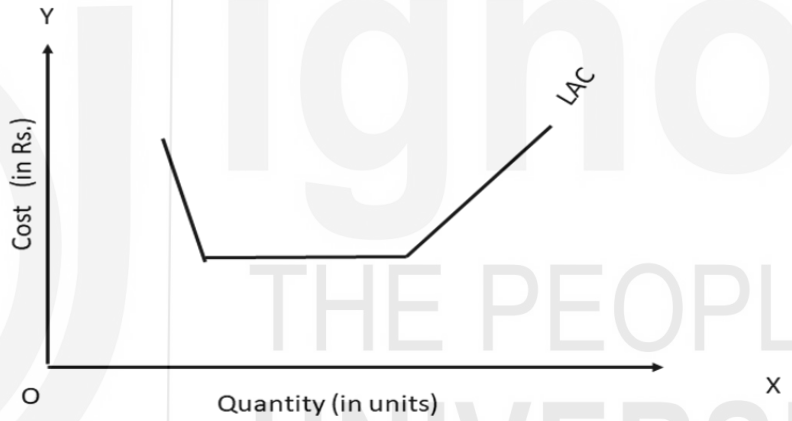

Figure 16.6 : Long Period Average Cost of a Oligopolist

Figure 16.6 where the average cost first falls and then rises, at its bottom i.e., where it is lowest, it remains the same for a considerable range of output. It isobvious that if equilibrium is determined on full-cost pricing principle, that is, price is made equal to average cost with an extra mark-up for profit. In this case, the price will tend to be sticky or rigid since the average cost itself tends to be so.

While the full-cost pricing method of determining equilibrium is simple, its assumption that an oligopolist may not be interested in bothering about maximising his profit. Therefore, about finding out precise values of marginal cost and marginal revenue is questionable. It may be recalled here that there is a basic difference between monopolistic competition and oligopoly. In oligopoly, we have already seen, existing producers try to erect barriers to the entry of new producers in the market. Obviously the purpose behind such barriers. is to try to create conditions whereby the profit of the existing firms can be maximised. Therefore, it is difficult to see why the

oligopolist will abandon attempt at deriving maximum profit through equalisation of marginal cost and marginal revenue.

The only justification for such a non-maximising behaviour could be what has already been pointed out, namely, that the attempt to maximise profit could result in a pricewar threatening the very survival of the oligopolist. But we have also seen that there could be other ways of avoiding this threat such as joint-profit maximisation etc. Thus what an oligopolist will choose for himself will depend upon the exigency of his situation. Such exigencies as consist of the fellow oligopolists' actual and assumed reactions are an integral part of the uncertainty which characterises oligopoly and which makes the determination of equilibrium so difficult and problematic.

16.7 ECONOMIC EVALUATION OF OLIGOPOLY

The failure to determine appropriate equilibrium price apart, how helpful should we regard an oligopolistic market to be from the point of view of the economic well-being of the society? Is it a market structure which should be encouraged or even tolerated?

Amongst the considerations that are to be kept in mind while answering such a question is the fact that often in their desire to ward off competition, oligopolists collude to keep the price of the product high, no matter if that leads to limited sale and production and, therefore, existence of unused capacity. Further, price is used for prevention of competition and thereby for assuring the existing firms that the price rules high and that resources locked up in the factories would remain more or less permanently underutilised. All this could obviously have been avoided, if at least the entry of new firms into the market was not barred through collusion and manipulation. It is because oligopoly is at least in this sense detrimental to social interest that Governments make anti-trust laws and interfere with the market.

Not that every such interference succeeds in improving the economic and social well-being of the people. Consider, for instance, the case of the Government imposing a lumpsum tax on the oligopolist to reduce his surplus. While this will transfer some resources from the oligopolist to the Government, it may not benefit the consumer in so far as the lumpsum tax will make no difference to the marginal cost curve of the producer. Now assuming that the marginal revenue curve remains what it is (and there is no reason why it should change because of the tax on the producer), the point of intersection of marginal cost and marginal revenue curves will remain unchanged. As a consequence, the maximum profit output of the producer will also remain unchanged. Since the average revenue curve will also be the same as before, the price charged from the consumers will remain unchanged. Thus an attempt to control oligopoly profit through the lumpsum tax would not result in either a higher output of the commodity or lower price. Consumers, therefore, cannot be said to benefit from such an attempt to deal with an oligopolistic market structure. The best solution would be to try to create conditions in which entry of new firms into the market is facilitated.

A consequence of oligopoly is said to be its aggravating influence on inflation. We have already seen while discussing the notion of the kinked demand curve that oligopoly price tends to be rigid. The same tendency would persist if oligopoly price is fixed on the basis of full-cost pricing principle and the average cost curve of the producer is flat at the bottom for a considerable range of output. Now this sickness in the price charged by an oligopolist begins to affect the price situation if new firms are kept out and there is no competition and the producers collude to keep the price high avoiding a price-war. Naturally the price of the concerned commodity would not come down at all. In fact, the more the commodities which are produced in an oligopolistic market, the more it will be that the general price level, in so far as it is affected by the prices of these commodities, will tend to be high rather than low. This will result in what is known as the phenomenon of creeping inflation. The existence of oligopoly makes downward swings in prices difficult because the oligopolists scrupulously avoid competition for fear of price war and of the threats to their own survival.

