MODULE - I

1

INTRODUCTION TO BUSINESS ECONOMICS

Unit Structure :

1.0 OBJECTIVES

- To understand Scope and Importance of Business Economics.
- To study the basic tools of Economics.
- To explore Basic economic and functional relations.
- To understand use of Marginal analysis in decision making.

1.1 MEANING, SCOPE AND IMPORTANCE OF BUSINESS ECONOMICS

1.1.1 MEANING

Business Economics is also called as Managerial Economics. It involves application of economic theory and practice to business. In business, decision making is very important. Decision making is a process of selecting one course of action out of available alternatives. Thus business economics serves as a link between economic theory and decision-making in the context of business. Following are few definitions of Business Economics.

Spencer and Siegelman:

It is "the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management."

Henry and Hayne:

"Business Economics is economics applied in decision making. It is a special branch of economics. That bridges the gap between abstract theory and managerial practice."

Salvatore:

"Business Economics refers to the application of economic theory and the tools of analysis of decision science to examine how an organisation can achieve its objectives most effectively."

1.1.2 SCOPE OF BUSINESS ECONOMICS

Scope is nothing but the subject matter of business economics. Scope of Business Economics is very wide.

1) Market Demand and Supply

In economics both demand and supply are the important forces through which market economy functions. Individual demand for a product is based on an individual's choice / Preferences among different products, price of the product, income etc. Individual demand is nothing but desire backed by individual's ability and willingness to pay. By summing up the demand of all the consumers or individuals for the product we get market demand for that particular product. Individual Supply is the amount of a product that producer is willing to sell at given prices. By summing up the supply of all the producers for the product we get market supply for that particular product. The market price where the quantity of goods supplied is equal to the quantity of goods demanded is called as equilibrium price. Existence, growth and future of business or firm depends on what price market determines for its product.

2) Production and Cost Analysis

Knowledge of business economics helps manager to do production and cost analysis. Production analysis helps to understand process of production and to make optimum utilisation of available resources. Cost analysis on the other hand helps firm to identify various costs and plan budget accordingly. Both production and cost analysis will help firm to maximize profit.

3) Market structure and Pricing Techniques

Markets are very important in business economics. Study of markets such as perfect completion, monopoly, oligopoly, monopolistic market etc. is very significant for producers. It is very imperative for manager or producer to identify type of market that will be there for their products. Knowledge of markets and competition will help them to take better decision regarding pricing of the product, marketing strategies etc. Pricing techniques, on the other hand, helps the firms to decide best remunerative price at different kinds of markets.

4) Forecasting and coverage of risk and uncertainty.

Knowledge of business economics helps manager to forecast future. For example Demand forecasting. It means estimation of demand for the product for a future period. Demand

forecasting enables an organization to take various decisions in business, such as planning about production process, purchasing of raw materials, managing funds in the business, and determining the price of the commodity. Likewise forecasting future helps firm to take important decisions and cover risk and uncertainty associated with those decisions.

5) Inventory Management

Knowledge of business economics will help producer to reduce costs associated with maintenance of inventory such as raw materials, finished goods etc.

6) Allocation of resources

Business Economics provides advanced tools such as linear programming which helps to achieve optimal utilisation of available resources.

7) Capital Budgeting

Capital budgeting or investment appraisal is an official procedure used by firms for assessing and evaluating possible expenses or investments. It is a process of planning of expenditure which involves current expenditure on fixed/durable assets in return for estimated flow of benefits in the long run. Investment appraisal is the procedure which involves planning for determining whether firm's long term investments such as heavy machinery, new plant, research and development projects are worth the funding or not. Knowledge of business economics helps producer to take appropriate investment decisions with the help of capital budgeting.

1.1.3 IMPORTANCE OF BUSINESS ECONOMICS

1. Knowledge of business economics helps business organization to take important decisions as it deals with application of economics in real life situation.
2. It helps manager or owner of firm to design policies suitable for their firm or business.
3. Business economics is useful in planning future course of action.
4. It helps to control cost and monitor profit by doing cost benefit analysis.
5. It helps in forecasting future for taking important decisions in present.
6. It helps to set appropriate prices for various products by using available pricing techniques.

7. It helps to analyse effects of various government policies on business and take appropriate decision.
8. It helps to degree of efficiency of firms by using various economic tools.

1.2 BASIC TOOLS IN BUSINESS ECONOMICS

Opportunity cost

Individuals face Trade-offs in day to day life. It is a conflicting situation where people have to make decision or make choices among available alternatives. The moment selection takes place, the counterpart becomes opportunity cost. Opportunity lost is nothing but opportunity cost. If you decide to attend lecture, then you have to sacrifice on time that you could have spent otherwise. If you plant potatoes in your field, you must forego the chance of planting another crop because your resources are limited. Opportunity cost plays very important role in decision making. Doing one thing excludes doing something else. In other words, when we select something, we pay a cost, which is the cost of not being able to do the next best thing.

Marginalism

Rational decision makers will always think in terms of marginal quantities. One should compare the cost of an additional chocolate with the benefits of an extra chocolate in order to decide whether to have it or not. If the additional revenue that the producer is going to get by producing one more car is greater than the cost of producing the extra car, only then the seller will produce an extra car.

Let us take one example, an additional car sells for Rs. 10 lacks while it costs only Rs. 8 lakhs to produce the additional car. Clearly, a rational producer will decide to produce the car because he will make profit of Rs. 2 lakhs per car. On the other hand, if the price of car falls to Rs.7 lakhs while the cost of producing it remains Rs. 8 lakh, it will not make sense to produce the additional car since the cost surpasses the revenue to be earned from it. The cost of producing the extra car is called as marginal cost while the revenue obtained from selling an extra car is called as marginal revenue. If marginal revenue exceeds marginal cost, it obviously makes sense to produce the extra car. If the marginal revenue is less than marginal cost, it not advisable to produce the extra car.

Let us take another example from your day to day life. Suppose you may score 10 additional marks in economics by studying for entire night. Getting the additional 10 marks is important because it makes you feel happy and proud. But suppose staying up for entire night makes you feel really sleepy in the

morning hence makes you feel dull and unhappy. In this case, whether you should study for entire night depends upon whether the happiness that you get from the 10 additional marks in economics overshadows the unhappiness caused by the additional sleeplessness. In this way individuals can make use of marginalism principal in their day to day life for making appropriate decisions.

Incrementalism

Marginalism represents small unit change in the concerned variables. But many times in real life situations changes takes place in chunks or batches. For example firm producing car will not generally increase its production by one unit, but by a batch of additional units. Here we use concept of incrementalism instead of marginalism and decision will be taken by comparing incremental cost and incremental revenue.

Check your progress :

1) What do you mean by Business Economics?
2) Why knowledge of Business Economics is important?
3) Define opportunity cost.
4) Distinguish between Marginalism & Incrementalism.

1.3 BASIC ECONOMIC RELATIONS - FUNCTIONAL RELATIONS: EQUATIONS- TOTAL, AVERAGE AND MARGINAL RELATIONS

The Relationship between Total, Average and Marginal can be explained with the help of concepts like utility, cost, revenue etc. Here we will take example of revenue concepts.

Where, P = Price & Q = Quantity
TR = Total Revenue
AR = Average Revenue
MR = Marginal Revenue

Quantity	Price	TR	AR	MR
1	30	30	30	30
2	28	56	28	26
3	26	78	26	22
4	24	96	24	18
5	22	110	22	14
6	20	120	20	10
7	18	126	18	6
8	16	128	16	2
9	14	126	14	-2
10	12	120	12	-6

Table 1.1

Total revenue is calculated by multiplying price and quantity. As quantity increases TR increases initially then it decreases. AR is same as price. MR decreases constantly and becomes negative eventually.

Important concepts

1. Variables

A variable is magnitude of interest that can be measured. Variables can be endogenous and exogenous variables. Variables can be independent and dependent.

2. Functions

Function shows existence of relationship between two or more variables. It indicates how the value of one variable depends on the value of another one. It does not give any direction of relation.

3. Equations

An equation specifies the relationship between the dependent and independent variables. It specifies the direction of relation.

4. Graph

Graph is a geometric tool used to express the relationship between variables. It is a pictorial representation of data which shows how two or more sets of data or variables are related to one another.

5. Curves

The functional relationship between the variables specified in the form of equations can be shown by drawing line or outline which gradually deviates from being straight for some or all of its length in the graph.

6. Slopes

Slopes show how fast or at what rate, the dependant variable is changing in response to a change in the independent variable.

1.4 SUMMARY

In this unit we have seen meaning, scope and importance of business economics. Business Economics is also called as Managerial Economics. It involves application of economic theory and practice to business. In business, decision making is very important. Decision making is a process of selecting one course of action out of available alternatives. Thus business economics serves as a link between economic theory and decision-making in the context of business. Scope of business economics involves Market Demand and Supply, Production and Cost Analysis, Market structure and Pricing Techniques, Forecasting and coverage of risk and uncertainty, Inventory Management, Allocation of resources, Capital Budgeting etc. We have also discussed basic tools in economics such as opportunity cost, marginalism and incrementalism. Business economics deals with many economic relations and various concepts such as variables, functions, equations, graph, curves and slopes.

1.5 QUESTIONS

1) Discuss scope and importance of business economics.
2) Write short note on Opportunity Cost.
3) Write short note on Marginalism
4) Discuss use of marginal analysis in decision making.
5) Write short note on Incrementalism.
6) Explain following concepts-
   a. Variables
   b. Functions
   c. Equations
   d. Graph
   e. Curves
   f. Slopes

❖❖❖❖

2

MARKET DEMAND AND MARKET SUPPLY

Unit Structure :

2.0 OBJECTIVES

1) To study the basics of market demand, market supply and equilibrium price.
2) To study shifts in the demand and supply curves and equilibrium.

2.1 MARKET DEMAND, MARKET SUPPLY AND EQUILIBRIUM PRICE

In economics both demand and supply are the important forces through which market economy functions. Individual's demand is desire backed by his / her ability and willingness to pay. There is an indirect or negative relationship between price and quantity demanded. Individual Supply is the amount of a product that producer is willing to sell at given prices. There is a direct or positive relationship between price and quantity supplied.

Market Demand

Individual demand for a product is based on an individual's choice / Preference among different products, price of the product, income etc. Individual demand is nothing but desire backed by individual's ability and willingness to pay. By summing up the demand of all the consumers or individuals for the product we get market demand for that particular product.

Table 2.1Market Demand Schedule

Price	Demand of Individual A	Demand of Individual B	Market Demand (Demand of Individual A + Demand of Individual B)
10	5	7	12
20	4	6	10
30	3	5	8
40	2	4	6
50	1	3	4

The above table 2.1 represents demand schedule of individual A, individual B and Market Demand. Same schedule can be represented with the help of a graph.

Diagram 2.1 Market Demand Curve

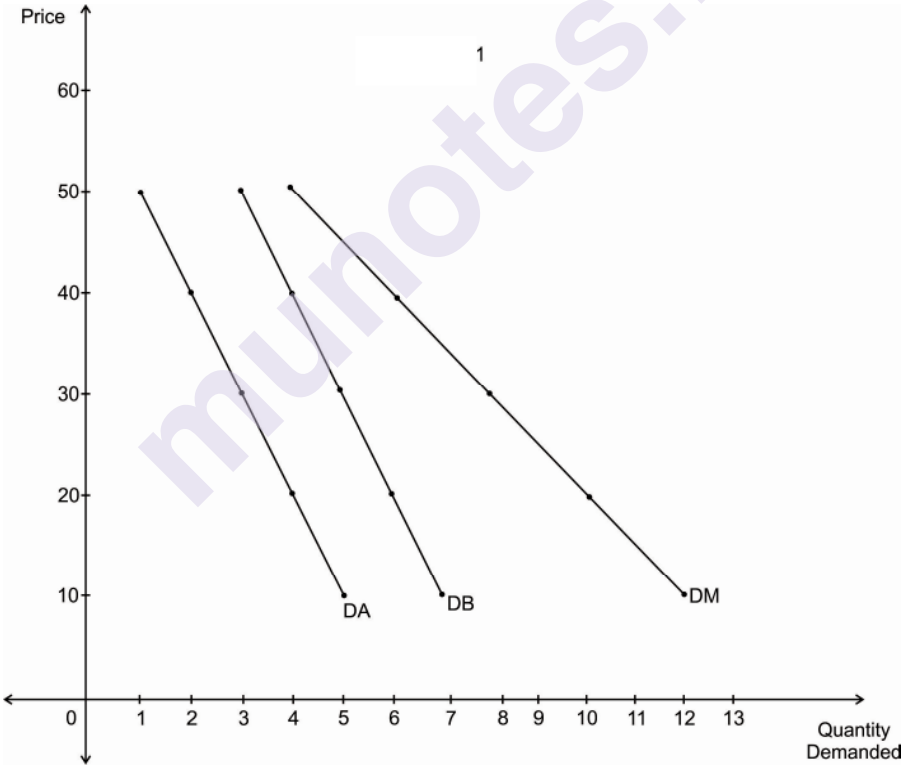


Diagram 2.1 represents demand curve of individual A, individual B and Market Demand. DA is a demand curve of individual A. DB is the demand curve of individual B. DM is the market demand curve. All curves are downward sloping indicating negative relationship between price and quantity demanded.

Market Supply

Individual Supply is the amount of a product that producer is willing to sell at given prices. By summing up the supply of all the producers for the product we get market supply for that particular product.

Table 2.2 Market Supply Schedule

Price	Supply of Producer A	Supply of Producer B	Market Supply (Supply of Producer A + Supply of Producer B)
10	1	3	4
20	2	4	6
30	3	5	8
40	4	6	10
50	5	7	12

The above table 2.2 represents supply schedule of producer A, producer B and Market supply. Same schedule can be represented with the help of a graph.

Diagram 2.2 Market Supply Curve

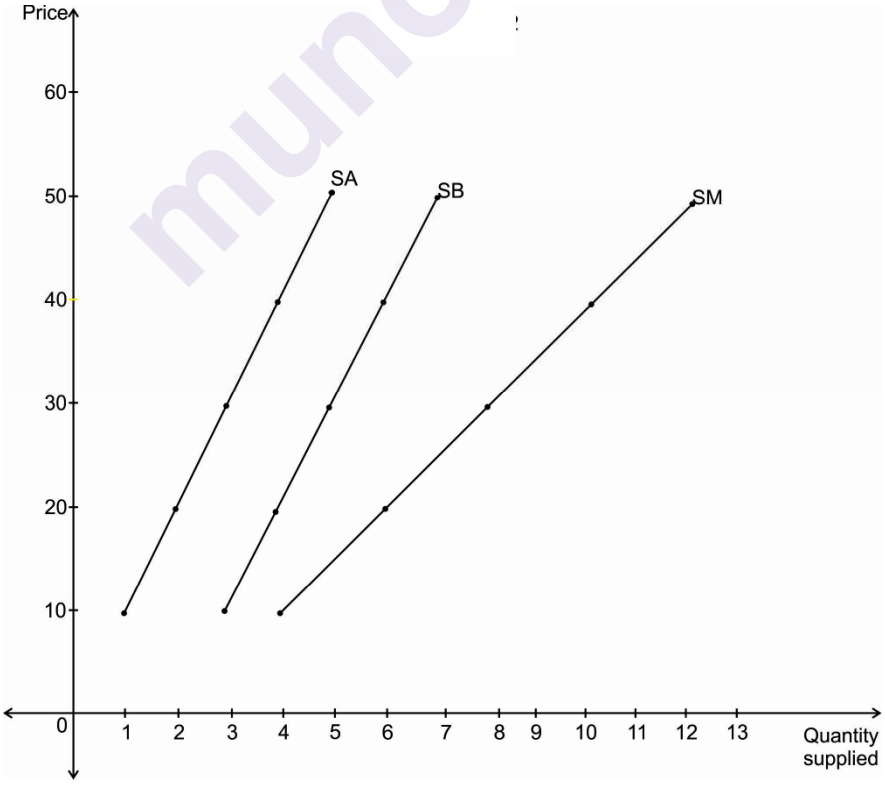


Diagram 2.2 represents supply curve of producer A, producer B and Market supply. SA is a supply curve of producer A. SB is the supply curve of producer B. SM is the market supply curve. All curves are upward sloping indicating positive relationship between price and quantity demanded.

Equilibrium Price

The market price where the quantity of goods supplied is equal to the quantity of goods demanded is called as equilibrium price. This is the point at which the market demand and market supply curves intersects.

Table 2.3 Equilibrium Price Schedule

Price	Market Demand	Market Supply
10	12	4
20	10	6
30	8	8
40	6	10
50	4	12

The above table 2.3 represents schedule of equilibrium price. Same schedule can be represented with the help of a graph to locate equilibrium price. Even in the table itself it is very clear that 30 is equilibrium price as at this price, market demand is equal to market supply i.e. 8 units.

Diagram 2.3 Equilibrium Price.

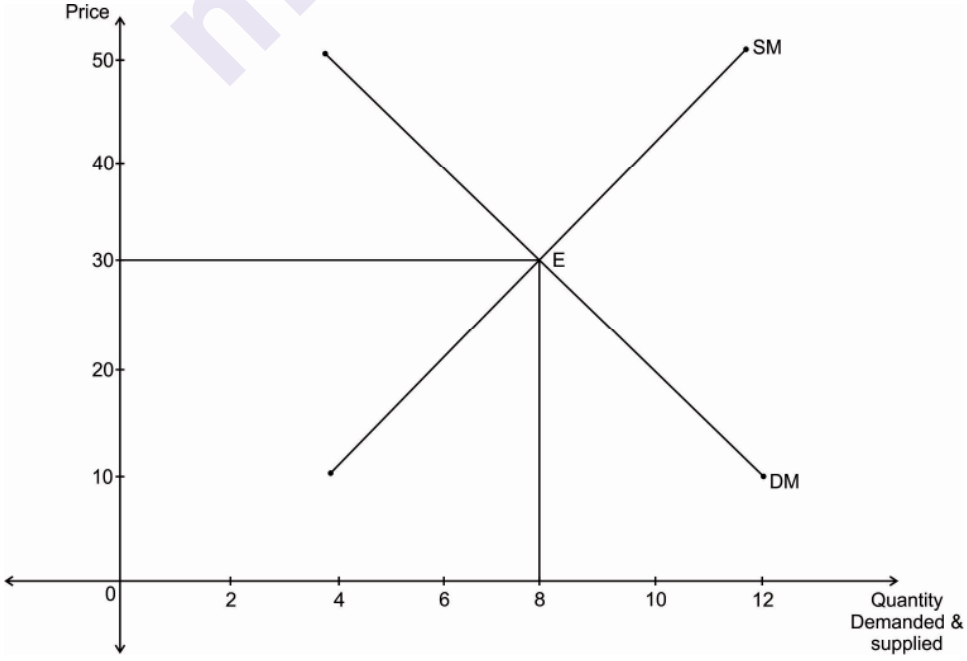


Diagram 2.3 represents Equilibrium Price. DM is the market demand curve. DM is downward sloping curve indicating inverse or negative relationship between price and quantity demanded. SM is the market supply curve. SM is upward sloping curve indicating direct or positive relationship between price and quantity supplied. DM and SM curves intersect each other at point E where equilibrium price is 30 and equilibrium quantity demanded and supplied is 8 units.

Check your Progress :

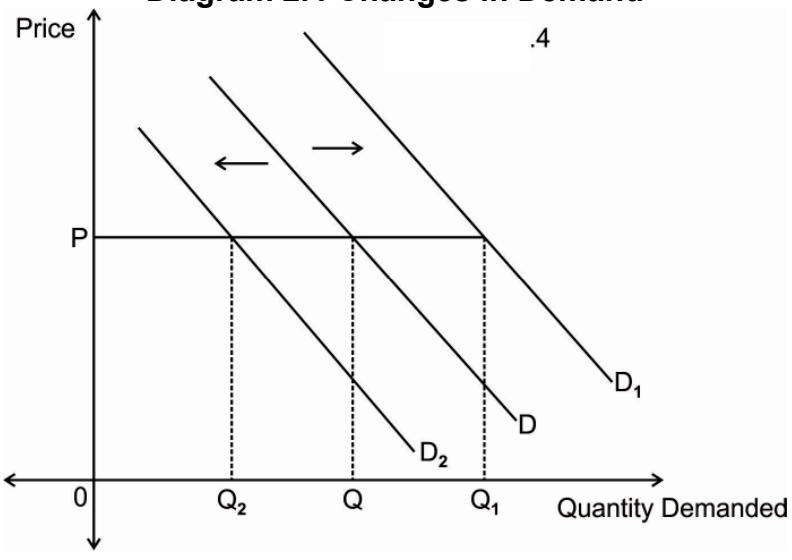
1) What do you mean by Individual Demand & Market Demand?
2) What do you mean by Individual Supply & Market Supply?
3) Define Equilibrium Price.

2.2 SHIFTS IN DEMAND AND SUPPLY CURVES AND EQUILIBRIUM

2.2.1 SHIFTS / CHANGES IN DEMAND :

Shifts in demand takes place due to changes in non-price factors such as income, population, government policies, tastes, preferences, habits, fashion etc. Whenever there are favourable changes in these factors then the demand curve shifts outward. It is also known as Increase in Demand. Whenever there are unfavourable changes in these factors then the demand curve shifts inward. It is also known as Decrease in demand.

Diagram 2.4 Changes in Demand

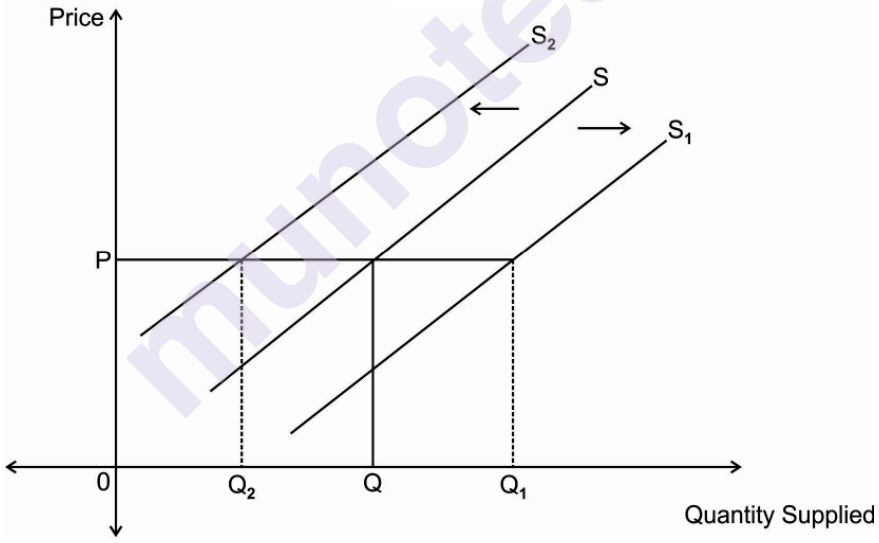


In the above diagram D is the original demand curve. At price P, OQ quantity is demanded. If there are favourable changes in the non-price factors affecting demand then the demand curve shifts outward and becomes D1. Here we can see that at same price P, now more quantity i.e. OQ1 quantity is demanded. If there are unfavourable changes in the non-price factors affecting demand then the demand curve shifts inward and becomes D2. Here we can see that at same price P, now less quantity i.e. OQ2 quantity is demanded. Shift from D to D1 is known as Increase in Demand and shift from D to D2 is known as Decrease in Demand.

2.2.2 SHIFTS / CHANGES IN SUPPLY

Shifts in supply takes place due to changes in non-price factors such as cost of production, government policies, state of technology etc. Whenever there are favourable changes in these factors then the supply curve shifts outward. It is also known as Increase in supply. Whenever there are unfavourable changes in these factors then the supply curve shifts inward. It is also known as Decrease in supply.

Diagram 2.5 Changes in Supply

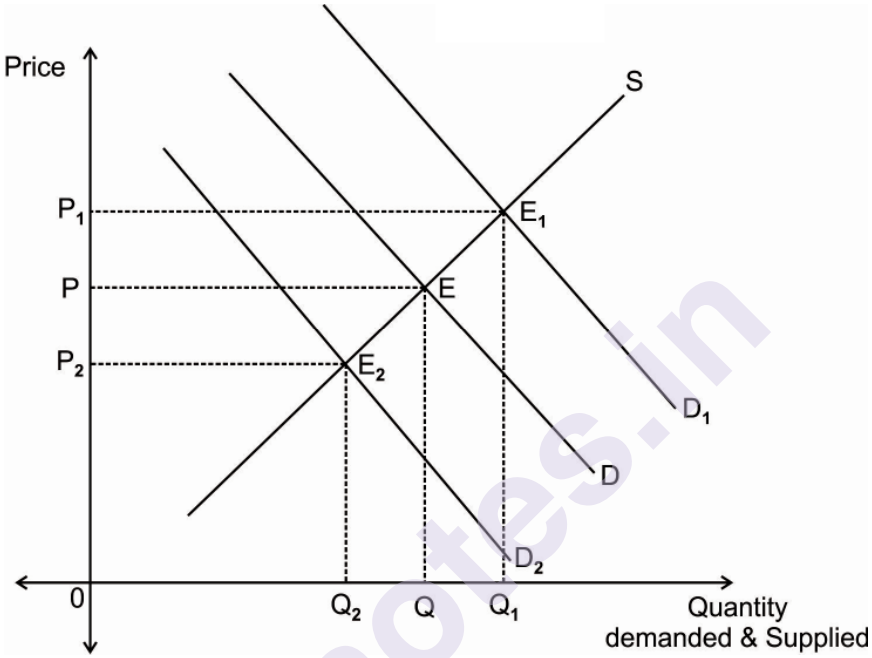


In the above diagram S is the original supply curve. At price P, OQ quantity is supplied. If there are favourable changes in the non-price factors affecting supply then the supply curve shifts outward and becomes S1. Here we can see that at same price P, now more quantity i.e. OQ1 quantity is Supplied. If there are unfavourable changes in the non-price factors affecting supply then the supply curve shifts inward and becomes S2. Here we can see that at same price P, now less quantity i.e. OQ2 quantity is supplied. Shift from S to S1 is known as Increase in Supply and shift from S to S2 is known as Decrease in Supply.

2.2.3 SHIFTS IN EQUILIBRIUM

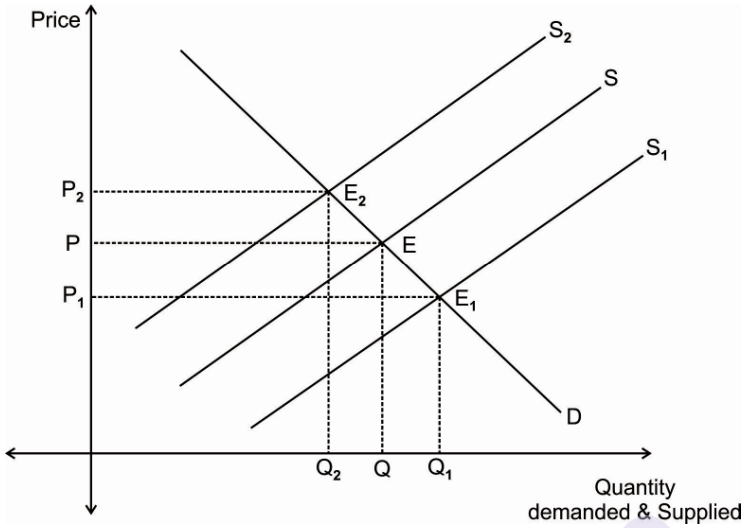
The market price where the quantity of goods supplied is equal to the quantity of goods demanded is called as equilibrium price. This is the point at which the market demand and market supply curves intersects. Whenever there are changes in demand and supply, position of equilibrium will change.

Diagram 2.6 Effects of Changes in Demand on Equilibrium



In the above diagram D is the original demand curve and S is the original Supply curve. At equilibrium E, equilibrium price is P and equilibrium quantity demanded and supplied is OQ. If there are favourable changes in the non-price factors affecting demand then the demand curve will shift outward and become D1. Now the new equilibrium is at E1. At E1, equilibrium price is P1 and equilibrium quantity demanded and supplied is OQ1. If there are unfavourable changes in the non-price factors affecting demand then the demand curve will shift inward and become D2. Now the new equilibrium is at E2. At E2, equilibrium price is P2 and equilibrium quantity demanded and supplied is OQ2. Thus increase in demand leads to higher price and decrease in demand leads to lower prices.

Diagram 2.7 Effects of Changes in Supply on Equilibrium



In the above diagram D is the original demand curve and S is the original Supply curve. At equilibrium E, equilibrium price is P and equilibrium quantity demanded and supplied is OQ. If there are favourable changes in the non-price factors affecting supply then the supply curve will shift outward and become S1. Now the new equilibrium is at E1. At E1, equilibrium price is P1 and equilibrium quantity demanded and supplied is OQ1. If there are unfavourable changes in the non-price factors affecting supply then the supply curve will shift inward and become S2. Now the new equilibrium is at E2. At E2, equilibrium price is P2 and equilibrium quantity demanded and supplied is OQ2. Thus increase in supply leads to lower price and decrease in supply leads to higher prices.

Check you Progress :

1) List out the factors that lead to changes in demand.
2) List out the factors that lead to changes in supply.

2.3 SUMMARY

In economics both demand and supply are the important forces through which market economy functions. Individual demand for a product is based on an individual's choice / Preference among different products, price of the product, income etc. Individual demand is nothing but desire backed by individual's ability and willingness to pay. By summing up the demand of all the

consumers or individuals for the product we get market demand for that particular product. Individual Supply is the amount of a product that producer is willing to sell at given prices. By summing up the supply of all the producers for the product we get market supply for that particular product. The market price where the quantity of goods supplied is equal to the quantity of goods demanded is called as equilibrium price. Existence, growth and future of business or firm depend on what price market determines for its product. In this unit we studied derivation of individual and market demand and supply curves along with derivation of equilibrium price and quantity. We have also seen how shifts in demand and supply takes place along with their effect on equilibrium level of price and quantity.

2.4 QUESTIONS

1) Write short note on Market Demand.
2) Write short note on Market Supply.
3) Write short note on Equilibrium Price.
4) Complete the following table and draw the graph.

Price	Demand of Individual A	Demand of Individual B	Market Demand
10	15	10	?
20	14	9	?
30	13	8	?
40	12	7	?
50	11	6	?

5) Complete the following table and draw the graph.

Price	Supply of Producer A	Supply of Producer B	Market Supply
10	8	6	?
20	9	7	?
30	10	8	?
40	11	9	?
50	12	10	?

6) Write short note on changes in Demand.
7) Write short note on changes in supply.
8) What are the effects of changes in Demand on equilibrium?
9) What are the effects of changes in Supply on equilibrium?

3

DEMAND ANALYSIS AND DEMAND ESTIMATION AND FORECASTING

Unit Structure :

3.0 OBJECTIVES

- To understand the demand and its function.
- To study the various factors which determines the demand.
- To familiarise with the various concepts of elasticities of demand.
- To understand with the concepts of revenue.
- To understand the meaning and significance of demand forecasting
- To learn the steps, involve in estimating demand forecasting
- To understand the methods of demand forecasting

3.1INTRODUCTION

In economics both demand and supply are the important forces through which market economy functions. The demand function shows the relationship between the quantity demanded and its various determinants. In this chapter we will explain the demand function in detail and the nature of demand curve under different market situation. We will also explain the relationship between elasticity of demand and revenue concepts.

Business is a serious job. Manager or the business firms has to take certain decision to run their business smoothly without any disturbance in his business. Demand forecasting play a vital role in business planning. Business enterprises need to plan their activities. Most of the business decisions of a firm under an organization are made under the conditions of risk and uncertainty. Demand forecasting is a systematic process that involves anticipating the demand for the product and services of an organization in future under a set of uncontrollable and competitive forces in the economy.

Demand forecasting helps the business firms to take appropriate decision about the production and the use of factors of production to fulfil the future demand of the commodity.

3.2 DEMAND FUNCTION

Demand function is an arithmetic expression that shows the functional relationship between the demand for a commodity and the various factors affecting it. This includes the income of a consumer and the price of a commodity along with other various determining factors affecting demand. The demand for a commodity is the dependent variable, while its determinants factors are the independent variables.

The demand for a commodity depends on various factors which determines the quantity of a commodity demanded by various individuals or a group of individuals. The following equation shows the demand function which expresses the relationship between the quantity demanded of a commodity X and its determinants.

$$Qd_x = f\left(P_x, Y, P_y, T, A\right)$$

Where,

Qd_x = Quantity demanded of commodity X.

P_x = Price of commodity X.

Y = income of a consumer.
P_y = Price of related commodities.
T = Taste and Preference of an individual consumer.
A = Adverting expenditure made by producer.

3.3 DETERMINANTS OF DEMAND

The important determinants of demand for a commodity are explained below:

1. **Price of commodity (P_x):** The price of commodity is very important determinants of demand for any commodity. Other things remaining same, the rise in price of the commodity, the demand for the commodity contracts, and with the fall in price, its demand expands. So, the quantity demanded and price shows an inverse relationship in the case of normal goods. In other word changes in price brings changes in the consumer's demand for that commodity.

2. **Income (Y):** Another important determinant of demand for a commodity is consumer's income. Change in consumer's income also influences the change in consumer's demand for a commodities. The demand for normal goods increases with the increasing level of income and vice versa. it shows a direct relationship between income and quantity demanded.

3. **Price of related commodities (P_y):**The demand for a commodity is also affected by the price of other commodities, especially of substitute or complementary goods. A good may have some related goods either substitute or complementary. The relation between two may be different.

Substitute Goods: Substitute Goods are those goods which can be substituted from each other. For Instance Tea & Coffee. When the rise in the price of Tea causes rise in demand for Coffee because there is no change in price of coffee such goods are called as substitute goods. In other words the relation between two substitute goods are positive. An incase the price of one commodity increase the demand for other.

Complementary Goods: Complementary goods are those goods which one purchased together. For Instance Car & Petrol. when their a rise in price of Petrol leads to fall in demand for Car such goods are called complementary good. In other words, the relation between two complementary goods are negative. An increase in price of one commodity leads to decrease in demand for other.

4. **Taste and Preference (T):** The demand for a commodity also depends on the consumer's taste and preferences such as change in fashion, culture, tradition etc. As the consumers taste and preference for a particular commodity changes the demand for that particular commodity also changes. Therefore, Taste and Preference of a consumer plays an important role.

5. **Advertising expenditure (A):** Advertising expenditure by a firm influence the demand for a commodity. The advertisements by the manufacturer and sellers attract more customers towards the commodity. There exists positive relationship between advertising expenditure and demand for the commodity.

3.4 MEANING OF DEMAND

The demand in economics means the desires to purchase the commodity backed by willingness and the ability to pay for it.

Demand= Desire + Willingness to buy + Ability to pay

3.5 THE LAW OF DEMAND

The law of demand was propounded by the famous economist Alfred Marshall in early 1892. Due to the general observation of law, economists have come to accept the validity of the law under most situations. The law of demand states that other thing being equal the relationship between the price and the quantity demanded of a commodity are inversely related to each other. In other words, when the price of a commodity rises the quantity demand for the commodity falls. The law of demand helps to explain the consumer's choice behaviour due to change in the price of a commodity.

Assumptions:

The law of demand is based on the following assumption given below:

1. **No change in consumers income:** There should not be any change in the consumer income while operating under the law of demand. If income of a consumer increases the consumer may buy more goods at the same price or buy the same quantity even if price increases. The income is assumed to be constant, as it may lead to enticement to the consumer to buy more goods and raise the demand for a commodity despite an increase in the price of commodity.
2. **No change in the price of other goods:** The price of substitute goods and complimentary good should remain the same. If any of the price changes may lead to change in the demand for the

other commodity and it will change the consumer preference will affect the law of demand.

3. **No change in taste and preference:** The law assumes that the consumer's taste and preference for a commodity remains the same. If there is a change in consumer's taste and preferences there will be a change in the demand for the commodity.
4. **No expectation of change in the future price:** The law of demand remains valid if there is no change in future expectation about price of commodities. If consumer is expecting rise in price in future, he will buy more quantities even at a higher price in present time and vice-versa.
5. **No change in the size and composition of population:** The law also assumes that the size and composition of the total population of a country should not change. That means, the population must neither increase nor decrease. Because a rise in the populations would increase the demand for commodities. Along with the size of population, composition of population also matters. If number of senior citizens is more then the demand for medical care will be more. If female population is more then the demand for cosmetics will be more.
6. **No change in government polices:** The law assumes that there is no change in the government policy which will either increases or decreases the demand for the commodity.

Demand Schedule and Demand Curve:

The law of demand can be simply explained through a demand schedule and demand curve. The demand schedule is a tabular representation of the law of demand which is shown below:

Demand Schedule: Table 3.1

Price (₹)	Quantity demanded of a commodity 'X' (Units)
50	10
40	20
30	30
20	40
10	50

Representation of table:

It can be seen from the above table, that when the price of a commodity 'X' is ₹50 per unit, the consumer purchases 10 units of the commodity. Further when the price of the commodity falls to ₹40, he purchases 20 units of commodity. Similarly, when the price falls further the quantity demand by the consumer goes on increasing by 30 units as so on. This demand schedule shows the inverse relationship between the price and quantity demanded of a commodity.

Demand curve:

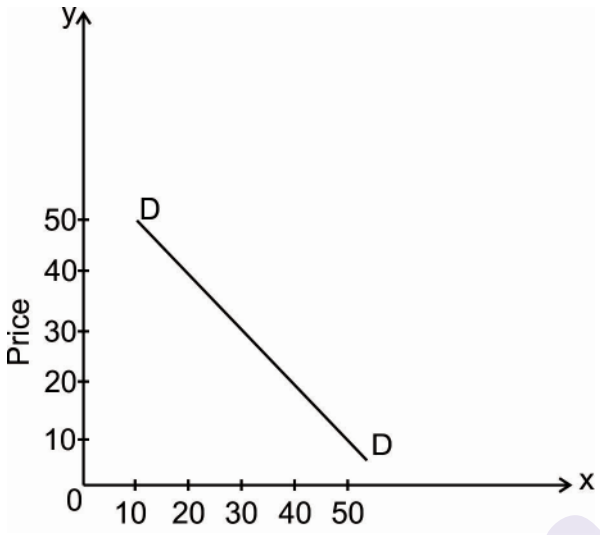


Diagram 3.1

The demand schedule can also be explained through demand curve in a simpler way. The demand curve is a graphical representation of the quantities of good demanded by the consumer at various possible price in a period of time. The Diagram shows quantity demanded on X-axis and the price of a commodity on Y-axis. If the demand schedule is plotted on the demand curve, we get the various price-quantity combination points and if we join these points, we get the downward slopping demand curve. Thus, the downward sloping demand curve according to law of demand shows, the inverse relationship between price and quantity demanded.

Exceptions to the Law of Demand: The law of demand is generally valid in most of the cases but there are few cases where the law is not applicable. Such cases are explained below:

1. **Goods having prestige value (Veblen effect):** This exception to the law of demand was propounded by an economists Thorstein Veblen in his work 'conspicuous consumption'. According to him, some consumer measures the utility of a commodity by its price i.e., the higher the price of a commodity, the higher its utility. For example, People sometimes buy certain expensive or prestigious goods like diamonds at high prices not due to their intrinsic value but only because it has snob value. On the other hand, as price falls, they demand less due to the loss of its snob value. This effect is called as Veblen effect or Snob value.
2. **Giffen goods:** Another exception to the law of demand was put forwarded by the economists Sir Robert Giffen. There is a direct

price – demand relationship in case of giffen goods. When with the rise in the price of a giffen goods, its quantity demand increases and with the fall in its price its quantity demand decreases, the demand curve will slope upward to the right hand side and not downward.

3. **Price Expectations:** When the consumer expects there is rise in price of a commodity in future, he/she may purchase more of commodity at present. Where the law of demand is not applicable.
4. **Emergencies:** During the time of emergencies such as natural and man-made calamities, the law of demand becomes ineffective. In such circumstances, people often fear the shortage of the necessity goods and hence demand more goods and services even at higher prices.
5. **Change in fashion and taste &preferences:** The change in taste and preferences of the consumers denies the effect of law of demand. The consumer tends to buy those commodities which are in trends in the market even at higher prices. On the other hand, when a product goes out of fashion, a reduction in the price of the product may not increases the demand for it.

Check your Progress :

1) Who propounded the theory of law of demand?
2) What relationship does law of demand state between demand & price?
3) What is Veblen effect?

3.6 NATURE OF DEMAND CURVE UNDER DIFFERENT MARKETS

Economist have classified the various markets prevailing in a capitalist economy into (a) perfect competition or pure competition, (b) monopolistic competition, (c) oligopoly and (d) monopoly. According to Cournot, a French economist, “Economist understand by the term market not any particular market place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free interaction with one another that the price of the same good tends to equality easily and quickly’’. The type of different market depends on number of factors. Accordingly, the nature of demand curve is different in different market. The

nature of demand curve under various market structure are as follows:

Demand Curve in Perfect Competition:

Perfect competition is said to prevail when there are large number of producers (firms) producing and selling homogenous product. The maximum output produce by the individual firm is very small relatively to the total demand to the industry product so that firm cannot affect the price by varying its supply of output. The seller is the price taker he accepts the price determined in the market by market demand and market supply. Thus, the individual price under perfect competition is determine by the market demand and market supply.

Market Demand Curve: The market demand curve under perfect competition is downward sloping. Because price and quantity demand are inversely related to each other as the price of a commodity increases the demand for that good decreases. The market price at which the firms will sell their commodity is determined by the interaction of market demand and market supply. Once the market determines the price for the commodity all firms will fix their price equals to market price as they are price taker under the perfect competition. Thus, the individual demand curve is equal to the equilibrium price of the market. The Diagram 3.2. shows the market demand curve which is downward sloping and P_0 is the equilibrium market price which is followed by all the individual firm and the individual firm is facing the horizontal demand curve.

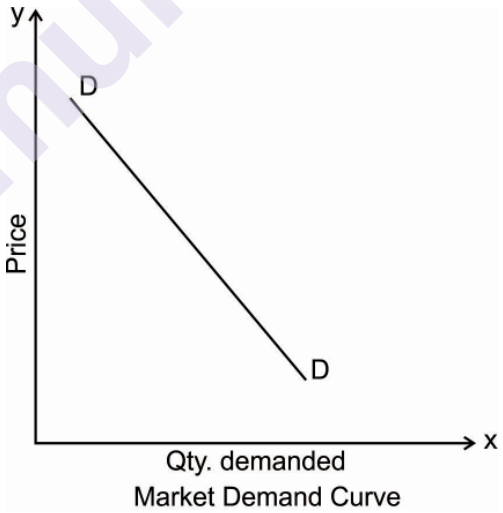


Diagram 3.2

Individual Firm demand curve: Demand curve facing an individual firm working under prefect competition is perfectly elastic i.e. a horizontal straight line parallel to X axis at a given price which is determined by the market demand sand market supply. The Diagram 3.3 shows Qty demanded on X axis and Price of the

commodity on Y axis. Where OP_1 is the price determined by the interaction of market demand and market supply curve. It shows if firm tries to lower the price, he will get negative profit.

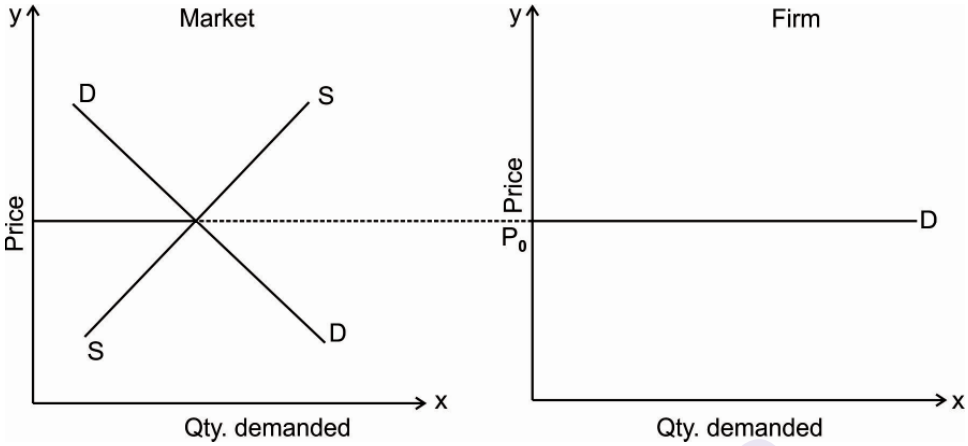


Diagram 3.3

Demand Curve under Monopoly: Monopoly is a market where there is single firm producing and selling product which has no close substitute. As being the single seller monopoly has a control on supply and he can also decide the price of a commodity. But however, a rational monopolist who aim at maximum profit will control either price or supply. As monopolists is the only single seller in the market, he constitutes the whole industry. Therefore, the demand curve under monopoly market is downward sloping and has a steeper slope as shown in the Diagram 3.4. below:

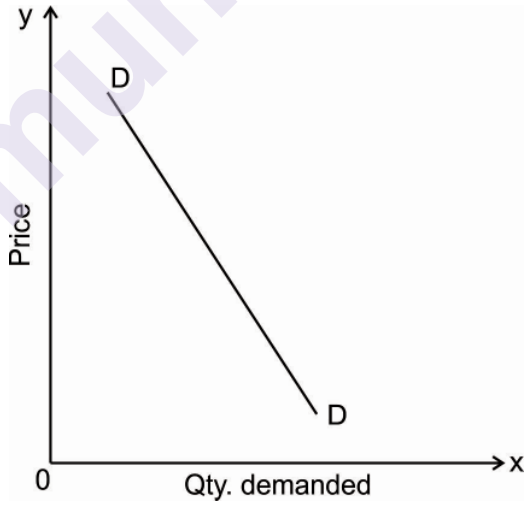


Diagram 3.4

Thus, in monopoly there is a strong barrier to entry new firm in the industry. If the monopolist firm wants to increases the sale in the market, he has to lower the price of its commodity.