A really beneficial effect of oligopoly is product differentiation, innovation and technological change. We have already noted in discussion of monopoly that because of the large resources at the monopolist's command, he can encourage research and innovation and the society gains not merely in terms of new products but also in terms of new methods of production. An oligopolist also can do the same. The only snag is that there is no compulsion for the monopolist or the oligopolist to be innovative. Particularly, if the oligopolists join hands together to charge a common price and to share the market even if it involves idling and waste of resources, there can be no compulsion for innovation. However, to the extent to which oligopolists do choose to be innovative, oligopoly can prove beneficial for the society,

Check Your Progress B

1) What do you mean by collusion of oligopolists?

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2) Define price leadership.

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

i) A kinked demand curve indicates price rigidity.

ii) In formal collusion one price should be charged by all oligopolists.

iii) In an oligopolistic market resources are most efficiently utilised.

iv) Collusion under oligopoly is formal only.

v) Oligopoly has aggravating influence on inflation.

4) Choose the appropriate answer among the given alternatives.

i) In oligopoly the number of sellers is

a) more than one but less than eight

b) more than eight but less than twenty

c) only one seller

d) no restrictions on seller's number

ii) In oligopoly, price determination is

a) easier than monopoly

b) difficult than monopoly

c) as good as monopoly

d) no comparison with the price of monopoly

iii) In conditions of perfect oligopoly, equilibrium becomes

a) easier

b) less difficult

c) more difficult

d) no comparison

iv) In arriving at average and marginal cost curves an oligopolist has to face

a) easy task

b) great difficult task

c) does not feel any problem

d) cannot be said anything

16.8 LET US SUM UP

Amongst the situations of imperfect competition, there is one which poses a serious challenge to the theory of value. This is the market structure called oligopoly. The source of the challenge is the fact that no seller under oligopoly can be sure of the demand curve which he faces or of the cost curve of his commodity, since even the quality of the commodity he will end up with is not entirely a matter of his decision. With a different quality, there would be a different cost curve to reckon with. All this uncertainty is due to oligopolists being so much 'interdependent' rather than 'independent'. No other market structure is characterised by such 'interdependence'. A consequence of uncertainty is that oligopolists try to avoid entering into

competition with one another. Particularly they try not to have a price-competition because no price which one seller fixes will be left unmatched by the others. So oligopolists often prefer to collude rather than compete, collusion can be formal or informal. In formal collusion, they fix up one price which all should charge. This price is determined in such a way that the joint profit of all oligopolisticfirm in the market is maximised. The marginal revenue and marginal cost curves of individual firms are summed up to give us an 'aggregate' marginal revenue curve and 'aggregate' marginal cost curve. It is the intersection of these two 'aggregate' curves which is then used to determine the appropriate price at which profit will be maximum. When collusion is informal, price is determined by a price leader. A price leader could be both a large firm or a small firm depending on the criterion the oligopolist likes to apply to the choice of their 'leader'.

One suggestion is that provided we postulate a kinked demand curve, we can fix the price with the help of marginal revenue and marginal cost curve. All that such a curve necessitates is the assumption that oligopoly market tends to be characterised by price rigidity.

Another suggestion is that we can ignore marginal cost, marginal revenue curves altogether. The long period average cost curve of a producer remains flat at the bottom for a considerable range of output. Therefore, by applying the full-cost pricing principle, we can fix up a price which is not only equal to long period average cost but also tends to be rigid over time.

Each of these solutions has problems on account of which we cannot claim to have a satisfactory theory indicating a truly determinate price and output equilibrium under oligopoly. Oligopoly output generally stops short of the level of optimum production. Further, the existing firms collude and try to keep potential firms out. The result is a continuing idle capacity and waste of resources in the system.

16.9 KEY WORDS

Cartel: A case of formal collusion in which price of the commodity and sharing of the markets are commonly decided but the organisational control of a firm is in its own hands.

Collusion: The coming together of oligopolistic firms to avoid competition amongst themselves.

Formal Collusion: A collusion which is based on a formal agreement.

Informal Collusion: A collusion behind which there is a broad understanding amongst the participants but no formal agreement.

Interdependence: The situation in which a seller does not feel free to take business decisions without duly considering the reactions of his rivals.

Joint Profit Maximisation: When colluding firms' marginal revenue and marginal cost curves are separately summed up and then intersected to find a price enabling maximum surplus for all of them together.

Kinked Demand Curves: A seller faces a demand curve in which increase in price above a particular level makes his demand more elastic but decrease in price does not do so.

Merger: A formal collusion in which not only the price and market sharing are commonly decided; even the control of individual firms is centralised.

Oligopoly: When the number of sellers is so small (more than one but less than eight) that each one of them influence the market price, quality and output powerfully.

Price leadership: When oligopolists decide that the market price be set by some particular firm and they follow that firm to charge the same price.

16.10 ANSWERS TO CHECK YOUR PROGRESS

Check your progress A

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

Check your progress B

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

4 i) a ii) b iii) c iv) b

16.11 TERMINAL QUESTIONS

1) What is interdependence in an oligopolistic market? What kind of problems does it creates for oligopoly equilibrium?
2) What is joint profit maximisation? How is it sought to be achieved underoligopoly?
3) Explain the concept of price leadership. Does acceptance of price leadership solve all problems of oligopoly equilibrium?
4) A kinked demand curve may help to understand why oligopoly price tends to be rigid but it does not lead to determinate equilibrium. Comment.
5) Either the full-cost pricing principle ignores profit maximisation or it keeps it in view in a most arbitrary or ad-hoc way. Do you agree? Give reasons for your answer.

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

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