Demand curve under Monopolistic competition: In the monopolistic market there is a large number of firms producing or selling somewhat differentiated product which have close

substitute. As a result, demand curve facing a firm under monopolistic competition is sloping downward and has a flatter shape which is highly elastic and this indicate that a firm enjoy some control over the price of a commodity. The demand curve facing an individual firm under monopolistic competition is shown in the following Diagram 3.5.

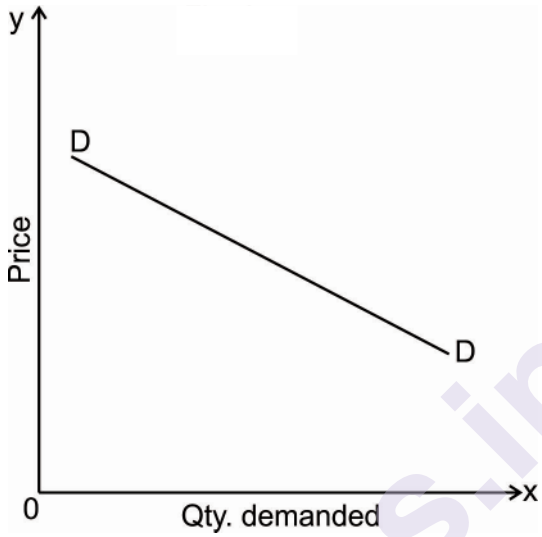


Diagram 3.5

Demand curve under oligopoly market : Oligopoly is a market where there are few firms or sellers producing or selling differentiated products. The fewness of firm ensures that each of them will have some control over the price of the product and the demand curve facing each other will be downward sloping which indicates the price elasticity of demand for each firm will not be infinite. As there are interdependence of firm. Any decision regarding change in the price of output attracts reaction from the rival firms. Therefore, the demand curve for an oligopoly firm is indeterminate, i.e. it cannot be drawn accurately as exact behaviour pattern of a producer with certainty.

The demand curve faced by the firm under oligopoly is shown in the following Diagram 3.6:

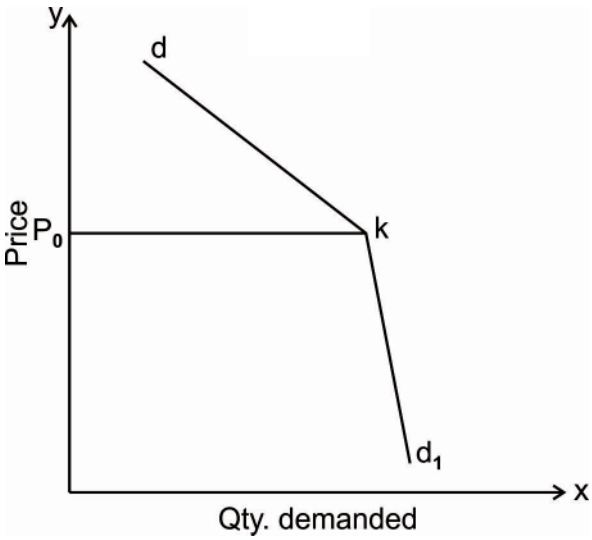


Diagram 3.6

The demand curve facing an oligopolist is kinked in nature. The kink is formed at a prevailing level the point K because the segment of the demand curve above the prevailing price level i.e. Kd is highly elastic and the segment the segment below the prevailing price level i.e. Kd_1 is inelastic. This is due to different reaction of the different firm.

3.7 ELASTICITY OF DEMAND

Elasticity of demand helps us to estimate the level of change in demand with respect to a change in any of the determinants of demand. The concept of elasticity of demand helps the firm or manager in decision making with respect to pricing, promotion and production polices. It has a very great importance in economic theory ss well for formulation of suitable economic policy.

Meaning of elasticity:

Elasticity is the measure of the degree of responsiveness of change in one variable to the degree of responsiveness change in another variable.

$$\text{Thus, Elasticity} = \frac{\%\text{ change in A}}{\%\text{ change in B}}$$

The concept of elasticity of demand therefore refers to the degree of responsiveness of quantity demanded of a good to the change in its price, consumers income and price of related goods.

Check your Progress :

1) In which market condition market demand & market supply determines the price of commodity?
2) Why Oligopoly demand Curve is kinked?
3) What is Elasticity?

3.8 PRICE ELASTICITY OF DEMAND

Price elasticity of demand shows the degree of responsiveness of quantity demanded of a good to the change in its price, other factors such as income, prices of related commodities that determines demand for the commodity which are held constant. In other words, price elasticity of demand is defined as the ratio of the percentage change in quantity demanded of a commodity to a percentage change in price of the commodity. Thus,

$$e_p = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

The demand curve for most of the commodities, is downward sloping due to the inverse relationship between quantity demanded and price of the commodity, the value of the price elasticity of demand will always be negative. While interpreting the price elasticity of demand the negative sign is ignored or omitted. This is because we are interested in measuring the magnitude of responsiveness of quantity demanded of a good to changes in its prices.

3.9 FACTORS AFFECTING PRICE ELASTICITY OF DEMAND

The price elasticity of demand depends upon number of factors which affects its elasticity. They are as follows:

a. **Nature of goods or commodity:** The elasticity of demand for a commodity depends upon the nature of the commodity, i.e., whether the commodity is a necessary, comfort or luxury good. The elasticity of demand for a necessary commodity is relatively small. For example, if the price of such a good rise, its buyers

generally are not able to reduce its demand as its necessity commodity.

The elasticity of demand for a luxury good is usually high. This is because the consumption of a such good, unlike that of a necessary commodity, can be delayed. That is why if the price of such a commodity increase, the demand for the good can be significantly reduced.

b. **Availability of Substitute Goods:** The price elasticity of demand also depends upon the substitution of goods. If there is a close substitute for a particular commodity in the market, then the demand for such commodity would be relatively more elastic. For example, since tea and coffee are close substitute for each other in the commodity market, a rise in the price of coffee will result in a considerable fall in its demand and a consequent rise in the demand for tea. Therefore, a demand for coffee will be relatively more elastic because of the availability of tea in the market.

c. **Alternative and Variety of Uses of the Product:** as we know that the resources have an alternative use. The demand for such goods has many uses. The more the alternative and variety of uses of a good, the more would be its elasticity of demand. For example, Electricity is used for many purposes such as lighting, heating, cooking, ironing and also use as a source of power in many industries & households. That is why when the price of electricity increases, its demand will decrease and vice versa.

d. **Role of Habits and custom: i**f the consumer has a habit of something, he will not reduce his consumption even if the price of such commodity increases the demand for them do not decreases considerably and so their elasticity of demand will be inelastic. Ex; Alcohol, Cigarettes which are injurious for health but people still consume it because of their habit.

e. **Income Level of the consumer:** The elasticity of demand differs due to the change in the income level of the households. Elasticity of demand for a commodity is low for higher income level groups then the people with low incomes. This is because rich people are not influenced much by changes in the price of goods. Poor people are highly affected by the increase or decrease in the price of goods. As a result, demand for the lower income group is highly elastic in demand.

f. **Postponement of Consumption:** if the consumer postponed the consumption of commodity in future the demand is relatively elastic. For example, commodities whose demand is not urgent,

have highly elastic demand as their consumption can be postponed if there is an increase in their prices. However, commodities with urgent demand like medicines have inelastic demand because it is an essential commodity whose consumption cannot be post pended.

g. **Time Period:** Price elasticity of demand is related to a period of time. The elasticity of demand varies directly with the time period. In the short run the demand is generally inelastic and in long-run it becomes relatively elastic. This is because consumers find it difficult to change their habits, in the short run, in order to response to the change in the price of the commodity. However, demand is more elastic in long run as their other substitutes available in the market, if the price of the given commodity rises.

3.10 MEASUREMENTS OF PRICE ELASTICITY OF DEMAND

There are various methods of measuring price elasticity of demand some of the important methods are explained below:

A. **Percentage method:** This method is associated with the name of Dr Alfred Marshall. This method is known by various names such as Proportionate method, Ratio method, Arithmetic method, and Flux method. The price elasticity of demand in this method is measured by dividing percentage change in quantity demanded by the percentage change in the price. In other it is the ratio of the percentage change in quantity demanded of a commodity by the percentage change in the price of the commodity itself.

Thus,

$$Ep = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

Symbolically, $Ep = \frac{\Delta q}{q} \div \frac{\Delta p}{p}$

$$= \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Where, q = original quantity demanded.
p = original price.
Δq = change in quantity demanded.
Δ p= change in price.

As mentioned above, the price elasticity of demand has a negative sign this is due to inverse relationship between price and quantity demanded. But for simplicity in understanding the

magnitude or the degree of responsiveness we ignore the negative sign and take only numerical value of elasticity.

B. Point method: Prof. Marshall devised a geometrical method for measuring the elasticity of demand at a point on the demand curve. In other word, the point elasticity of demand measures the elasticity of demand at the point on the demand curve.

This can be illustrated by the following given example:

Table 3.2

Price of commodity X	Quantity demanded of X	Point
20	60	A
15	90	B

The above table is represented in the following Diagram 3.7.

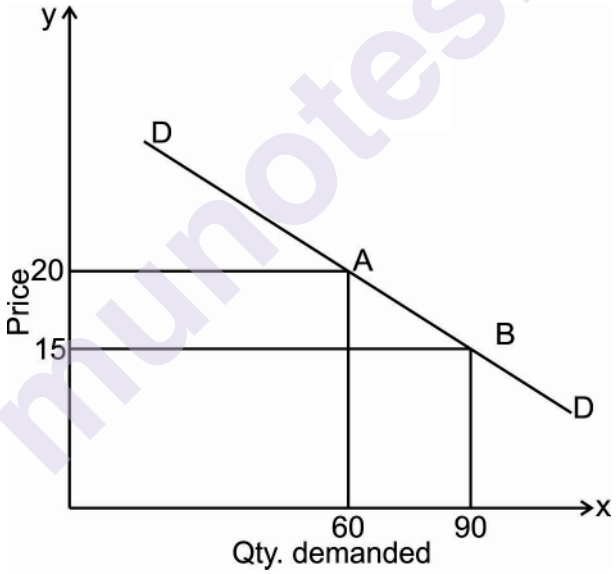


Diagram 3.7

The elasticity is at point A & B

Elasticity at point A = $\frac{\Delta q / q}{\Delta p / p}$

$= \frac{30/60}{-5/20}$

$= \frac{30}{-5} \times \frac{10}{60}$

$= -1.10$

Elasticity at point B

$$= \frac{-30/90}{5/5}$$

$$= \frac{-30}{5} \times \frac{5}{90}$$

$$= -0.33$$

C. Arc elasticity of demand: In the above measure we have studied the measurement of elasticity at a point on a demand curve. When elasticity is measured between two points on the same demand curve, it is known as arc elasticity. According to Prof. Baumol, "Arc elasticity is a measure of the average responsiveness to the change in price exhibited by a demand curve over some finite stretch of the demand curve.". Any two points on the same demand curve make an arc shows the arc elasticity of demand. In other words, arc price elasticity of demand measures elasticity of demand at two points on the demand curve.

$$Ep = \frac{\Delta q}{\frac{q_1 + q_2}{2}} \div \frac{\Delta p}{\frac{p_1 + p_2}{2}}$$

$$= \frac{q_2 - q_1}{q_2 + q_1} \div \frac{p_2 - p_1}{p_2 + p_1}$$

$$= \frac{q_2 - q_1}{p_2 - p_1} \times \frac{p_2 + p_1}{q_2 + q_1}$$

$$= \frac{(90-60)\times(15+20)}{(15-20)\times(90+60)}$$

$$= \frac{30}{-5} \times \frac{35}{150}$$

$$= -1.39$$

D. Geometrical measure of elasticity of demand: If there is a linear demand curve the point elasticity of demand is measured by geometrical method i.e. it is the ratio of lower segment of the demand curve below the point to the upper segment of the demand curve above the point on the demand curve.

Symbolically,

$$Ep = \frac{\text{Lower segment of the demand curve below the point}}{\text{Upper segment of the demand curve above the point}}$$

The geometric method can be explained through the Diagram 3.8 given below:

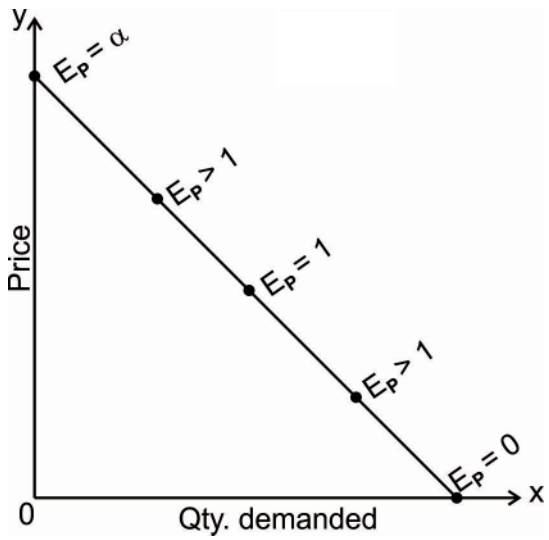


Diagram 3.8

3.11 DEGREES OF ELASTICITY OF DEMAND

Different commodities have different elasticities of demand. Some commodities have more elastic demand then others, while other commodities have relative elastic demand. The elasticity of demand ranges from zero to infinity (0-∞). It can be equal to zero, one, less than one, greater than one and equal to unity.

"The degree of responsiveness to the change in demand in a market for a commodity is great or small, as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price of the commodity".

The various level or the degree of elasticity of demand is explained in brief below:

1. **Perfectly elastic demand ($E_p = \infty$):** The demand is said to be perfectly elastic, if slight change in price leads to infinite change in the quantity demanded of the commodity. In other words, it is the level of responses where the consumer is able to buy all the available commodity at a particular price where the demand is elastic. The demand curve under this situation is horizontal straight line parallel to X axis shown in the Diagram 3.9 below. This type of demand curve is relevant in perfect competition. But in the real world, this case is exceptionally rare and are not of any practical interest.

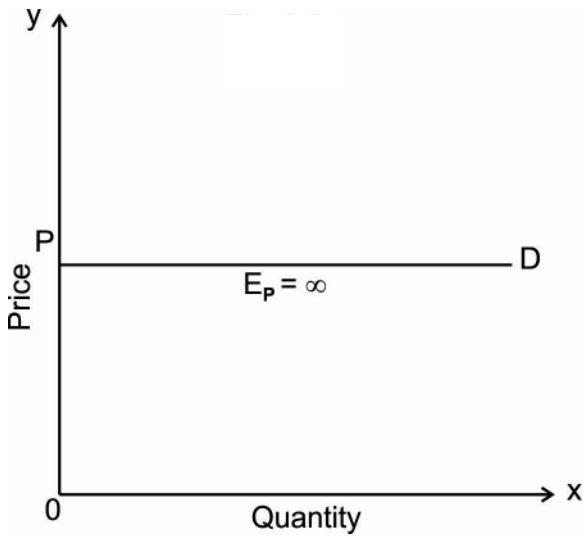


Diagram 3.9

2. **Perfectly inelastic demand ($E_p = 0$):** The demand is said to be perfectly inelastic, if the demand for a commodity does not change with a change in price of the commodity. In other words, the perfectly inelastic demand of a commodity is opposite to the perfectly elastic demand. Under the perfectly inelastic demand, a rise or fall in price of a commodity the quantity demanded for a commodity remains the same. The elasticity of demand will be equal to zero. The demand curve is vertical straight line parallel to Y-axis shown in the Diagram 3.10.

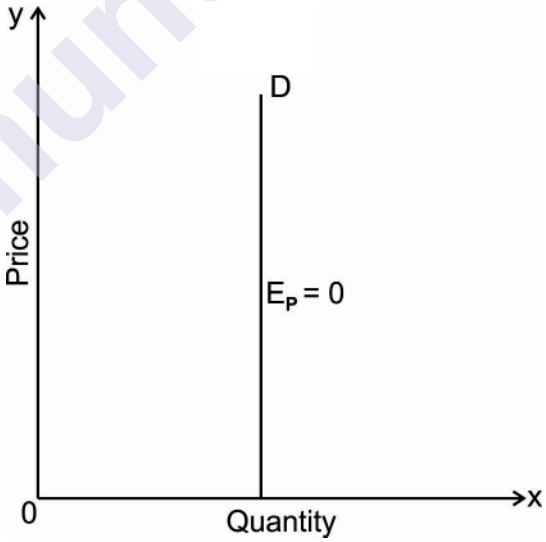


Diagram 3.10

3. **Unitary elastic demand ($E_p = 1$):** Demand is said to be unitary elastic when the percentage change in the quantity demanded for a commodity is equal to the percentage change in its price. The numerical value of unitary elastic of demand is exactly equal to one i.e. Marshall calls it as unit elastic. The demand curve is rectangular hyperbola shown in the Diagram 3.11.

Fig. 3.11

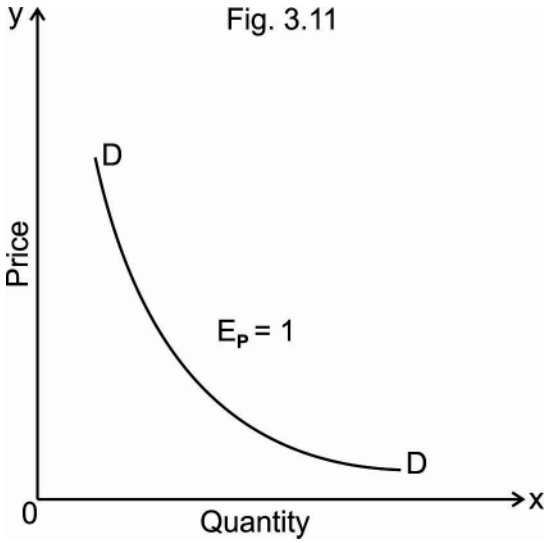


Diagram 3.11

4. **Relatively Elastic demand (E_p> 1):** Demand is said to be relatively elastic, when the percentage change in quantity demanded of a commodity is greater than the percentage change in its price. In other words, it refers to a situation in which a small change in price leads to a great change in quantity demanded. The demand curve under this situation is flatter as shown in Diagram 3.12. Such demand curve is seen under monopolistic competition.

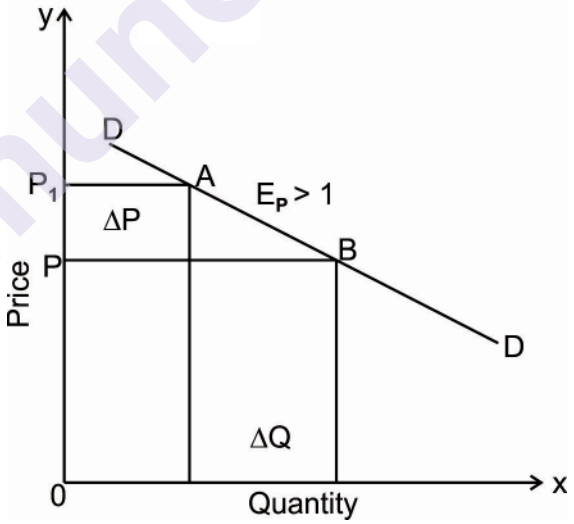


Diagram 3.12

5. **Relatively Inelastic demand (E_p< 1):** Demand is relatively inelastic when the percentage change in the quantity demanded of a commodity is less than the percentage change in the price of the commodity. The demand curve under this situation is steeper shown in Diagram 3.13. Such demand curve is observed under monopoly market.

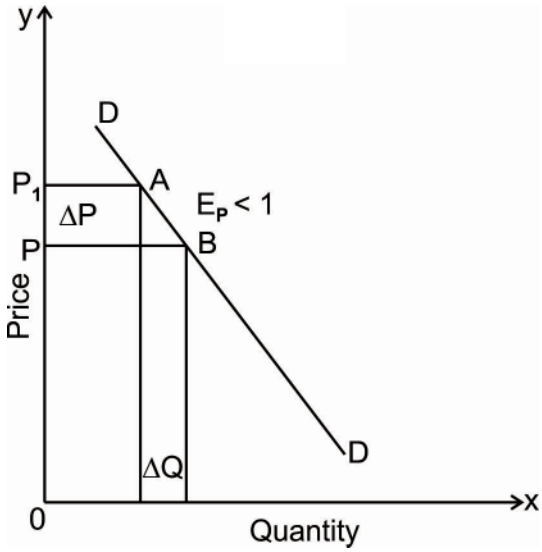


Diagram 3.13

Check your Progress :

1) What is the nature elasticity of demand for luxurious good?
2) List down the degrees of Elasticity of Demand.

3.12 INCOME ELASTICITY OF DEMAND

As we have discussed earlier the factor which determines elasticity of demand for a commodity. The consumer's income is one of the important determinants of demand for a commodity. The demand for a commodity and consumer's income is directly related to each other, unlike price-demand relationship.

Income elasticity of demand shows the degree of responsiveness of quantity demanded of a commodity to a small change in the income of a consumer. In other words, the degree of responsiveness of quantity demanded to a change in income is measured by dividing the proportionate change in quantity demanded of a commodity by the proportionate change in the income of a consumer.

$$\text{Income Elasticity} = \frac{\text{Percentage change in purchases of a commodity}}{\text{Percentage change in income}}$$

3.12.1 MEASUREMENT OF INCOME ELASTICITY OF DEMAND

The income elasticity of demand can be calculated by either point method or arc method.

Point income elasticity of demand is measured by following formula: $E_y = \frac{\Delta Q / Q}{\Delta Y / Y}$

$$= \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q}$$

$$= \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q}$$

Where, Q = Original Quantity Demanded.
Y= Original Income.
ΔQ= Change in Quantity Demanded.
ΔY= Change in Income.

Arc income elasticity of demand is measured by following formula:

$$E_y = \frac{(Q_2 - Q_1)}{(Y_2 - Y_1)} \cdot \frac{(Y_2 - Y_1)}{(Q_2 - Q_1)}$$

Income elasticity of demand being zero is a great significance. It implies that a given increase in the income of a consumer does not at all lead to any increase in quantity demanded of a commodity or expenditure on it.

Classification of goods based on income elasticity of demand: We can broadly classify the various goods on the basis of value of income elasticity of demand.

1. **Normal Goods:** Normal goods are those goods which are usually purchased by consumer as his income increases. In other words, normal good means an increase in income causes an increase in the demand for a commodity. It has a positive income elasticity of demand. Normal goods are further classified as:
    a. **Necessity goods:** A good with an income elasticity less than one and which claims declining proportion of consumers income as he becomes richer is called a necessity good. Necessity goods are those goods where an increase in income of a consumer leads to less than proportionate increases in the demand for a commodity. For example, daily used goods, basic goods etc. the income elasticity of demand for such goods positive and less then unity. i.e. $E_y < 1$.

b. **Luxuries goods:** A good having income elasticity more than one and which therefore bulks larger in consumers budget as he becomes richer is called a luxury good. Luxuries goods are those goods where a change in income leads to direct and more than proportionate change in quantity demand for a commodity. For example, diamonds, expensive cars, etc. Thus, income elasticity of demand for such goods is positive and greater than one i.e. $E_y > 1$.

c. **Comfort goods:** Comfort goods are those goods where change in income leads to direct and proportionate change in quantity demanded. For example, semi-luxury goods and comfort items. Income elasticity of such goods are positive and unity. i.e. $E_y = 1$.

2. **Inferior goods:** Inferior goods are those goods are where consumer buys less of goods as his income increases. Goods having negative income elasticity are known as inferior goods. As income of a consumer increases his demand for goods shifts from inferior to superior. The income elasticity for such goods are $E_y = 0$.

3. **Neutral goods:** when a change in income of a consumer brings no change in the quantity demanded of a commodity. For example, salt, rice, pulses etc. elasticity for such goods are $E_y = 0$.

3.13 CROSS ELASTICITY OF DEMAND

Sometimes we find two goods are inter-related to each other either they are substitute goods or commentary goods. Cross elasticity of demand measures the degree of responsiveness of demand for one good in responsive to the change in the price of another good.

$$E_c = \frac{\text{Percentage change in quantity demanded of commodity 'X'}}{\text{Percentage change in the price of commodity 'Y'}}$$

Classification of goods based on value of cross elasticity of demand:

a. **Substitution:** If the value of elasticity between two goods are positive the goods are said to be substitute to each other. For example, Tea and coffee, if the price of tea increases the demand for coffee increases.

b. **Complementary:** if the value of elasticity between two goods are negative the goods are said to be complementary. For

example, car and petrol, if the price of petrol increases the demand for car decreases.

c. **Unrelated:** if the value of elasticity between two goods are zero then the goods are said to be unrelated to each other. For example, table and car, if the price of table increases there is no change in the demand for car.

3.14 PROMOTIONAL ELASTICITY OF DEMAND

It is also known as 'Advertisement elasticity'. In modern times an increase in expenditure on advertisement or promotion leads to an increase in the demand for a commodity Promotional elasticity of demand is the proportional change in quantity demand due to proportionate change in promotional expenditure. In other words, percentage change in the quantity of demand for a commodity divided by the percentage change in promotional expenditure shows the promotional elasticity of demand.

$$E_A = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in advertisement expenditure}}$$

The greater the elasticity of demand, its better for a firm to spend more on promotional activities. The promotional elasticity of demand is usually positive.

Check your Progress :

1) How income of a Consumer related to the demand of the commodity?
2) If the Consumer income increase. What will be the elasticity of demand for necessity goods?

3.15 CONCEPTS OF REVENUE

The term revenue refers to the income obtained by a firm or a seller through the sale of commodity at different prices. The revenue is classified as:

1. **Total revenue:** The total revenue or income earned by a firm or producer from the sale of the output he produced is called the total revenue. Thus, the total revenue is the price multiply the quantity of output.

$$TR = P \times Q$$

Where,
TR = Total Revenue.
P = Price of a commodity.
Q = Total Output sold.

Thus, Total revenue is the sum of all sales, receipts or income of a firm in the market.

2. **Average revenue:** The average revenue refers to the revenue obtained by the firm by selling the per unit of output of a commodity. It is obtained by dividing the total revenue by total unit of output sold in the market.

$$AR = \frac{TR}{Q}$$

Or

$$AR = P$$

Where, AR= Average revenue.

The average revenue curve shows that the price of the firm's product is the same at each level of output. In other words, the average revenue curve of a firm is also the demand curve of the consumer.

3. **Marginal revenue:** Marginal revenue is the additional revenue earned by selling an additional unit of the commodity. In other words, Marginal revenue is the change in total revenue due to the sale of one additional unit of output. Thus, marginal revenue is the addition commodity made to the total revenue by selling one more unit of the commodity. In algebraic terms, marginal revenue is the net addition to the total revenue by selling n units of a commodity instead of n – 1.

Thus, $MR_n = TR_n - TR_{n-1}$

Or

$$MR = \frac{\Delta TR}{\Delta Q}$$

Relationship between price elasticity and total revenue: Elasticities of demand can be divided into three broad categories: elastic, inelastic, and unitary. An elastic demand is one in which the elasticity is greater than one, indicating a high responsiveness to changes in price. Elasticities that are less than one indicates low responsiveness to price changes and correspond to inelastic

demand. Unitary elasticities indicate proportional responsiveness of either demand or supply, as summarized in the following table:

Total revenue	Change in price	Elasticity	Reasons
Increase Decrease	Fall Rise	$E_p > 1$	Percentage change in quantity demanded is greater than the percentage change in price.
Decrease Increase	Fall Rise	$E_p < 1$	Percentage change in quantity demanded is smaller than percentage change in price.
Unchanged Unchanged	Fall Rise	$E_p = 1$	Percentage change in quantity demanded is equal to percentage change in price.

Table 3.3

The relationship between the price elasticity and total revenue shows the following analysis from the above table.

A. When demand is elastic, price and total revenue move in opposite directions.
B. When demand is inelastic, price and total revenue moves in same direction.
C. When demand is unitary elastic, total revenue remains unchanged with the price changes.

This relationship can be easily understood by the following diagram: 3.14

Relationship between price elasticity and Average revenue and Marginal revenue: The relationship between AR, MR and elasticity of demand is very useful to understand at any level of output.

This relationship is also very useful to understand the price-determination under different market conditions. It has been

discussed that average revenue curve of a firm is the same thing as the demand curve of the consumer for the product of the firm under market.

This relationship can be explained with the following diagram: 3.14

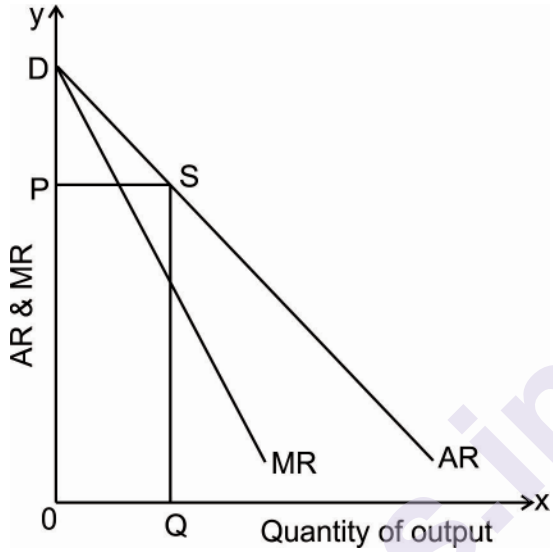


Diagram 3.14

3.16 MEANING

Demand forecasting means estimation of demand for the product for a future period. Demand forecasting enables an organization to take various decisions in business, such as planning about production process, purchasing of raw materials, managing funds in the business, and determining the price of the commodity. A business organization can forecast demand for his product by making own estimations called guess or by taking the help of specialized consultants or market research agencies.

3.17 SIGNIFICANCE OF DEMAND FORECASTING

Demand forecasting plays an important function in the management of various business decision. Forecasting help the business firm to know what is likely to happened in future and to reduce the degree of risk and uncertainty in business and to make various business policy decision and action of the future. Thus, a demand forecasting is meant to guide business policy decision.

The significance of demand forecasting are as follows:

1) **Fulfils the subjective :** Demand forecasting implies that every business unit starts with certain pre-determined objectives. Demand forecasting helps in fulfilling these objectives. An organization estimates the current demand for its products and

services in the market and move forward to achieve the set goals.

For example, an organization has set a target of selling 60, 000 units of its products. In such a case, the organization would make demand forecasting for its products. If the demand for the organization's products is low, the organization would take remedial actions, so that the set objective can be achieved.

2) **Production planning:** Demand forecasting is important to forecast the future production plan of business firm. There is a gestation period between production of goods and services and demand for it. Demand forecasting help to eliminate those gaps between demand and supply of goods preventing shortages and surplus.
3) **Distribution and avoidance of wastage of resources planning:** The business firm has to take decision regarding the distribution of capital, machinery, raw material in the production process. So that if there is any shortage of those resources can be arranged prior through estimation. Making a right and correct estimation of using resources reduces the usage of it.
4) **Sales distribution policy:** Sales of goods and service gives revenue to the firm's demand. Forecasting is nothing but estimating the sales of the product. To formulate realistic sales targets and to make arrangements for the movement of production for the movement of product region wise, demand forecasting is very essential. This can help to formulate an effective sales policy, and therefore, to increase sales revenue.
5) **Price policy:** The firm has to make decision regarding the price of goods and services which is a critical job. The firm has to make appropriate price policy so that there is no price fluctuation in the future.
6) **Reduce business risk:** Every business has certain risk. Demand forecasting help the business firm to make appropriate business decision to reduce such risk and uncertainty to a certain extent.
7) **Inventory planning:** Inventories are goods and raw materials held by the firm future sale. Demand forecasting helps in devising appropriate inventory management policies.

Check your Progress :

1) How demand forecasting health business firm in predicating future demand for his product?
2) List down the factors determining nature of demand forecasting.

_____

_____

_____

_____

_____

3.18 STEPS IN DEMAND FORECASTING

The demand forecasting finds its significance during large-scale production of goods and services. During such period of time firms may often face difficulties in obtaining a fairly accurate estimation of future demand. Thus, it is essential for a firm to forecast demand systematically and scientifically to arrive at desired objective. Therefore, the following steps are to be taken to facilitate a systematic demand forecasting:

1. **Determining the objective:** The very first step in demand forecasting is to determine its objective of forecasting. The objective for which the demand forecasting is to be done must be clearly specified. The objective of forecasting may be defined in terms of; long-term or short-term demand, the whole or only the segment of a market for a firm's product, overall demand for a product or only for a firm's own product, firm's overall market share in the industry, etc. The objective of the demand must be determined prior in the process of demand forecasting begins as it will give direction to the whole research.
2. **Nature of forecast:** After determining the objective of forecasting the second important step is to identified the nature of demand forecasting. Its based on the nature of forecasting.
3. **Nature of commodity:** While forecasting it is important to understand the nature of the product whether it is consumer goods or producer goods, perishable goods or durable goods. If the good is perishable the forecasting is to be done in a short period of time and for durable goods it may be done in long run.
4. **Determinants of demand:** Determinants of demand play an important role in determining the forecasting as different commodity have different factor determination of demand which depends upon the nature of commodity and nature of forecasting. The important determinants are price of the commodity, price of related goods, income of a consumer etc.
5. **Identifying the relevant data:** Necessary data for the forecasting are collected, then tabulated, analysed and cross-checked by the firm. The data are interpreted by applying various statistical or graphical techniques, and then to draw necessary deductions there from. The forecaster has to decide whether to choose primary or secondary data. The primary data are the first-hand data which has never been collected before. While the secondary data are the data already available. Often, data required is not available and hence the data are to be adjusted, even manipulated, if necessary, with a purpose to build a data consistent with the data required. Then after collecting the relevant data from different sources and proceed for the further step.

6. **Selecting the method:** After collecting the relevant data the firm choose the appropriate method of forecasting the demand. Appropriate method of sales forecasting is selected by the company considering the relevant information, purpose of forecasting and the degree of accuracy required. The choice of method has to be appropriate and logical. If the required data is not available toward the method, the forecaster may force to use less reliable method. The forecaster should use a method which should not be too time consuming and it should be reliable for long term.
7. **Testing accuracy:** After making a choice of method the forecaster needs to test the accuracy of it. There are various methods choose to test the accuracy. This testing helps to reduce the margin of error and thereby helps to improve its validity for the purpose of decision making
8. **Evaluation and conclusion:** the last and final step are to evaluate the forecasting and to draw a conclusion from it.

3.19 METHODS OF DEMAND FORECASTING

The main challenge to the forecaster while forecasting the demand is to select an effective technique or method. Broadly speaking methods of demand forecasting are classified into Qualitative methods and Quantitative methods. Which can also be classified as Survey method and Statistical method. The forecaster may choose any of the method depending upon the data which is available. Under these two broad categories, there are other specific methods which is been choose to analysis the data. These two methods will be discussed below:

A. **Survey method:** This method is also called as qualitative method of demand forecasting. This method is one of the most common and direct method of demand forecasting in the short run. In this method the future purchase plans of the consumers and their aims are included. An organization conducts these surveys with consumers to determine the demand of their existing products and services and forecast the future demand of their product accordingly.

The forecaster may undertake the following survey methods:

a) **Expert's opinion:** This method is based on the opinion of expert who predict the demand for a product based on his experiences and his knowledge in the particular specialised field. The expert may be from the same organisation or may be hired from outside. They may be salesman, sales manager, marketing expert, market consultant etc they act as experts who can assess the demand for the product in different areas, regions, or cities. This method involves the opinion of three or four experts. Each expert will be asked about his opinion

regarding the demand for the product and the expert through his personal experience give his opinion for the product and forecast the demand. This method is very simple to use and it requires less statistical work. Due to expert's personal views the time for forecasting is short and the cost involve is also low. On the other side as its expert's personal opinion or guess where its likely to be biased.

b) **Delphi method:** Delphi method is a group decision-making technique of forecasting demand. In Delphi method, a group of experts gives their opinion on the demand for the products of individual firm in future based on questions which have been asked by the firm. These questions are repeatedly asked until a result is obtained. In addition, each and every expert is provided information regarding the estimates made by other experts in the group, so that he/she can revise his/her estimations with respect to others' estimates. In this way, the forecasters cross check among experts to reach more accurate decision making. The main advantage of this method is that it is time and cost effective as a number of experts are approached in a short time without spending much time on other resources. However, this method may lead to appropriate decision making. This method allows the forecaster to solve the problem to the experts at once and have instant response. But the success of this method depends upon the skills, experience, knowledge, and aptitude of the expert.

c) **Consumer survey method:** In this method, the consumers are directly approached to unveil their future purchase plans. This method is the most direct method because forecasting is done by interviewing all consumers or a selected group of consumers out of the relevant population through various other methods of survey. The firm may choose for complete enumeration method, sample survey method and end use method for sample surveys depending upon the nature of forecasting. The following methods are described in brief below:

i. **Complete enumeration method:** Under the Complete Enumeration Survey, the forecaster undertakes the survey of the whole population who demand for the commodity. The firm may go for a door to door survey by making questionnaire to get the data requires. This method has an advantage of first hand data, unbiased information, yet it has its share of disadvantages also. The major limitation of this method is that it requires lot of resources, manpower and time period. There may be a chance where the consumer or the population may give false statement or may deliberately misguide the investigators due to which there may be chance of data error. In this method, consumers may be unwilling to reveal their purchase plans due to personal privacy or commercial secrecy.

ii. **Sample survey method:** This method is also known as test market. In this method the forecaster selects the samples of consumer from the relevant population instead of considering the whole population. If sample is the true representative of data, there is likely to be no significant difference in the results obtained by the survey. Apart from that, this method is less tedious and less costly then the complete enumeration method. A sample survey technique is a variant of test marketing. Product testing basically involves employing the product with a number of users for a set of periods of time. Their reactions to the product are noted after a period of time and an estimate of likely demand is made from the result. These are suitable for new products or for completely modified old products for which there is no prior data available. It is a more scientific method of estimating like demand because it stimulates the national launch in a very closely defined geographical area. Their can be a sampling error in this method as the size of sample is small i.e. smaller the size of sample larger the sampling error.

iii. **End-use method:** This method is quite useful for industries which are mainly producer's goods and when a product is used for more than one use. In this method, the sale of the product is projected on the basis of demand survey of the industries which are using this product as an intermediate product, that is, the demand for the final product is the end user demand of the intermediate product which are used in the production of this final product is considered. The end use method of demand estimation of an intermediate product may involve many final good industries using this product at home and abroad. It helps us to understand inter-industry' relations. The major efforts required by this type of method are not in its operation but in the collection and presentation of data. This will help the forecaster to manipulate the future demand. This policy helps the government to frame many of its policies. Its major limitations are that it requires every firm to have a plan of production correctly for the future period.

d) Market experiments: This method involves collecting necessary information regarding the current and future demand for a product in the market. This method carries out the studies and experiments on consumer behaviour under actual market conditions. In this method, some areas of markets are selected with similar features, such as income level , population, cultural and political background, and tastes of consumers. The market experiments are carried out with the help of changing prices and expenditure, so that the resultant changes in the demand are recorded. These results help in forecasting future demand.

i. Actual market experiment: This method is conducted in the actual market place in several ways. One method is to select several market or stores with similar characteristics. This

method is very useful in the process of introducing a product for which no other data exist.

ii. **Simulated market experiment:** This method is also called as consumer clinic or laboratory experiment. Under this method the firm make a set of consumers and give them a sum of money and asked them to shop in a stimulated store. While shopping the consumer reaction towards the change in price of a product, packaging, advertisement etc are taken into consideration.

B. **Statistical methods:** This method is also called as quantitative method. Statistical method is most useful in demand forecasting. In order to key objectivity, that is, by consideration of all implications and viewing the problem from an external point of view, the statistical methods are used to forecast the demand of the product to get the accurate solution to the problems. The following are some statistical methods which are been used now a day:

I. **Trend method:** A firm existing for a long time will have its own data regarding sales for past years. Such data when arranged in a chronologically manner will yield what is referred to as 'time series. Time series method shows the past sales with effective demand for a particular product under normal conditions. Such data can be given in a tabular or graphic form for further analysis. This is the most popular method among business firms, partly because it is simple and cheap and partly because time series data often show a persistent growth trend. Time series has got four types of components namely, Secular Trend (T), Secular Variation (S), Cyclical Element (C), and an Irregular or Random Variation (I). These time elements are expressed by the equation O = TSCI. Secular trend refers to the long run changes that occur as a result of general tendency. Seasonal variations refer to the changes in the short run weather pattern or the social habits. Cyclical variations refer to the changes that occur in industry during a depression and boom period. Random variation refers to the factors which are generally able such as wars, strikes, natural calamities such as flood, famine and so on. When a prediction is made the seasonal, cyclical and random variations are removed from the observed data. Thus, only the secular trend is left. This trend is then projected. Trend projection fits a trend line into a mathematical equation. The trend can be estimated by using any one of the following methods:

(a) The Graphical Method: Graphical method is the simplest technique to determine the trend analysis. All values of output or sale of product for different years are

plotted on a graph and a smooth free hand curve is drawn passing through as many points as possible on the graph. The direction of this free hand curve is either upward or downward and shows the possible trend.

(b) The Least Square Method: Under the least square method of forecasting, a trend line can be fitted to the time series data with the help of statistical techniques such as least square method of regression. When the trend in sales over time is given by straight line, the equation of this line is in the form of: y = a + bx. Where 'a' is the intercept and 'b' shows the impact of the independent variable. We have taken two variables i.e. the independent variable x and the dependent variable y. The line of best fit establishes a kind of mathematical relationship between the two variables v and y. This is expressed by the regression y on x.

In order to solve the equation v = a + bx, we have to make use of the following normal equations:

$\Sigma y = na + b \Sigma X$

$\Sigma xy = a \Sigma x + b \Sigma x2$

II. **Regression method:** regression methods attempts to assess the relationship between at least two variables (one or more independent and one dependent), the purpose is to predict the value of the dependent variable from the specific value of the independent variable. The foundation of this prediction generally is historical data. This method starts from the assumption that a basic relationship exists between two variables. An interactive statistical analysis computer package is used to formulate this mathematical relationship.

Check your Progress :

1) List down the steps of demand forecasting.
2) Define survey method of demand forecasting.
3) Define Delphi method of demand forecasting.

3.20 SUMMARY

In this unit we have analysed the demand concept and its various function along with the law of demand. In economics both

demand and supply are the important forces through which market economy functions. But in this unit, we will focus more on demand side. The demand function shows the relationship between the quantity demanded and its various determinants. In this chapter we will explain the demand function in detail. Demand function is an arithmetic expression that shows the functional relationship between the demand for a commodity and the various factors affecting it. It has also explained he nature of demand curve under different market situation. We have also discussed the nature of demand curve under different market conditions with the various elasticity concepts and its measures in detail. Elasticity of demand helps us to estimate the level of change in demand with respect to a change in any of the determinants of demand. The concept of elasticity of demand helps the firm or manager in decision making with respect to pricing, promotion and production polices. The elasticity of demand measures the elasticity of four important factors i.e. price, income, cross and promotional with three important measures of point, arc and geometric measures of elasticity. The unit also deals with the various revenue of the firm in business and their relationship in detail.

This unit study the demand estimation and its forecasting. Demand forecasting play a vital role in business planning. Business enterprises need to plan their activities. Most of the business decisions of a firm under an organization are made under the conditions of risk and uncertainty. Demand forecasting is a systematic process that involves anticipating the demand for the product and services of an organization in future under a set of uncontrollable and competitive forces in the economy. Demand forecasting helps the business firms to take appropriate decision about the production and the use of factors of production to fulfil the future demand of the commodity. It had studied the importance or significance of demand forecasting. Demand forecasting plays an important function in the management of various business decision. Forecasting help the business firm to know what is likely to happened in future and to reduce the degree of risk and uncertainty in business and to make various business policy decision and action of the future. The unit explains the various steps in forecasting demand. It has also explained the two major methods of demand forecasting in detail.

3.21 QUESTIONS

1. What is demand forecasting? Explain its importance.
2. Discuss the steps to be taken to estimate demand forecasting.
3. Explain the survey methods of demand forecasting.

4. Examine the statistical methods of demand forecasting.
5. Explain the law of demand and the factors with determines the demand.
6. Explain the nature of demand curve under different markets.
7. What is demand function? Explain in detail.
8. What is elasticity? Explain price elasticity of demand in detail.
9. Explain the measurements of price elasticity of demand.
10. Discuss the different degrees of elasticity of demand.
11. What are the factors affecting price elasticity of demand?
12. Write a note on:
    a) Income elasticity of demand.
    b) Cross elasticity of demand.
    c) Promotional elasticity of demand.
13. Explain the concepts of revenue in detail.

❖❖❖❖

4

PERFECT COMPETITION

Unit Structure :

4.0 OBJECTIVES

- To understand the meaning and features of perfectly competitive market.
- To study the concept of profit maximisation of firm under perfect competition.
- To understand the short run and long run equilibrium of a firm.
- To understand the equilibrium of a firm and industry under perfect competition.

4.1 MEANING

The theory of perfect competition has originated in the late-19th century. The first laborious definition of perfect competition and resultant some of its main results was given by Léon Walras. Then later in the 1950s, the theory was further redefined by Kenneth Arrow and Gérard Debreu. But in reality, markets are never perfect.

A perfectly competitive market is a hypothetical in nature. In this market producers are large in number; however, they may face many competitor firms selling highly similar types of goods, in which case they often act as price takers. Agricultural markets are commonly used as an example.

A perfectly competitive firm is also known as a price taker because the pressure of competing firms in the market forces other firms to accept the price prevailing in the market. If a firm in a perfectly competitive market try to raise the price of its product in the market it will lose all of its shares in the market. The market price in the perfect competition is determined by the market supply and market demand in the entire market and not by the individual firm or seller in the market. Further in this chapter we will try to discuss the price determination and equilibrium of the firm and industry under perfect competition.

4.2 FEATURES OF PERFECT COMPETITION

Perfect competition can be generally understood by its following important features:

1. **Large number of buyers and sellers:** The very first important feature of perfect competition is its number of participants i.e. number of buyers and sellers. Both buyers and sellers are large in number under perfect competition. The existence of these large number of buyers and sellers makes no influence over price of the product. Therefore, the individual firm under perfect competition is a price taker because he has no influence over the price. Whatever price the market demand and market supply collectively decide every firm is expected to follow the same.

2. **Homogeneous or Similar products:** The second important feature of perfect competition is the commodity which is being sold in the market. It means that the product or commodity which is sold in perfect competition is similar or identical in nature. As the product are identical or similar in nature the firm has no control over the price of the product because products are perfect substitute for one another. No firm can try to charge different price to consumer then the market price due to homogeneous factor of product.

3. **Free entry and exit of firm:** There are no restriction to the entry and exit of firm in the market. The condition of free entry and free exit of a firm applies only in the long run, in short run firms can neither change the size of their plants, nor new firms can enter or old firm can leave the market. If the existing old firm earns super normal profit in the short run will attract the new firm to enter in the market in the long run.

4. **Complete market information:** It is assumed that there is a perfect knowledge about the market situation to both buyers and seller in the perfect competition. A perfect knowledge or complete information about the market demand and market supply, price etc. This allows the firms and buyer to take appropriate decision to influence the market demand and supply collectively.

5. **Prefect mobility of factors of production:** Under perfect competition the factors of production are assumed to be freely mobile. Factors of production such as labour and capital are assumed to be mobile. The mobility of factors helps the firm to adjust the market demand with the change in market supply.

6. **No transportation cost:** It is assumed that there is no transportation cost under perfect competition. It applies when the production area and sales market take place in a small geographical area or in the same area. For example, agriculture products are sold in the same village or town which requires no transportation cost.

Check your Progress :

1) Why uniform price exist in perfect competition?
2) Why we don't consider transportation cost?

4.3 PROFIT MAXIMISATION

Profit is the main objective of any firm into business. Each and every firm tries to makes maximum possible profit into the business. Firm earns profit when Total revenue which has earned subtracted from the Total cost which he has bare for the production.

To state $\pi = TR - TC$

Where π = Profit, TR = Total Revenue, TC = Total Cost.

Total revenue (TR) is the total revenue firm earned after the sale of his product. To state

TR = P × Q

Where, TR is Total Revenue, P = Price per unit, Q = Quantity per unit sold.

Total Cost (TC) is the total cost which a firm spend to produce the product. We obtain it by multiplying the quantity of output produce by the average cost.

TC = Q ×AC

Average revenue (AR) is the revenue generated by selling per unit of output.

$AR = \frac{TR}{Q}$

Where AR is the Average Revenue.

Hence if, $P \times Q = \frac{TR}{Q} = AR$

Therefore, we can say that,

$P = AR$

Therefore, we say that the price under perfect competition is equal to the average revenue which a firm earns in a market.

A firm in a perfectly competitive market tries to maximize his profits. In the short-run, it is possible for a firm to earn profits which can be positive, negative, or zero. Economic profits which the firm earns will be zero in the long-run.

In the short-run, if a firm earns negative economic profit, it is said that he should continue to operate his business if its price exceeds its average variable cost and he should shut down if its price is below its average variable cost.

The marginal revenue (MR) is the change in total revenue from an additional unit of output sold in the market for which the firm bares Marginal cost.

$$MR = \frac{\Delta TR}{\Delta Q}$$

Marginal Cost (MC) is the additional cost which a firm spends to produce the additional unit of output.

$$MC = \frac{\Delta\ TC}{\Delta Q}$$

In order to maximize the profits in a perfectly competitive market, the firms set the price where the marginal revenue equal to marginal cost (MR=MC). The MR curve is the slope of the revenue curve, which is also equal to the demand curve (DD), price (P) and the Marginal and Average Revenue curve. Therefore, In the short-term, it is possible for a firm to earn economic profits to be positive, zero, or negative. When price is greater than average total cost, the firm is making a profit. When price is less than average total cost, the firm is making a loss in the market.

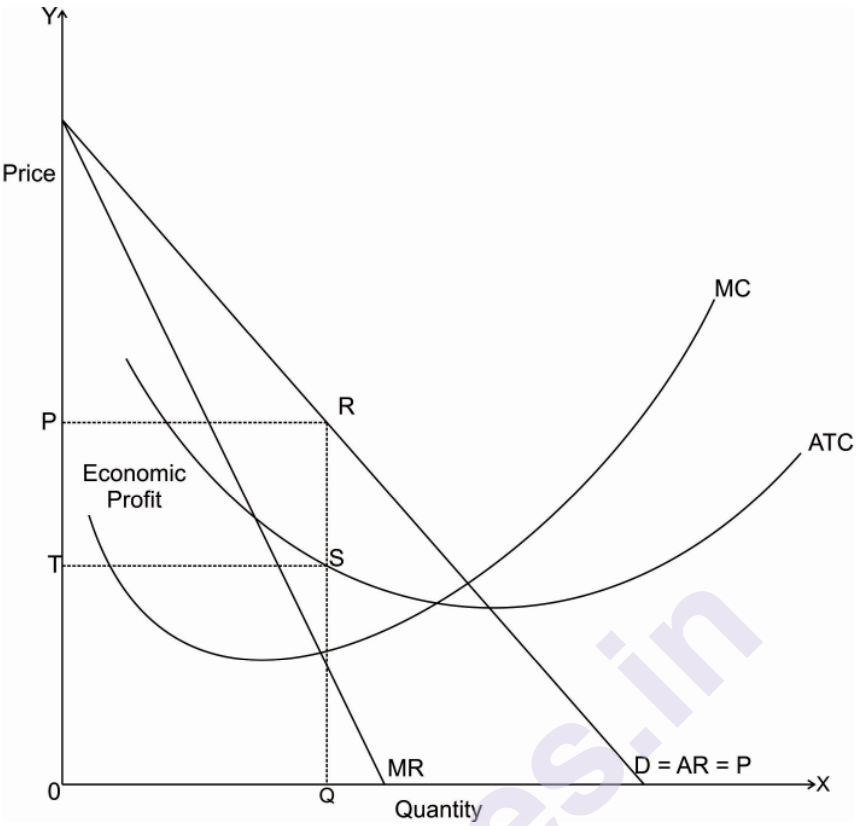


Diagram 4.1

Perfect Competition in the Short Run: In the short run, it is possible for an individual firm to make an economic profit. This state is shown in the above Diagram 9.1, as the price or average revenue, denoted by P, is above the average cost denoted by AR.

In the long-run, if firms try to earning positive economic profits, more and firms will enter into perfectly competitive market are, which will shift the supply curve to the right of the original place. As the supply curve shifts to the right, the equilibrium price of the firm will go down. As the price goes down, the economic profits will decrease until they become zero.

When the price is less than the average total cost of the production, at that time the firms are making a loss. In the long-run, if firms in a perfectly competitive market are earning negative economic profits, then more firms will leave the market and which in turn will shift the supply curve left of the diagram. As the supply curve shifts to the left, the price will rise. As the price rises, the economic profits will increase until they become zero.

Inthe long-run, companies that are engaged in a perfectly competitive market will earn zero economic profits. The long-run equilibrium point for a perfectly competitive market occurs where the demand curve (price)(P) intersects the marginal cost (MC) curve at the minimum point of the average cost (AC) curve.

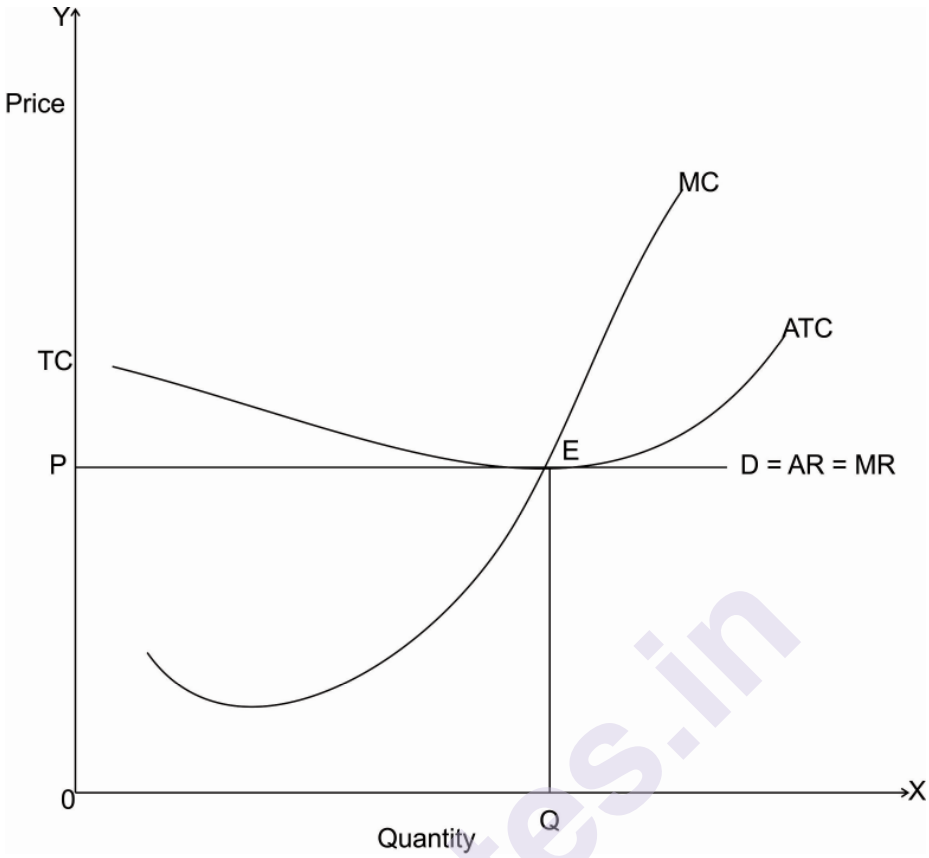


Diagram 4.2

Perfect Competition in the Long Run: In the long-run, economic profit cannot be constant. The entry of new firms in the market will cause the demand curve of each individual firm to shift the demand curve downward, bringing down the price, the average revenue (AR) and marginal revenue curve (MR). In the long-run, the firm will make zero economic profit. Its horizontal demand curve will touch its average total cost curve at its lowest point (E).

The firm is at equilibrium at the point (E) where Marginal revenue (MR) is tangent to Marginal cost (MC).

4.4 SHORT- RUN EQUILIBRIUM OF A FIRM UNDER PERFECT COMPETITION

The short run is a period of time within which the firms can change their level of output only by increasing or decreasing the amounts of variable factors such as labour and raw material, while fixed factors like capital equipment, machinery, etc. remains unchanged.

In other words, short run is the conceptual time period where at least one factor of production is fixed in amount while other factors are variable.

A firm in short run is in equilibrium at a point where Marginal Revenue (MR) is equal Marginal Cost (MC) i.e. MR=MC and where MC is increasing at the point or MC is cutting MR from below.

The firm under perfect competition operates under the U-shaped cost curve. Since marginal revenue is the same as price or average revenue under perfect competition, the firm will equalise marginal cost with price to attain the equilibrium level of output.

A firm under perfect competition in short run being in equilibrium does not necessarily earn profit. The firm determines the equilibrium level of output and price and tries to earn excess profit, normal profit or may even incur loss. The Diagram 9.3 which is given below will explain the firm's equilibrium situation in the short run.

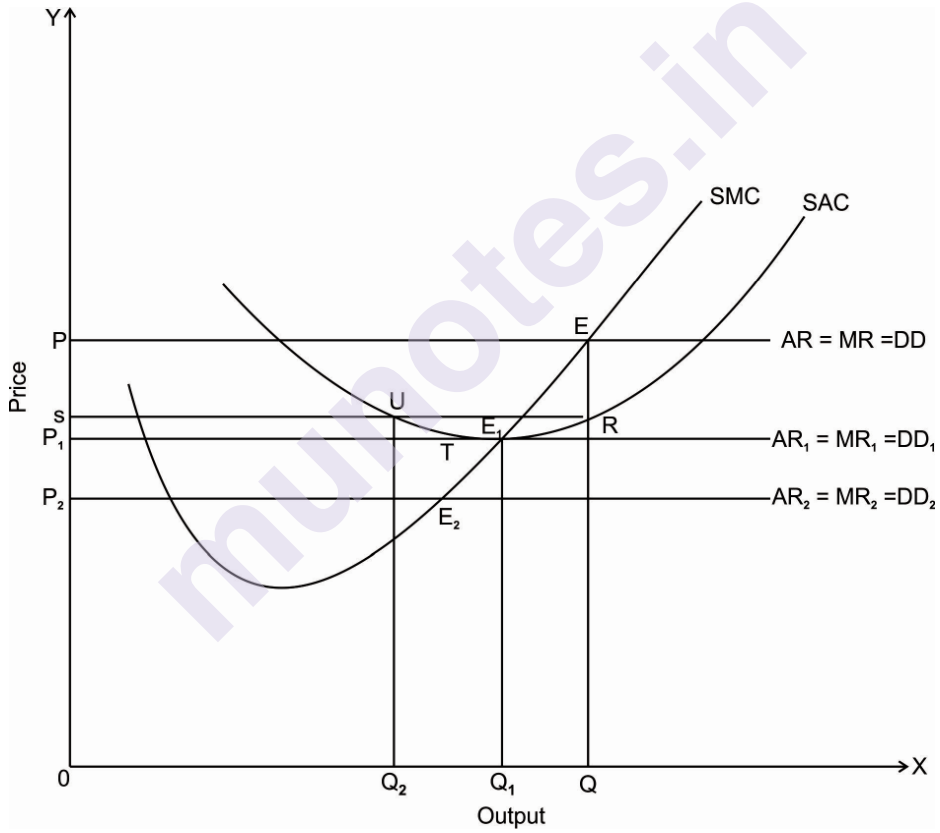


Diagram 4.3

In the above fig Level of output is determined on the X axis and price on the Y axis.

The firm may face excess profit, normal profit or even loss can be understood by the given fig above.

1. **Excess Profit:** OP is the price at which the firm sell its OQ level of output. Where, E is the is the equilibrium point where

Marginal Cost is equal to Marginal Revenue (MR=MC) and where MC is increasing which fulfils the condition.
Now to determine the firm's level of profit we calculate:
Profit = TR-TC
Where, TR = P ×Q
Where, TR is the total revenue which a firm earns by selling the output, P, is the price per unit sold and Q is the quantity sold.
So, in the above fig,
TR = OP × OQ = OQEP.
TC = Q × Revenue/ Cost.
Where, TC is the total cost
TC = OQ × OQRS

Therefore,
Profit = TR – TC
= OQEP – OQRS
=SREP

Thus, the firm in the short run when the price is OP is at the equilibrium and earns SREP amount of profit which is the excess profit which is also called as super normal profit.

2. **Normal Profit:** the perfect competitive firm may also earn normal profit in the short run if he fails to earn the super normal profit. In the above fig 9.3 if the firm is in equilibrium at the point E1 where OP1 is the price and OQ1 is the level of output. The firm is at the position where he earns normal profit.
   Profit = TR – TC
   Where, TR = P ×Q
   = OP1 ×OQ1
   = OQ1E1P1
   TC = Q × Revenue/ Cost
   = OQ1 × E1P1
   = OQ1E1P1
   Therefore,
   Profit = TR – TC
   = OQ1E1P1 - OQ1E1P1
   = Normal Profit.
   Thus, the firm at price OP1 earns Normal profit.

Normal profit is the profit which a firm must get to survive into the business where he can produce the same level of output in future with the amount of revenue he earns. It is a situation of no profit no loss. If the firm unable to make a normal profit he may go into loss.

3. **Loss or Sub-normal profit:** when a firm fails to earn even normal profit and still continue to operate his business by incurring into loss. Such situation can be explained as flow:

The firm is equilibrium at the point E2 where OP2 is the market price and OQ2 is the level of output.

Profit = TR – TC

Where, TR = P ×Q

= OP2 × OQ2

= OQ2E2P2

TC = Q × Revenue/ Cost

= OQ2 × US

=OQ2US

Loss = P2E2US

4. **Shut down point:** When the firm not even able to earn variable cost he better tries to shut down his business or stops operating for that particular time.

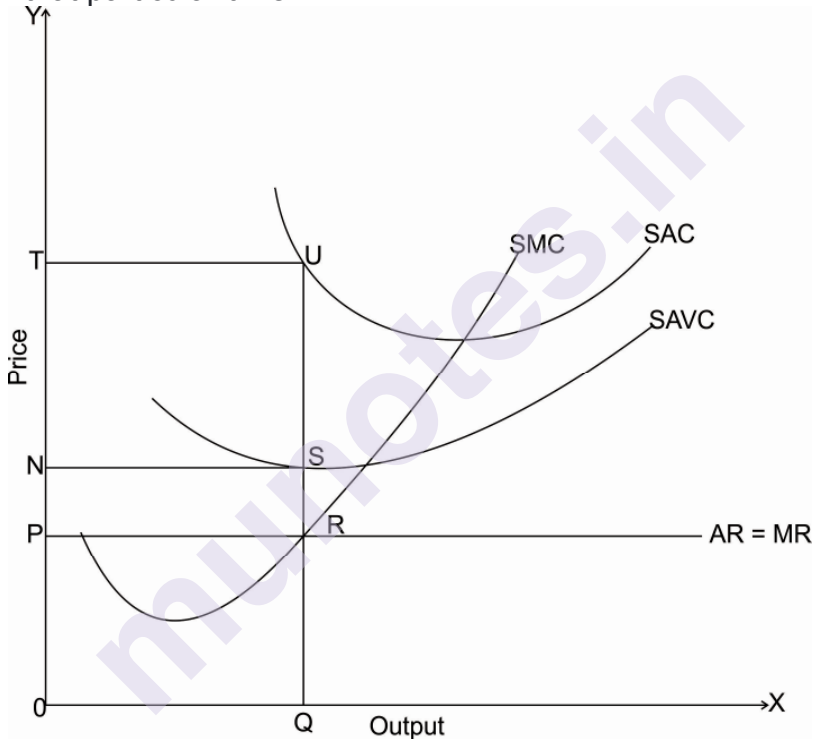


Diagram 4.4

In the above Diagram 9.4 when the price is OP, the firm produces the equilibrium level of output which is OQ at that price and at that volume of output the firm total revenue (TR) is OQRP and his Total Variable Cost (TVC) is OQSN so the loss which firm gets in terms of variable cost is PRSN. His total loss is PRUT of which PRSN is variable cost and NSUT is the fixed cost. At this time, it is better for a firm to either shut down his business or to wait for a time when the price goes up for his commodity where at least he can cover up his Total Variable Cost. It is because that variable cost enables the firm to operate in his business.

Check your Progress :

1) What do you mean by shut down point of firm?
2) What is normal profit?
3) What is super normal profit?
4) What is subnormal profit?

4.5 LONG RUN EQUILIBRIUM OF A FIRM

The long run is a period of time which is sufficiently long to allow the firms to make changes in all factors of production. Therefore, it is said that in the long run, all factors of production are variable and no factors are fixed. So in the long run the firms, can increase or decrease their output by changing their capital equipment; they may expand or contract their old plants or replace the old lower-capacity plants by the new higher-capacity plants or add new plants in the business or the firms can contract their output level by reducing their capital equip-ment; they may allow a part of the existing capital equipment to wear out without replacement or sell out a part of the capital equipment

Besides, in the long run, new firms can enter the industry to compete the existing firms. Moreover, the firms can leave the industry in the long run. The long-run equilibrium then refers to the situation when free and full adjustment in the capital equip-ment as well as in the number of firms has been allowed to take place. It is therefore long-run average and marginal cost curve which are relevant for deciding about equilibrium output in the long run. Moreover, in the long run, it is the average total cost which is of determining importance, since all costs are variable and none fixed.

As explained above, a firm is in equilibrium under perfect competition when marginal cost is equal to price i.e. MC = P. But for the firm to be in long-run equilibrium, besides marginal cost being equal to price, the price must also be equal to average cost (P = MC).

For, if the price is greater or less than the average cost, there will be tendency for the firms to enter or leave the industry. If the price is greater than the average cost, the firms will try to earn more than normal profits. These supernormal profits will attracts the new firms to enter into the industry.

With the entry of new firms in the industry, the price of the product will go down as a result of the increase in supply of output and also the cost will go up as a result of more intensive competition for factors of production will be generated. The firms will continue entering the industry until the price is equal to average cost so that all firms are earning only normal profits.

These can be explained with the help of the following Diagram 9.5 given below:

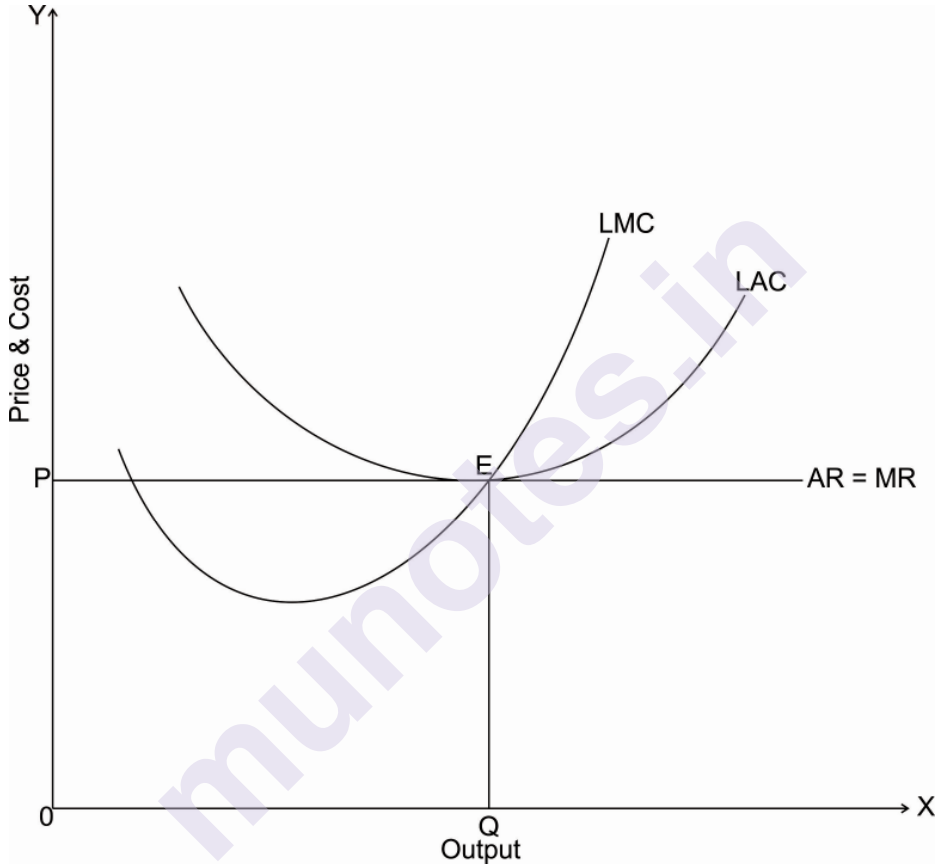


Diagram 4.5

Diagram 1.5 represents the equilibrium condition of firm under perfect competition. The firm in the long-run equilibrium is at a price OP and quantity of output is OQ where the equilibrium point is E. at the equilibrium point MR = MC. As said the firm earns normal profit in the long run so,

Profit = TR- TC

= OQEP – OQEP

Therefore, the firm earns normal profit in the long run where, P= AR= MR= AC= MC.

4.6 EQUILIBRIUM OF A FIRM AND INDUSTRY UNDER PERFECT COMPETITION

As we have already studied the equilibrium conditions of both firm and industry. A firm is in equilibrium when it has no tendency to change its level of output. It needs neither expansion nor contraction. It wants to earn maximum profits in by equating its marginal cost with its marginal revenue, i.e. MC = MR. An industry is in equilibrium only in the long run. The following Diagram 9.6 will explain the condition of the equilibrium of a firm and industry.

The MC curve must equal the MR curve (MC=MR). This is the first order and necessary condition. But this is not a sufficient condition which may be fulfilled yet that the firm may not be in equilibrium. The second order condition says that under perfect competition, The MC curve must cut the MR curve from below and after the point of equilibrium it must be above the MR. the MR curve of a firm coincides with the AR curve. The MR curve is horizontal to the X- axis. Therefore, the firm is in equilibrium when MC=MR=AR (Price).

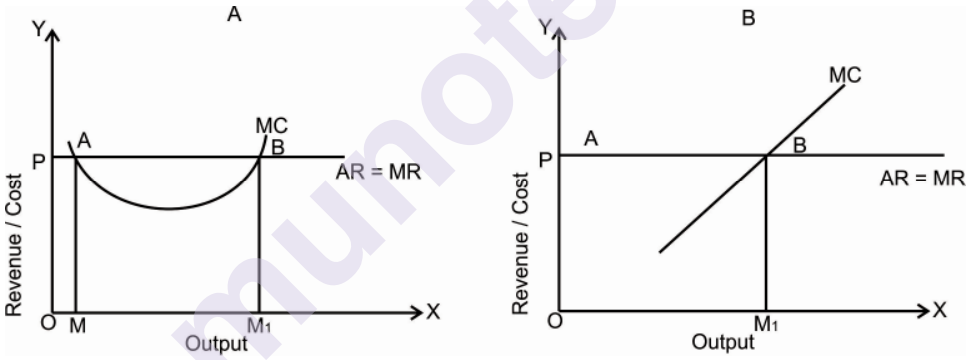


Diagram 4.6

In Diagram 9.6 (A), the MC curve cuts the MR curve first at point A. It satisfies the condition of MC = MR, but it is not a point of maximum profits because after point A, the MC curve is below the MR curve. It does not pay the firm to produce the minimum output OM when it can earn larger profits by producing beyond OM.

Point B is of maximum profits where both the conditions are satisfied. Between points A and B., it pays the firm to expand its output because it's MR > MC. It will, however, stop further production when it reaches the OM1 level of output where the firm satisfies both the conditions of equilibrium.

If it has any plans to produce more than OM1 it will be incurring losses, for its marginal cost exceeds its marginal revenue

beyond the equilibrium point B. The same conclusions hold good in the case of a straight-line MC curve as shown in Diagram 9.6. (B)

4.7 SUMMARY

In this unit we have discussed the perfect competition market in detail. The theory of perfect competition has originated in the late-19th century. The first laborious definition of perfect competition and resultant some of its main results was given by Léon Walras. Then later in the 1950s, the theory was further redefined by Kenneth Arrow and Gérard Debreu. But in reality, markets are never perfect. A perfectly competitive firm is also known as a price taker because the pressure of competing firms in the market forces other firms to accept the price prevailing in the market. If a firm in a perfectly competitive market try to raise the price of its product in the market it will lose all of its shares in the market. It has also discussed the features of perfect competition market in detail. The current unit also study the equilibrium of the firm under short run and long run market conditions.

4.8 QUESTIONS

1. What is perfect competition? Explain the features of it in detail.
2. Explain how a firm gets profit maximisation under perfect competition.
3. Explain the short run equilibrium of the firm under perfect competition.
4. Discuss the long run equilibrium of the firm under perfect competition.

5

MONOPOLY

Unit Structure :

5.0 OBJECTIVES

- To understand the meaning and features of monopoly market.
- To study the sources of monopoly power.
- To understand the equilibrium of a firm under monopoly market.

5.1 MEANING

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. Monopoly market is said to exist when one firm or a single firm is a sole producer or seller of a product in a market which has no close substitutes.

Prof. Bober rightly remarks, "The privilege of being the only seller of a product does not by itself make one a monopolist in the sense of possessing the power to set the price. As the one seller, he may be a king without crown"

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

A seller in a monopoly market is known as monopolist. A monopolist is a price maker not a price taker in the market where he is the only or a sole seller in the market, where he has control over it. A monopolist can control both the price as well as the supply of a commodity to earn profit. But it is said that if a firm is a rational monopolist, he will control only one at a time.

5.2 FEATURES OF MONOPOLY

The following are some features of monopoly market:

1. **Single Seller and Large Number of Buyers:** As said above monopoly market is run by a single seller known as monopolist. The monopolist's firm is the only firm in the market; it is an industry as well. But the number of buyers is assumed to be large.
2. **No Close Substitutes:** Another important feature of monopoly market is that there shall not be any close substitutes for the product sold by the monopolist in the market. The cross elasticity of demand between the product of the monopolist and others must be negligible or zero.
3. **Difficulty of Entry of New Firms:** There are either natural or artificial restrictions on the entry of firms into the monopoly market.
4. **Price Maker:** Under the monopoly market, the monopolist has the full control over the supply of the commodity. But due to large number of buyers, demand of any one buyer constitutes an infinitely small part of the total demand. Therefore, buyers have to pay the fixed amount of price fixed by the monopolist.
5. **No distinction between the firm and industry:** Under monopoly market firm being the single seller is the firm as well as industry. So there is no need to understand the firm and industry separately.

5.3 SOURCES OF MONOPOLY POWER

The monopoly has numerous factors which gives monopoly power to the monopolist.

1. Natural monopoly power: Some monopolist gets monopoly power naturally by the product they produce which is naturally available to them. A natural monopoly is a type of monopoly that exists due to the high start-up costs of conducting a business in a specific industry. A company with a natural monopoly might be the only provider or a product or service in an industry or geographic location in the whole market which gives him the monopoly power naturally. Natural monopolies are allowed when a single company can supply a product or service at a lower cost than any potential competitor in the market.

2. Product differentiation: The product which is being sold in the monopoly market is differentiated product which has no close substitute in the market. In a perfectly competitive market, every product is perfectly homogeneous and a perfect substitute for any other product in the market. With a monopoly, there is great to

absolute product differentiation in the sense that there is no available substitute for a monopolized good. The monopolist is the sole supplier of the commodity in the market.

3. Legal protection: Legal is an artificial power which a firm has to protect this product from various market competition and make a product unique or different. Legal protection is in the form of copy rights, patent rights, trade marks etc. which gives the firm the monopoly power and make his product different from the other product in the market.

4. Barriers to Entry: Barriers to entry are factors and circumstances that prevent entry into market by would-be competitors and limit new companies from operating and expanding within the market. Monopolies have relatively high barriers to entry due to its natural and artificial barriers. The barriers must be strong enough to prevent or discourage any potential competitor from entering into the market.

5. Control over the resources: As the firm is the only seller in the market, he has sole control over the resources which is use for production of the product. The source of control comes either from the natural or legal power.

5.4 EQUILIBRIUM OF A MONOPOLY FIRM

The Equilibrium condition of a firm under Monopoly is the same as those under perfect competition. Where the marginal cost (MC) is equal to the marginal revenue (MR) and the MC curve cuts the MR curve from below. We will understand Equilibrium of Monopolies in short run and in long run in detail.

Short run equilibrium condition: There are two possibilities for a firm's Equilibrium in Monopoly. These are:

The firm earns normal profits or excess profit – If the total cost < the total revenue

It incurs losses – If the total cost > the total revenue

Normal Profits or Excess Profit: At Excess profit the firm is in equilibrium at the point E where the Marginal Cost is equal to Marginal Revenue (MR = MC). At this equilibrium point OP is the Price and OQ is the level of Output. Firms profit is determined when,

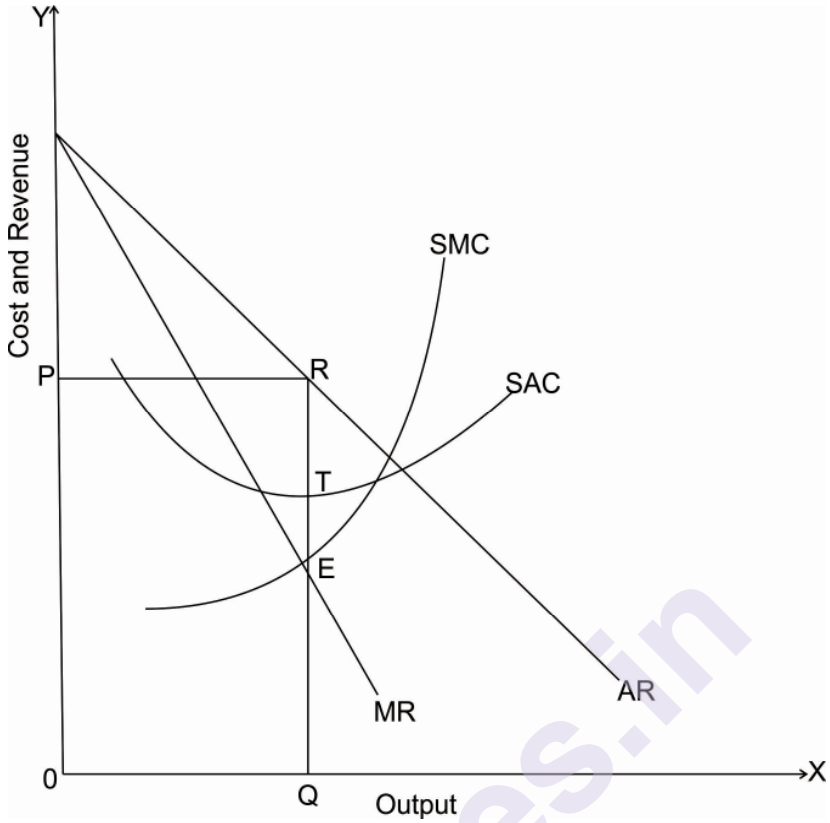


Diagram 4A.1

Profit = TR – TC
Where, TR = P ×Q
= OP × OQ
= OQRP
TC = Q × AC
= OQ × QT
= OQTS

Therefore, Profit = OQRP – OQTS
= STPR

Thus, the firm earns the excess profit. TR > TC

Loss condition: A firm under monopoly may also face a problem of getting loss. As in perfect competition even in monopoly the cost of the firm is divided into fixed cost and variable cost. It is essential for a firm to receive at least the variable cost to function in the market. The loss condition of a monopoly firm can be explained below with the help of the fig 1A.2.

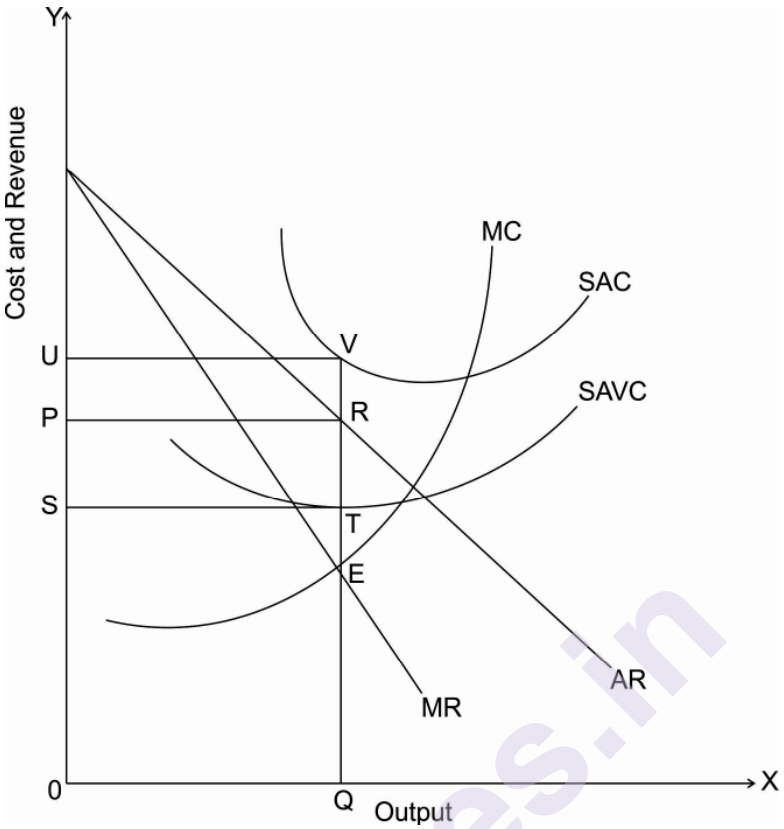


Diagram 4A.2

Profit = TR – TC
Where, TR = P × Q
= OP × OQ
= OQRP
TC = Q × AC
= OQ × VU
= OQVU

Therefore, Loss = OQRP – OQVU
= PRVU

Thus, the firm earns the excess profit. TR <TC

Long run equilibrium condition: In the long-run, a monopolist can contrast all the inputs. Therefore, to determine the equilibrium of the firm, we need only two cost curves – the AC and the MC. Further, since the monopolist exits the market if he is operating at a loss, the demand curve must be tangent to the AC curve or lie to the right and intersect.

A monopolist usually earns excess profit in the long run. This can be understood by the following fig 1A.3.

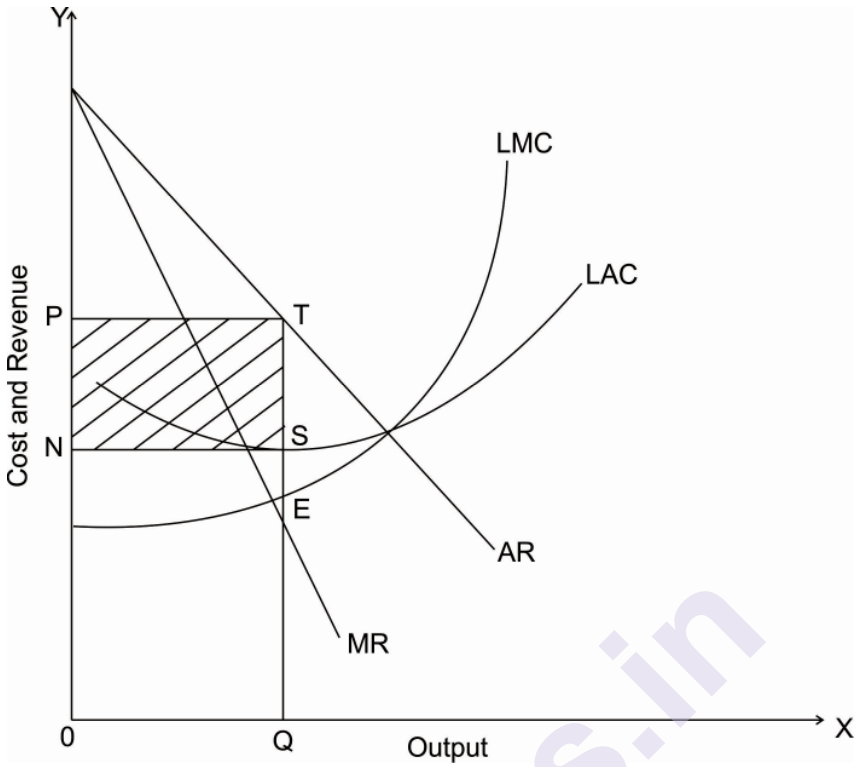


Diagram 4A.3

Profit = TR – TC
Where, TR = P × Q
= OP × OQ
= OQTP
TC = Q × AC
= OQ × QS
= OQSN

Therefore, Profit = OQTP – OQSN
= NSTP
Thus, the firm earns the excess profit. TR > TC in the long run.

Check your Progress :

1) Define Monopoly.
2) List out the sources of monopoly power.
3) List out the important features of monopoly market.

5.5 SUMMARY

This unit studies the monopoly market in detail. 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. Monopoly market is said to exist when one firm or a single firm is a sole producer or seller of a product in a market which has no close substitutes. The unit has also discussed the features and sources of monopoly. The unit has also discussed the equilibrium of monopoly firm during short run and long run.

5.6 QUESTIONS

1. What is monopoly? Explain the features of monopoly in detail.
2. Define monopoly. Discuss the various sources of monopoly power.
3. Explain the short run and klong run equilibrium of a monopoly firm in detail.

6

MONOPOLISTIC COMPETITION

Unit Structure :

6.0 OBJECTIVES

- To understand the characteristics features of monopolistic competition and study determination of price and output in the short run and in the long run
- To study the differences between perfect competition and monopolistic competition
- To understand the difference between selling and production cost and also to understand the importance of selling cost and its effects
- To understand how excess capacity is created under monopolistic competition
- To study the role of advertising along with advantages and disadvantages with real life examples

6.1 FEATURES OF MONOPOLISTIC COMPETITION

Perfectly competitive market and monopoly market are extreme and therefore not easy to find in real world.

In the real world the market that we find either have many sellers selling variety of products (such as toothpaste, textile or cloth market) called monopolistic competition. Or few sellers having dominant position in the market (such as airlines, mineral water) called oligopoly market.

Monopolistically competitive market is the market which has some characteristics of perfect competition and some of monopoly. Even though there are many sellers under monopolistic competition, each seller has its monopoly but still there is a competition due to product differentiation. Prof. Edward Chamberlin introduced the concept of monopolistic competition in his book Theory of Monopolistic Competition.

Features of monopolistic competition

- **Fairly large number of sellers-** In monopolistic competition there are many sellers. Therefore an individual seller cannot influence the market. Every seller to a certain extent follow an independent policy in price and output.
- **Fairly large number of buyers-** There are fairly large number of buyers in a monopolistically competitive market.
- **Close substitute products-** Under monopolistic competition sellers sold products which are close substitutes of each other. For eg. Soaps, pens etc.
- **Free entry and exit-** There are no restrictions on entry and exit of the firm under monopolistic competition. If existing firms are making supernormal profit, new firms can enter in to the market but they have to enter with a close substitute product. Similarly firms who are making loss can leave the market. Therefore in the long run firm who remains in the market will make only normal profit.
- **Selling cost-** As close substitute products are available in monopolistic competition, firms have to spend money for increasing sale of their product in the market. This cost is called as selling cost. It includes all expenditures of the firm which can increase their sale. It is in the form of T.V, newspaper advertisement, hoardings, exhibitions, distribution of free samples, discounts offered on products etc.
- **Product differentiation-** As goods are close substitutes of each other, it is necessary to have an independent identity of each product. Variety of factors on which goods can be differentiated are brand name, design, size, color, packing, taste, advertisement policy, after sales services etc. Due to product differentiation, firm can have some degree of monopoly.
- **Nature of demand curve-** The demand curve of a monopolistically competitive firm is more elastic. ie demand curve is flatter than it is under monopoly. This is because of the availability of close substitute products, where an increase in price of one commodity reduces its sale by a greater amount. Following diagram explains the shape of demand curve under monopolistic competition.

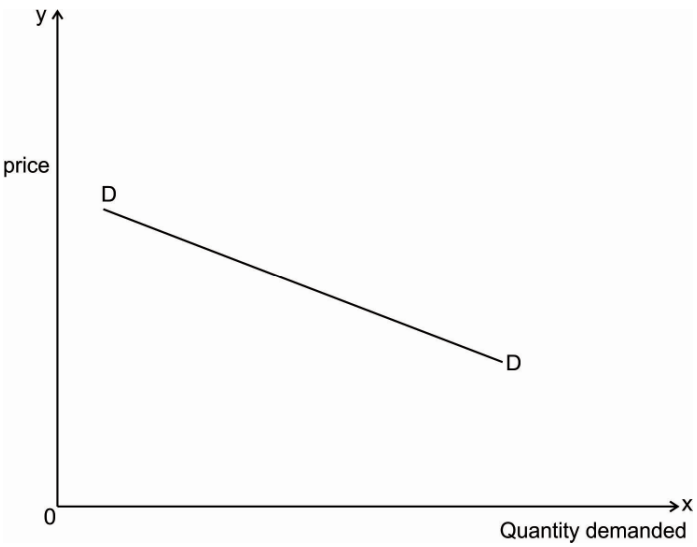


Diagram 5.1

- **Concept of group-** Prof. E. Chamberlin introduced the concept of group under monopolistic competition. Group includes those products which are close substitutes in economic and technical sense. The group will be in equilibrium in the long run when all firms in the group make normal profit.

Product differentiation

Product differentiation is one of the characteristics of monopolistic competition. Products are close substitutes of each other due to small differences in them. In case of products like soaps, garments, tooth paste etc. variety of products are available but each product is different from another due to following factors.

- **Brand name-** Brand name develops loyalty of public towards the product. Firms name itself is the name of its product. Raymond cloth, LG TV, Colgate toothpastes are some of the examples of branded products. Brand name helps to differentiate between the products.
- **Design-** On the basis of design products can be differentiated. Fridge, cars, furniture are some of the products which are purchased on the basis of design.
- **Size-** Firm produces their product in different sizes so that consumers can consume their most preferred size. Various sizes of product include economy size, family size, extra-large etc.
- **Color-** Customers would like to purchase various products on the basis of their color. Products like fridge, cupboard, tooth brush etc. are consumed on the basis of their color.
- **Taste and perfume-** Products like soaps, toothpaste, face powder, shampoo etc. are purchased on the basis of their taste and perfume.

- **Salesmanship-** People prefer products of a particular company because of the positive attitude of the salesman, their good behavior, their cooperation etc.
- **After sales services-** Customers consider after sales services while consuming a product. This is because products like TV, fridge, water purifier have a warranty period during which company provide free services to their customers. Thus the quality of after sales services is very important.

Due to above factors consumers have some loyalty to their products. Loyalty towards product gives some degree of monopoly to the firm. Product differentiation allows firms to charge different prices for their products. Under monopolistic competition it is necessary for the firm to maintain monopoly power over loyal customers.

6.2 EQUILIBRIUM OF A FIRM UNDER MONOPOLISTIC COMPETITION IN THE SHORT RUN AND IN THE LONG RUN

Short run equilibrium of a firm under monopolistic competition:

Monopolistically competitive firm can operate with supernormal profit, normal profit or loss in the short run. Following diagrams explains all the three cases.

- **Excess profit**

Given the demand curve and cost curves of a firm, firm would produce profit maximizing level of output at that point where MR=MC. This is the equilibrium level of output for the firm.

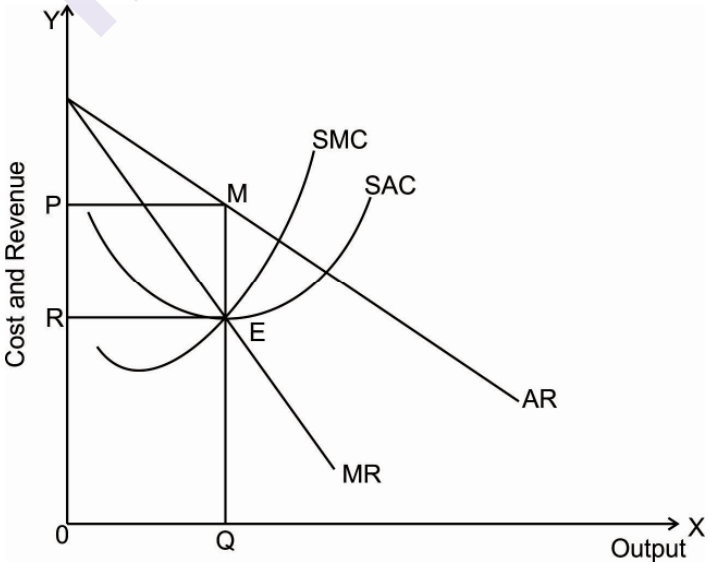


Diagram 5.2

On the X axis we measure output and on the Y axis we measure cost and revenue. AR and MR are the average and marginal revenue curves which are more elastic or flatter. SAC and SMC are the short run average and marginal cost curves. Firms equilibrium point is E and equilibrium level of output is OQ. Thus the price determined is OP or QM.
In the above diagram with price OP and output OQ, TR= OQMP, TC=OQER. As TR>TC, Excess profit = REMP (OQMP-OQER)

- **Normal profit**

Condition for normal profit is very rare. Due to change in demand and cost conditions, sometimes it is possible for the firm to just cover its cost of production ie the case of normal profit.

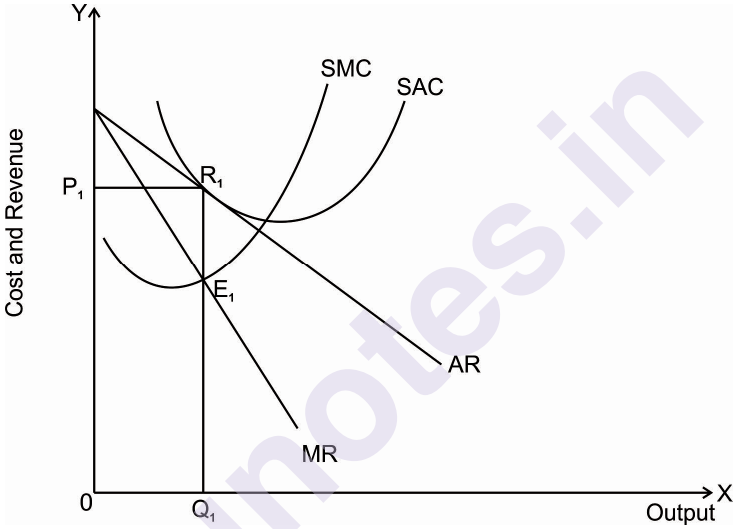


Diagram 5.3

With given revenue and cost curves firm is in equilibrium at point E1, with the intersection of MR and MC curves. Output= OQ1, Price= OP1, TR= $OQ_1R_1P_1$
TC= $OQ_1R_1P_1$. As TR=TC, the firm will make normal profit.

- **Loss**

Due to demand and cost conditions it is also possible that firm may operate with loss. With the help of following diagram we can explain the case of loss.

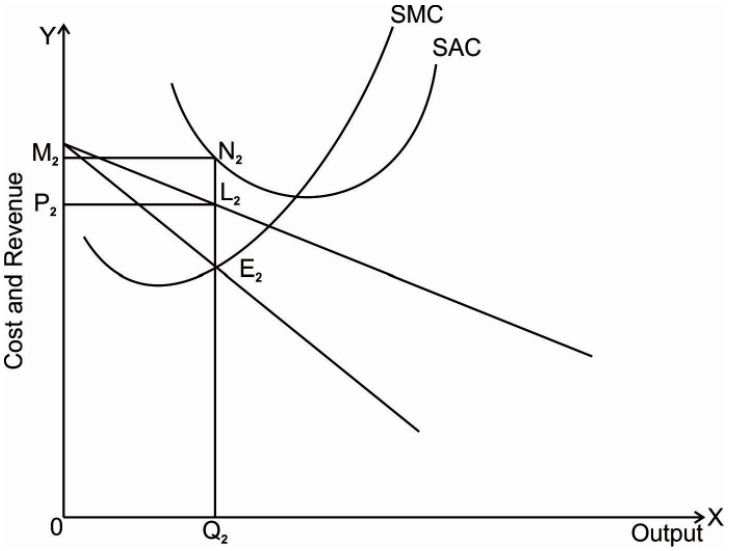


Diagram 5.4

With given revenue and cost curves, firm is in equilibrium at point at point E2, where MR and MC curves intersects.

Equilibrium output= OQ2 and equilibrium price = OP2. TR= $OQ_2L_2P_2$, TC=$OQ_2N_2M_2$. As TC>TR, firm will make loss. Loss= P2L2N2M2

In the short run when the firm incurs loss, it has to decide whether to continue with the business or not. As long as the firm is able to cover its total variable cost, it will continue with the business and when TR<TVC, firm should stop its operations.

Long run equilibrium of a firm under monopolistic competition:

In the long run it is possible for the firm to make all necessary changes in its fixed factors of production. As all costs are variable, firm cannot continue to operate with loss. As there is free entry and free exit, due to supernormal profits earned by the existing firms, more firms will enter the market and firms which cannot cover the cost of production will leave the market. More firms who are entering the market reduces the share of existing firms and therefore in the long run all firms will make only normal profit. The case of normal profit can be discussed with the help of following diagram.

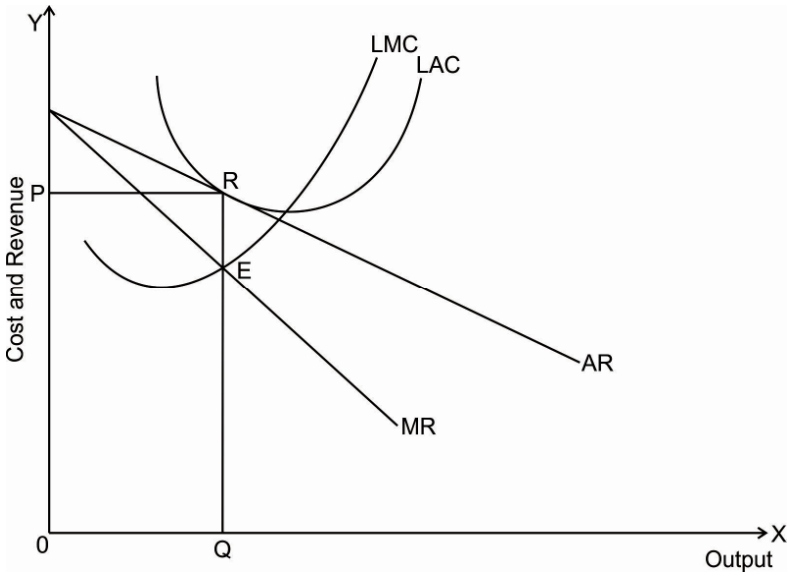


Diagram 2.5

With given revenue and cost curves, equilibrium point is E where MR and MC curves intersects. Equilibrium output= OQ, price= OP TR= OQRP TC= OQRP. As TR=TC, there is a normal profit.

6.3 PRODUCTION COST AND SELLING COST

Production cost includes all those expenditures incurred by the firm to produce a commodity and to reach to shops. It includes rent on land, wages and salaries paid to workers, interest on capital. Depreciation charges, taxes etc. The objective of production cost is to produce a commodity.

On the other hand the purpose of selling cost is to increase the sale of its product in the market. Due to the availability of substitutes, selling cost is very important for the firm under monopolistic competition. Through selling cost firms try to spread the message regarding how their product is better than the other products available in the market.

Selling costs are incurred in various forms like T.V advertisement, newspaper advertisement, pamphlets, hoardings, distribution of free samples, gifts, discounts offered on products, exhibitions, after sales services etc.

The concept of production and selling cost can be explained with the help of following diagram.

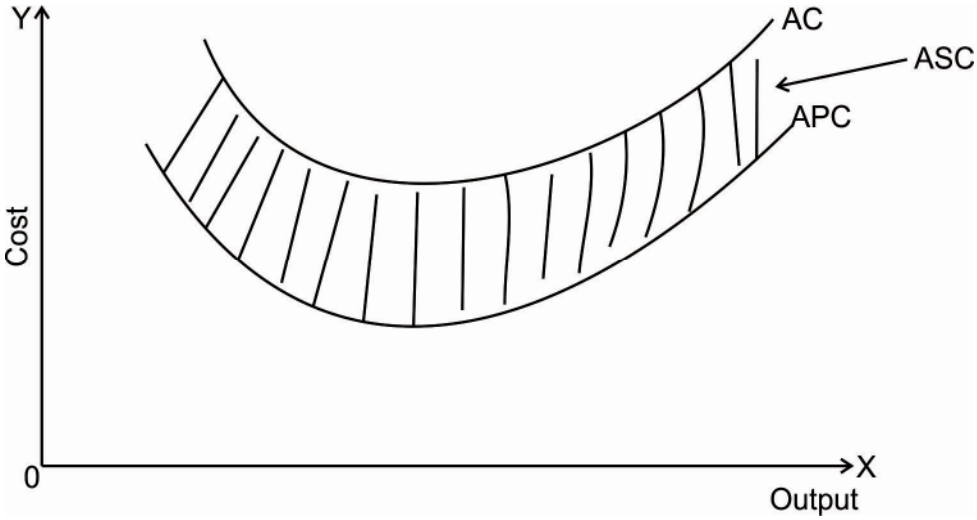


Diagram 5.6

As shown in the diagram, the difference between Average Cost (AC) and Average Production Cost (APC) is the Average Selling Cost (ASC).

Selling cost:

Selling cost is one of the important features of monopolistic competition. Under perfect competition, as there are homogeneous goods there is no need for selling cost. Similarly under monopoly due to the absence of substitute products, selling cost is not required. But in case of monopolistic competition as close substitute products are available, firm has to incur selling cost. Thus the cost incurred by the firm to promote their product in the market or to increase the demand for the product in the market is called the selling cost. Various forms of incurring selling cost are as follows-

- **Advertising**- this is the main form of selling cost. Through advertisement the firm is trying to show how their product is superior to other products that are available in the market. Advertisement can be through T.V, radio, newspaper, hoardings, distribution of pamphlets etc.
- **Exhibitions**- exhibitions can be held at local, state, national and an international level. The purpose of exhibition is to increase the sale of the product.
- **Window dressing**- various products like garments, electronic items, and other consumer durables are displayed to the consumers to provide some idea about the product and also to attract the consumers.
- **Free samples**- in case of goods like soaps, tea, biscuits, oil, hand wash etc. Companies distribute free samples to attract the large number of customers.

- **Gifts**- various gifts are offered by the companies on purchase of a specific amount.
- **Discounts**- another way of attracting large number of customers is to offer them large discounts. Once the market for the product is established, the discount may be withdrawn.
- **After sales services**- good after sales services play an important role in gaining goodwill of the customers. Along with better after sales services, warranty period, relation with customers etc. are also important to have greater sale of their product in the market.

Effects of selling cost

Selling cost affects the consumers demand. It makes people aware of the existing commodity and also inform them how their product is better than substitutes available in the market. Effect of selling cost on demand can be explained with the help of following diagrams.

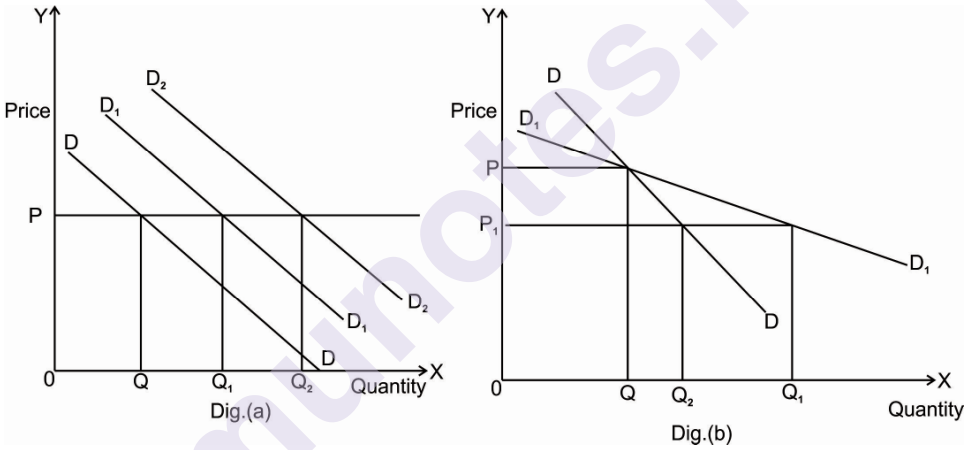


Diagram 5.7

In the above diagrams X axis measures quantity demanded and Y axis measures price. In the first diagram DD is the initial demand curve with price OP and output OQ. Due to selling cost demand curve shifts to the right to D_1D_1 and further to D_2D_2. The producer is able to sell more quantity OQ_1 and OQ_2 at the same price OP.

Second diagram shows that DD is the original demand curve without selling cost with price OP and quantity OQ. If selling cost is incurred, demand curve will become more elastic. ie D1D1. If firm reduces price to OP1, its demand will increase to OQ2. But at the same time firm incurs the selling cost, it will be able to sell more i.e. OQ_1 at price OP_1.

Effect of selling cost on profit

Effect of selling cost on profit can be explained with the help of following diagram

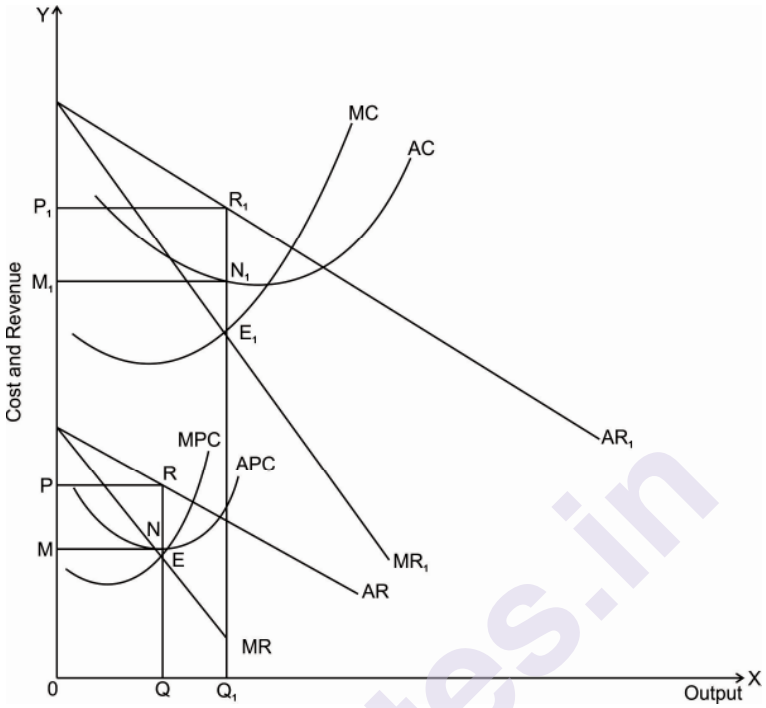


Diagram 5.8

In the above diagram X axis represents output and Y axis represents cost and revenue. If we consider a case without selling cost, AR and MR are the downward sloping curves starting at a lower side of Y axis. APC and MPC are the average and marginal production curves. Initial equilibrium point is E where MPC curve and MR curves intersect. Equilibrium output= OQ and price = OP, TR = OQRP, TC = OQNM as TR>TC, profit = MNRP.

If the firm incur selling cost, demand for goods will increase and therefore AR curve shifts upward to AR_1. Correspondingly MR curve will also shift to MR_1. Adding selling cost in production cost we have the average and marginal cost curves. New equilibrium point is E1. Output = OQ_1, price = OP_1, TR = $OQ_1R_1P_1$, TC = $OQ_1N_1M_1$. TR>TC, therefore profit = $M_1N_1R_1P_1$.

This shows that due to selling cost demand for commodity increases from OQ to OQ1. An increase in demand raises the price from OP to OP1. And therefore profit after selling cost is also greater than the level of profit before selling cost. $MNRP < M_1N_1R_1P_1$

6.4. ROLE OF ADVERTISEMENT

Due to the availability of close substitute products, advertisement or selling cost plays an important role under monopolistic competition. These advertisements are undertaken

through exhibitions, T.V, hoardings, discounts, distribution of free samples etc. The purpose of selling cost is to increase the sale of commodity in the market. It also encourages competition among the firms producing close substitute products.

There are many advertisements which gives an information about the availability of various products in the market and also inform them about quality and uses of the product. Advertisement also specifies the benefits of using a particular product. Such advertisements are called informative or educative advertisement. On the other hand there are some advertisements who distort consumer's preferences by misleading them to purchase certain commodities. Such advertisements are called manipulative or competitive advertisement.

There are debates over its role which is discussed as follows-

Arguments for advertisement or benefits of advertisement:

- Advertisement creates awareness amongst the consumers about the availability of various products, their advantages and disadvantages, price of the product etc.
- Advertisement generally increases the demand for the product and thereby increases the level of investment and employment.
- Successful advertisement which leads to increase in demand will lead to increase in production of the firm and thereby greater benefits of economies of scale.
- Advertisement directly provides information to the consumers and thus eliminates middlemen.
- If the advertisement is genuine and people are happy with the quality of the product, firms will succeed in building a brand loyalty among the consumers.

Arguments against advertisement or disadvantages of advertisement:

- Advertisement creates temptation to spend money on those goods which are sometimes not required.
- In order to attract consumers, sometimes producer explains false qualities of their product where the consumers do not have any source of verifying. In this way advertisement misleads the consumers.
- Advertising costs are added to the production cost of the firm and therefore price of the product will also be high.
- Advertising cost leads to psychological dissatisfaction to many poor people for whom it is not affordable to consume advertised product.

- If an advertisement is not successful in increasing demand for a product, advertisement expenditure will be considered as wastage.
- Posters on wall for advertisement spoils the beauty of specific areas.
- Due to attractive advertisement many people consume food items (junk food) in large quantity.
- Advertisements by the financial institutions offering loans at a concessional rate for consumption of specific goods divert peoples mind to consume such goods. But at the time of repayment of loan if they face some problem, it leads to stress, family problems etc.
- In most of the advertisements female models are shown. In some cases there is an exploitation of these models.

Check your Progress :

1) Suppose there are fairly large numbers of a firm producing detergent powder. Each firm spends huge amount of money on advertisement to increase the sale of their product in the market. Identify the market structure for the detergent powder.
2) Explain the role of advertisement.
3) If you want to sale of your product under the monopolistically competitive market, there is a need of selling cost. Justify your answer.

6.5 WASTAGES UNDER MONOPOLISTIC COMPETITION

There are different types of wastages under monopolistic competition. These are discussed below.

1. **Excess capacity**- Excess capacity is created under monopolistic competition the equilibrium of a firm under monopolistic competition is attained at a less than optimum level of output. This means that the resources are not fully utilized and therefore this underutilization of existing capacity leads to excess capacity. Following diagram explains the case of excess capacity.

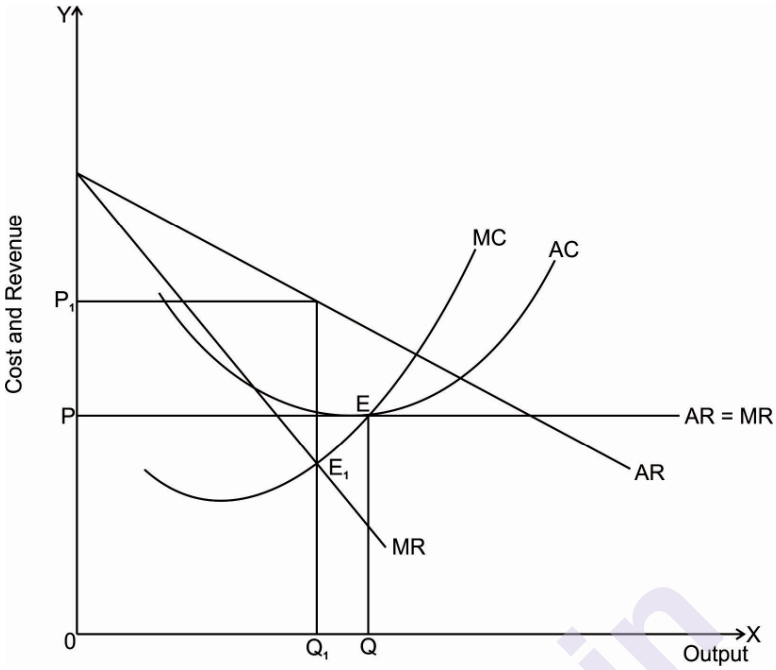


Diagram 5.9

In the above diagram horizontal AR and MR curve indicates perfect competition and downward sloping AR and MR curves indicates monopolistic competition. It is clear from the diagram that equilibrium under perfect competition is attained at point E with price OP and output OQ. Whereas equilibrium under monopolistic competition is attained at point E1, with price OP1 and output OQ1. This shoes that firm under perfect competition produces optimum level of output (OQ) with minimum cost and thus charges lower price (OP). On the other hand under monopolistic competition produces less than optimum level of output (OQ1) and sells at a higher price (OP1). As firm produces less than optimum level of output, Q1Q capacity of the form is unused. This is the excess capacity of the firm under monopolistic competition.

- As there is underutilization of a capacity, it leads to the problem of unemployment.
- If the firm is not successful in increasing demand for their product in the market, all firms expenditure in the form of selling cost will be a wastage.
- Heavy expenditure on advertisement will increase the prices of goods and services and therefore there is an exploitation of the consumers.

2. **Unemployment-** as the production capacity of a firm is not fully utilized under monopolistic competition, the problem of unemployment occurs in case of monopolistic competition.

3. **Exploitation of the consumer-** Due to product differentiation, firm has to incur selling cost under monopolistic competition. Therefore the consumers have to pay higher price for the product and this leads to exploitation of the consumers.

4. **Selling cost-**Under monopolistic competition firm undertakes huge expenditure on advertising their product in order to increase the sale of their product in the market. If the firm is not successful in increasing the sale of their product in the market, this expenditure is considered as the wasteful expenditure.

5. **Lack of specialization-** as there are many firms, producing close substitute products, there is a very little scope for specialization. Thus the advantages of large scale production are not possible.

6.6 SUMMARY

This unit studies the monopolistically competitive market. It includes the features of monopolistic competition. The concept of monopolistic competition was introduced by professor chambertin. Monopolistic competition is a more realistic market structure in which we live. This unit discusses the equilibrium of a firm in the short run and in the long run. It concentrates on product differentiation and also explains the factors that leads to product differentiation.

This unit explains selling cost as an important feature of monopolistic competition. It shows the effects of selling cost on demand for a commodity and profit of the firm with the help of diagrams. It also explains excess capacity and wastages under monopolistic competition.

6.7 QUESTIONS

1. Discuss the features of monopolistic competition.
2. Write a note on product differentiation.
3. Explain the short run equilibrium of a firm under monopolistic competition.
4. Discuss the long run equilibrium of a firm under monopolistic competition.
5. Bring out distinguish between production cost and selling cost.
6. What are the various forms of selling cost.
7. Explain with the help of diagram effects of selling cost.
8. Discuss the effect of selling cost on profit.
9. Discuss the role of advertising.
10. What are the arguments for and against advertising.
11. Write a note on wastages under monopolistic competition.

7

OLIGOPOLISTIC MARKET

Unit Structure :

7.0 OBJECTIVES

- To understand the features of oligopoly
- To understand the difference between collusive and non-collusive oligopoly models
- To understand the types of collusions
- To understand the price leadership, its types and limitations.

7.1 OLIGOPOLY MARKET CAN BE WELL UNDERSTOOD WITH THE HELP OF FOLLOWING CHARACTERISTICS-

- **Few sellers-** In case of oligopoly market there are few sellers. The number of sellers is not more than 10. In case if there are more than ten sellers, few sellers are dominant and others are insignificant.
- **Homogeneous or differentiated products**- goods which are sold under oligopoly are either homogeneous or differentiated. Differentiation is in the form of brand name, design, color etc.
- **Entry is possible but difficult-** In case of oligopoly a new firm can enter the market but in reality, it is difficult because of the technological, financial and other barriers
- **Interdependence-** as there are few firms under oligopoly, a single firm is not in a position to take any decision about price and output independently. Any decision taken by one firm has the reactions from the rival firms or competitive firms. Different firms will have different decisions. Thus the firms are interdependent. Therefore it is necessary for the firm to take in to consideration the possible reactions of the rival firms.
- **Uncertainty-** as the firms are interdependent for deciding the price and output, it creates the atmosphere of uncertainty. If one

seller increases his output to capture large share of the market, others will react in the same way. If one seller increases the price of his product, others will not follow him due to the fear of losing the market. On the other hand if one seller reduces the price, others will also reduce their prices. But how much price reduction they will do is uncertain. This means that an oligopolist is uncertain about the reactions of the competitive firms.

- **Indeterminateness of the demand curve**- in case of perfect competition price is determined in the market with demand and supply factors and the firm is a price taker therefore demand curve of the firm is perfectly elastic (parallel to x axis). In case of monopoly a single seller decides the price for his commodity and accordingly sells his output. Thus the demand curve of the monopolist slopes downward. And the demand curve is steeper as the substitute products are not available. Under monopolistic competition as close substitute products are available, demand curve is downward sloping and more elastic or flatter. This means that under perfect competition, monopoly and monopolistic competition there is a definite shape of the demand curve.

In case of oligopoly due to interdependence of firms and the uncertainty aspect

Demand curve do not have a definite shape. It loses its determinateness.

The demand curve under oligopoly is kinky as shown in the following diagram.

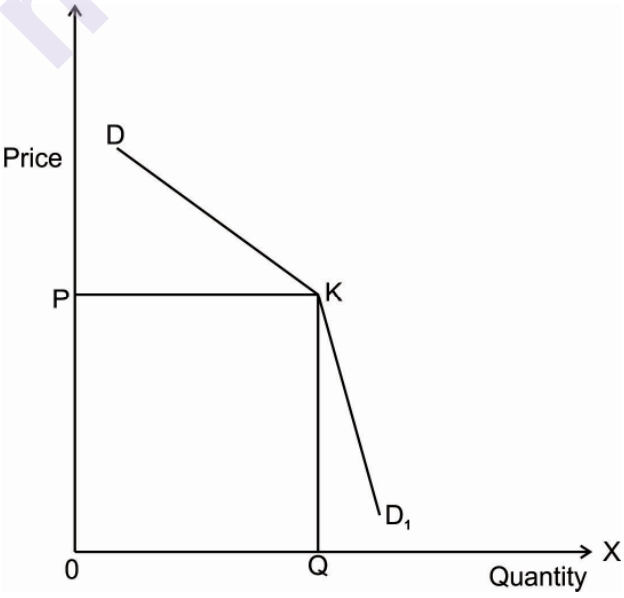


Diagram 5A.1

Check your Progress :

1) Suppose there are two firms which are interdependent on each other for taking any decision related to price and output. There is also and uncertainty in the market. Identify the market structure.
2) Give few examples of firms operating under Oligopoly.

7.2 COLLUSIVE AND NON- COLLUSIVE OLIGOPOLY

The oligopoly market faces the problem of price determination because of the continuous reactions of the rival firms. Due to differentiate products, competition in the oligopoly market is also high. An oligopoly can be collusive or non -collusive.

Non collusive oligopoly

In case of non- collusive oligopoly, firms behave independently, even though they are interdependent. interdependence of the firm leads to stiff competition among the rivals. In this case the behavior of the Seller depends on how he thinks his competitors will react to his decision making. In case of non- collusive oligopoly firm while deciding price for its product assumes that rival firms will keep their price and output constant and will not react to any change in price and output introduced by the firm. A very good example of non -collusive oligopoly is sweezy's kinked demand curve model.

Collusive oligopoly- collusive oligopoly prevails when the firms working under oligopoly market enter into an agreement regarding uniform price and output policy to avoid uncertainty arising due to interdependence of the firm and to avoid high level of competition.

The agreement may be either formal (open) or tacit (secret). As the open agreement to form monopolies are illegal in most of the countries agreements between the oligopolists are tacit.

Collusions are of two types:

- a. Cartel and b. price leadership

In case of collusive oligopoly, price fixing takes place when all firms in the market try to control supply, to achieve a monopoly

like situation. In this type of oligopoly, firms aim at maximizing collective profit rather than individual profit.

Collusive and non- collusive models are discussed below.

Price rigidity- kinked demand curve model (non- collusive oligopoly model)

Kinky demand curve model or kinked demand curve hypothesis was given by an American economist Paul M. Sweezy and Oxford economist Hall and Hitch.

Interdependence and uncertainty aspect of oligopoly leads to indeterminateness of the demand curve. In case of oligopoly price is rigid or inflexible because oligopolists are not interested in changing their price even though economic conditions undergo a change.

In order to explain price and output determination under oligopoly with product differentiation economists often used kinked demand curve model. This model is explained by taking an example of extremely limited case of oligopoly i.e. Duopoly, where there are only two firms. Therefore there are two demand curves as shown in the following diagram.

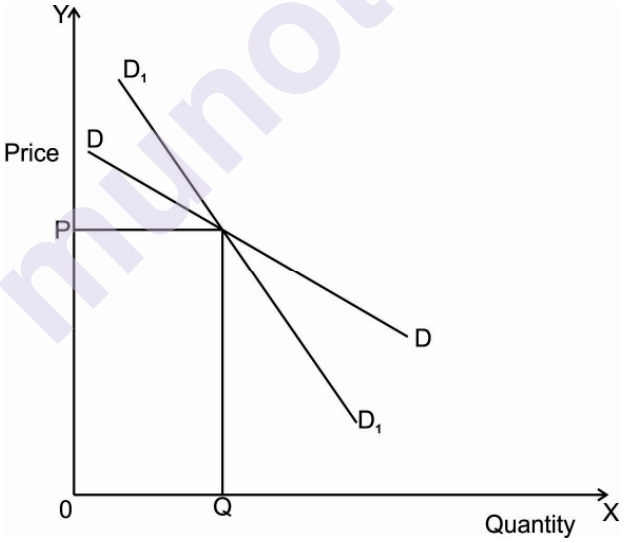


Diagram 5A.2

As shown in Diagram 5A.2 above there are two demand curves DD of firm A and D1D1 of firm B. Demand curve DD is more elastic where as demand curve D_1D_1 is less elastic. These two demand curves intersect at point K. Thus the prevailing price is OP and quantity is OQ. As shown in the diagram the demand curve faced by an oligopolist is DKD_1. This demand curve has a kink at point K because the upper segment of demand curve (segment DK is more elastic) and the lower segment of the demand

curve (segment KD_1) is less elastic. This difference in elasticities is because of the reactions of the competitive firms.

An oligopolists believes that if he reduces the price below prevailing price, his competitors will also reduce their prices and if he increases the price above prevailing price, his competitors will not increase their prices.

- **Increase in price-** If an oligopolistic increases the price above prevailing price his competitors will not increase their price. Therefore, demand for his goods will fall substantially. This is because due to increase in price his customers will go to his competitors who have not increased their prices. Due to this the demand curve above prevailing price is more elastic.

- **Reduction in price-** If an oligopolistic reduces the price below prevailing price, his competitors will follow him and also reduce their prices due to the fear of losing their customers. Due to quick reactions of the oligopolists, whoever reduces the price, demand for his goods increases by a very little amount. Therefore the demand curve below prevailing price is less elastic.

Therefore DKD_1 is the kinked demand curve under oligopoly. Due to differences in elasticity, a demand curve has a kink at point K. Thus the demand curve under oligopoly is called kinky demand curve.

Rigid price- With an increase in price, there is a fear of losing the market and there is a very little benefit by reducing the price. Therefore an oligopolist is not interested in changing their price. Thus price remains rigid or sticky under oligopoly.

Equilibrium of a firm

Equilibrium of a firm occurs when MR= MC. In case of oligopoly the demand curve or the average revenue curve has a kink at a particular prevailing price. Therefore the MR curve of the firm has a discontinuous portion as shown in the following diagram.

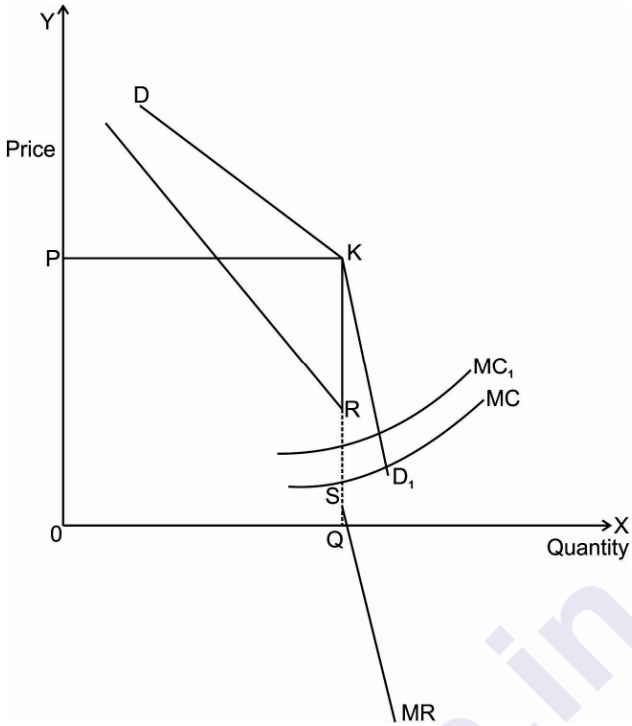


Diagram 5A.3

In the above diagram DKD_1 is the kinked demand curve under oligopoly. The demand curve has the kink at point K. Therefore MR curve which lies half way between AR curve and Y-axis has a discontinuous portion RS. MR curve is discontinuous because of the Kink to the demand curve. Discontinuous portion of the MR curve depends on the difference in elasticities. Larger is the difference in elasticities, longer will be the discontinuous portion of the MR curve. MC is the marginal cost curve which passes through discontinuous portion of the MR curve. Equilibrium of the oligopoly form is achieved at a point where MR=MC. Therefore equilibrium output is OQ and price is QK or OP. If MC increases or decreases, there will be upward or downward Movement in the marginal cost curve over the discontinuous portion of the MR curve. This will keep price and output level constant at OP and OQ respectively.

Therefore the price remains rigid. If an oligopolistic increases price over DK portion of the kinked demand curve, the Rivals will not follow due to the fear of losing the market. Due to this oligopolists will not increase price above OP. Similarly, no oligopolist is interested in reducing the price because in this case due to the continuous reactions of the rivals, demand increases by a very small amount. Thus the demand curve is inelastic.

Collusive oligopoly models:

In case of oligopoly there is interdependence of the firms and there is also, uncertainty. In order to avoid uncertainty arising out of interdependence, firms generally enter into an agreement to follow a uniform price and output policy. This type of agreement

helps firms to avoid price wars and also stiff competition. The agreement may be either formal (open) or tacit (secret). Open agreements are illegal in most of the countries. Thus, the agreements to form monopolies are in the form of tacit agreements. This type of oligopoly is called collusive oligopoly. OPEC (Organization of Petroleum Exporting Countries) is the best example of this type of oligopoly. There are two types of collusions. They are- a. cartel and b. price leadership Cartel- Cartel is an agreement among the competitive firms to earn higher profits. Cartels are formed in oligopoly market where the number of sellers is few and they are selling homogeneous or differentiated products. In this agreement, the member firms may agree on price fixing, market share division of profits etc. The cartels are of two types - centralized cartel and market sharing cartel. In case of centralized cartel there is a common Sales Agency which alone undertakes the selling operations for all the forms who are party to the agreement. Here the Central Administrative agency decides the product price, distribution of output, profit sharing for all the firms. All firms agree to surrender their rights to Central Administrative Agency for earning maximum joint profits. This is known as perfect cartel. Agreement under centralized cartel can be discussed with the help of following diagram.

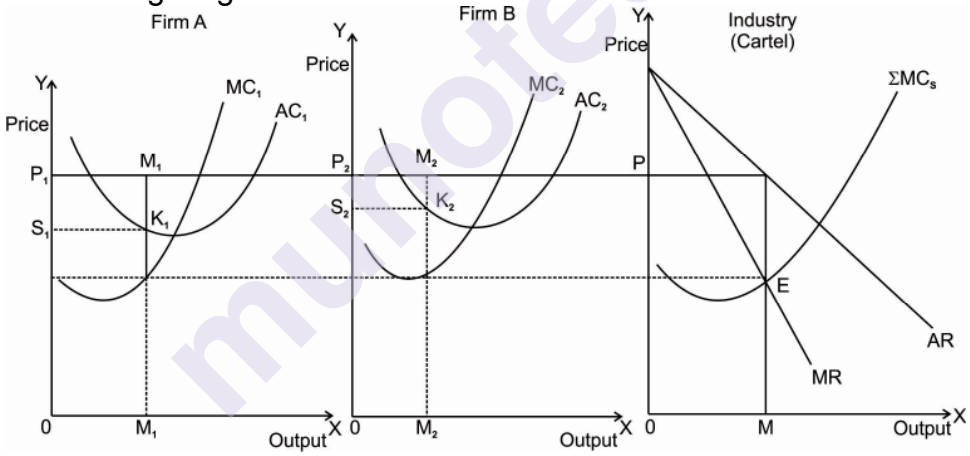


Diagram 5A.4

In the about figure first two diagrams shows the case of two firms A and Band third diagram explains the case of industry. Formation of cartel leads to Monopoly power and therefore AR and MR of industry are downward sloping. As shown in figure 3, summation MC is the marginal cost curve for an industry, which is being derived by adding horizontally the marginal cost of curves of two firms MC1 and MC2. Total industries output is produced at a point where summation MC= MR. Therefore, total output is OM and the market price is OP. This is the price set by the centralized authority.

Firm A sells OM_1 output and Firm B cells OM_2 output. OM1+OM2=OM. Market price is charged by both the firms.

therefore, price of firm A is OP1 and price of firm B is OP 2. Profit for firm A is $S_1K_1M_1P_1$and profit for firm B is $S_2K_2M_2P_2$. This shows that firm A produces and sells greater quantity as compared to firm B and thus makes higher profits.

A type of cartel discussed above is very rare. In the real world we generally have loose type of cartel. Here we have two types of market sharing. They are-

a. Market sharing by non- price competition and
b. Market sharing by output quota

a. Market sharing by non- price competition- In case of oligopoly, due to interdependence of firms and uncertainty, price is rigid i.e. firms follow a particular price and there is no tendency either to increase or to reduce the price. At a uniform price firms are free to produce and sell that level of output which will maximize their profits. Here even though the firms are following same price they are free to change the style of their product, style of advertising the product, additional facilities or discounts may be given. If all member firms have identical cost, they will be agreeing to uniform monopoly price and this price will maximize their joint profits. But if their costs are different, cartel price will be decided by the bargaining between the firms. If low cost firms are interested in charging lower price cartel may break away.

b. Market sharing buy output quota- In this case an oligopoly firm enters in to an agreement regarding quota of output to be produced and sold by each of the firm at a particular agreed price.

If the cost of production is same for all the firms and firms are producing homogeneous product, a monopoly element will exist and all firms will share the market equally and charge the maximum possible price. On the other hand, if the cost of production is different for different firms, market share of the firms will differ. These differences are dependent on the bargaining power of the firms. The Quota of output shared by the firm depends on the past records and negotiation skills.

Another method for market sharing quota is to divide the markets region wise. In this case firms are free to decide the price and to bring changes in their product. When there are cost differences between the firms all types of cartels are unstable.

Price leadership:

Price leadership is one way of avoiding unnecessary competition. In case of price leadership one firm decides the price and the other follow it. Firms who decides the price will be the leader and the others are followers.

There are different types of price leadership. They are discussed below:

1) Price leadership by a low-cost firm- In this case a firm with lower cost of production becomes the leader. Here a firm with low cost sets a price and the other firms with higher cost of production accept the price. While deciding price, low cost firm has to ensure that this price brings some profits to the high cost firms.

2) Price leadership by a dominant firm - In this case one of the firms in the oligopoly market may be producing a large portion of the total output. Such a firm will become dominant, who can influence other firms in the market. As other firms are small they cannot have impact on the market. The dominant firm fixes a price which maximizes its own profit. Thus, the other firms will follow the price set by the dominant firm and accordingly adjust their output.

3) Barometric price leadership - In this type of price leadership an old experienced and most respected firm in the market becomes the leader. This firm study the changes in market conditions like demand for the product, cost conditions, level of competition etc. and decides such a price which protects the interest of all. A leader firm decides the price which is beneficial to all and other firms Follow the Leader.

4) Exploitative or aggressive price leadership - Here a large and dominant firm establishes its leadership through aggressive price policy and forces the other firms to follow the price set by him. If the firm's do not agree with the price, aggressive firms may threaten the other firms to keep them out of the market.

Price leadership by a dominant firm In case of price leadership by a dominant firm, one of the large and dominant firm in the industry sets the price and the other small firms follow the price set by the dominant firm. Following diagram explains the price leadership by a dominant firm.

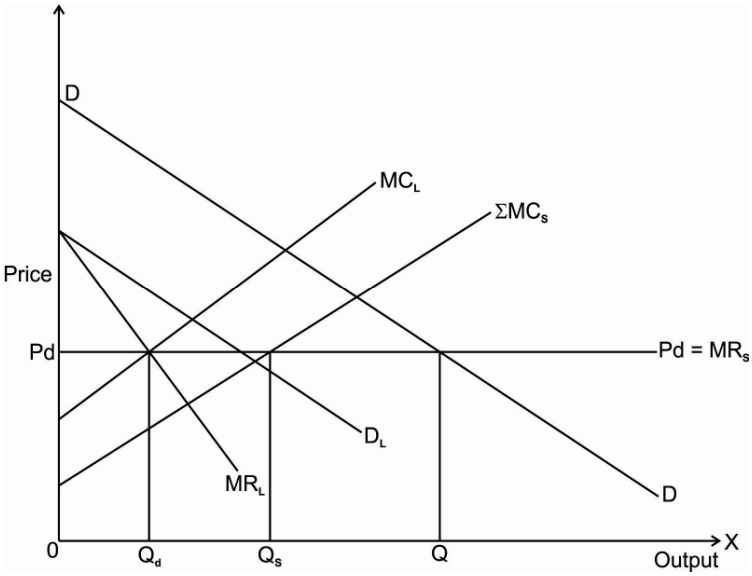


Diagram 5A.5

In the above diagram DD is the demand curve of a market at and DL is the demand curve of a dominant firm, MR_L is the marginal revenue curve and MC_L is the marginal cost of the dominant firm. The dominant firm will maximize their profit when $MR_L = MC_L$. Therefore, the price set by the dominant firm is Pd and the output of the dominant firm is Qd. As the small firms in the market are price takers, they follow price Pd which is set by the dominant firm. for the small firms, price set by the dominant firm becomes their marginal revenue, Pd =MRs. The small firms or followers will maximize their profit when MRs = summation MCs. Thus, the output of small firms is Qs. Thus, in the market consumers pay price Pd and consume quantity Q. Out of this total quantity Q the share of dominant firm is Qd and the share of small firms is Qs. Whether the price leadership is successful or not depends on various factors. It is expected that the leader or dominant firm is fully aware of the reactions of the small firms. If the leader firm takes the decision with incomplete information, firms' leadership may not be successful. Some of the limitations of the price leadership are as follows-

1) Non price competition - There is a possibility that even though the small firms are following the price set by dominant firm, they may also follow various non-price competition methods, which are in the form of discounts, after sales services etc. In this case non price competition may lead to reduction in prices to protect their own market share.

2) Product differentiation - In case of oligopoly, if the firms are selling differentiated products, it is difficult to have the leadership. This is because each firm will incur selling cost in order to attract more customers. Selling cost is in the form of TV on newspaper

advertising, giving free samples, discount, etc. This situation forces the leader firm to enter into the competition and protect its market share.

3) Difference in the cost of production - Cost of production for each of the firm is different. In case of price leadership if the low cost firm becomes leader and sets the price, which other forms in the industry have to follow. In this case for a dominant firm it is difficult to follow the price set by low cost firm. If the firms with a lower cost enter into non price competition it may lead to open competition by all the firms. On the other hand, if high cost firm becomes the leader for setting the price it has to set high price for its product in order to cover the cost firms who are not ready to accept this high price may try to enter into non- price competition to enlarge their market.

7.3 SUMMARY

This unit explains the characteristics of oligopoly market. It explains two types of oligopoly models that is collusive oligopoly and non-collusive oligopoly.

Non collusive oligopoly model is discussed with the help of Paul sweezy's kinky demand curve. It explains why price remain rigid under oligopoly. Equilibrium of a firm under oligopoly market is also explained with the help of intersection of discontinuous marginal revenue curve under oligopoly and marginal cost curve.

Collusive oligopoly is discussed with the help of cartels and price leadership.

Two types of cartels are discussed that is centralised cartels and market sharing cartels.

Two types of market sharing are
1) Market sharing by non-price competition and
2) Market sharing bye quota.

Four types of price leaderships are explained in this unit. They are
1) Price leadership by high cost firm
2) Price leadership by low cost firm
3) Barometric price leadership
4) Aggressive or exploitative price leadership

7.4 QUESTIONS

1. Discuss the features of oligopoly market.
2. What is oligopoly? Explain its characteristics.
3. Explain why price is rigid under oligopoly?
4. Discuss kinky demand curve under oligopoly.
5. Explain the collusive oligopoly models
6. Write a note on cartel.
7. What is price leadership? Explain its various types.
8. Discuss the price leadership by a dominant firm.
9. Discuss price leadership along with limitations.
10. Explain non-collusive oligopoly model.

❖❖❖❖