Unit – II
DEMAND ANALYSIS

Demand is one of the forces determining price. The theory of demand is related to the economic activities of a consumer, called consumption. The process through which a consumer gets goods and services he want to consume is called demand.

1. Meaning of Demand

In common sense, the term desire want and demand are interchangeably used. But in economics, all these terms have different meaning. **Desire** means a mere wish to have a commodity. Suppose you wish to have a motor-bike. If you have sufficient money to purchase it, but you do not want to spend it on the purchase of motor-bike, this desire will become want and not demand. This desire of yours will become demand only when you are prepared to spend money to meet your desire.

Thus, demand is the want or willingness of consumers to buy goods and services. To be an effective demand consumer must have enough money to buy commodities at various possible prices.

Economists distinguish between demand and quantity demanded. The demand of a good or service that consumers are willing and able to buy is known as the quantity demanded of that good or service. The quantity demanded is measured at a certain price over certain periods of time; say the number of oranges bought per week, the number of chocolate bars per months and the number of television per year. For example, if we say that a household purchase 2 kg of milk per day @ Rs.18 per kg then 2 kg of milk will be called quantity demanded because it has all the three essentials of demand namely: quantity, price and time.

Demand refers to the quantities of commodity that the consumers are able and willing to buy at each possible price during a given period of time. Thus the term demand signifies whole demand schedule showing various quantities of a commodity that the consumers are willing and prepared to buy at different possible prices, while the term quantity demanded refers to a specific quantity bought at a certain specific price.

1.1 Features of Demand.

The main features of demand are as follows:

(i) **Demand depends upon the utility of the commodity**. Goods are demanded because they have capacity to satisfy human wants. A rational consumer will make demand for a commodity only when it provides utility to him.

(ii) **Demand always means effective demand**. Desire for a commodity will become demand only when it is backed by purchasing power and willingness to spend. Thus, there are three essential of demand:

(a) desire for a commodity
(b) means to fulfill the desire
(c) Readiness to buy the commodity.

(iii) **Demand has its reference with price and time**. Demand is always related with price and time. Since, demand is expressed per unit of time say per day, per week, per month, etc. It is a flow concept.

2. Factors Affecting Demand
(Or Determinants of Demand or Demand Function)

There are several factors on which the demand for a commodity depends. These factors may be economic, social, as well as political. The influence of these factors on demand is called **demand function**. Corresponding to two aspects of demand, viz., individual demand and market demand, there are two types of demand functions:

1. Individual Demand Function,
3. Market Demand Function.

2.1. Individual Demand Function. The quantity of a commodity that an individual demands at a particular price during a specific time period is known as individual demand. The individual demand is influenced by the following factors:

(i) **Price of the commodity**. Of all factors affecting demand, price is the most important factor. Ordinarily, demand for a commodity increases when its price falls and vice versa. You might have observed people around you purchasing more quantity of oranges as the price of orange falls.

(ii) **Price of Related Goods**. Related goods may be in the form of substitutes and complements.

(a) **Substitute goods** are those goods which can be used in place of each other, e.g., tea and coffee, Pepsi and Coca- Cola. The change in the price of tea has effect on coffee's demand. The rise in price of coffee will raise the demand for tea. When the price of the coffee rises, many consumers will shift their consumption from coffee to tea because tea has now become relatively cheaper. The demand for tea thus will increase. Here demand for tea has increased not because of a fall in its own price but due to an increase in the price of coffee.

(b) **Complementary goods** are those goods which are jointly demanded to satisfy a particular want, e.g., car and petrol, compact discs and disc player, bread and butter. In such commodities, there will be inverse relationship between the price of one commodity and the amount demanded for the other. For example, if prices of cars go up, demand for petrol will come down (due to fall in car's demand). Thus an increase in the price of cars not only reduces car's demand but also reduces demand for petrol.

(iii) **Income of the consumer**. Another important factor influencing demand is consumer's income. A rise in people's income will cause an increase in demand for goods and services, while a fall in incomes will cause demand to fall. But rising incomes may cause the demand for some goods to fall. These goods are called inferior goods. Take an example of pure milk and toned milk which is an inferior commodity. A consumer will buy more pure milk when his monthly income goes up. But, with an increase in his income, demand for toned milk (being an inferior commodity) will surely fall down. He would like to substitute pure milk (a superior commodity) for toned milk (an inferior commodity).

(iv) **Taste and Preferences** The amount demanded of a commodity also depends upon consumer's tastes and preference. When we begin to like certain commodities, their demand will surely increase. Reverse will happen if we start disliking them. Consumer's tastes and preferences are also affected by advertisements.

(v) **Future Expectations**. If consumers expect future changes in price of commodity, they will change the demand at present even when the present price remains unchanged. For example, if a consumer expects a price rise in future, he will like to buy more of it today. Contrary to it, if he expects fall in price, he will buy less

today. Likewise, if consumer expects rise in his income in near future, he may start buying more right now.

2.2 Market Demand Function. Market Demand refers to the total quantity of a commodity that all the consumers buy at a particular price during a period of time. Market demand for a commodity depends on the following factors:

i) **Population**. Increase in population increases the demand and vice-versa. Like size of population, its composition also affects the demand. Composition of population means the distribution of population on the basis of sex, age, etc. A change in the composition of population has an effect on the nature of demand for different commodities. For example, increase in female population would increase the demand for cosmetics, sarees, etc. Likewise, if the composition of population goes in favour of children, then demand for toys, toffees, etc. will increase.

ii) **Season and Weather**. The seasonal and weather conditions also have effect on consumer's demand. For example, demand for woolen clothes goes up during winter. Fans, coolers, etc., are demanded more during summer. Similarly, in the rainy season, umbrellas and rain-coats are in great demand.

iii) **Government Policy**. The Government of a country can also affect the demand for a particular commodity or commodities through taxation. It may reduce the demand for a commodity by imposing tax on it or increase the demand by lowering its price through subsidies. Imposition of taxes on commodities will increase the prices of the taxed commodities. As a result, their demand will fall. On the other hand, if the government gives subsidies to certain producers, the costs of production and hence prices will come down. As a result, the demand for subsidized goods will increase.

iv) **State of Business (Trade Cycles)**. The prevailing business conditions in a country also affect the level of demand. For example, during boom periods, market demand will increase. On the other hand, the level of demand goes down during the period of depression.

v) **Distribution of income**. If national income is equally distributed, there will be more demand for necessities. If the distribution of income is unequal there will be more demand for luxury goods like cars, colour TVs, ACs etc.

A change in any of these above mentioned factors will bring a change in quantity demanded. Demand function depicts this relationship and this can be shown in the form of equation as under:

Dx = f (Px, Pr, Y, T…)

Where, Dx = Demand for X commodity
f = Function of (or depends upon)
Px = Price of X commodity
Pr = Price of related commodity
Y = Consumer's income
T = Tastes and preferences of the consumer

3. **Kinds of Demand**

The quantity of a good or service demanded mainly depends upon the following three factors

(a) Price of the commodity.
(b) Income of the consumers, and
(c) Price of related goods.

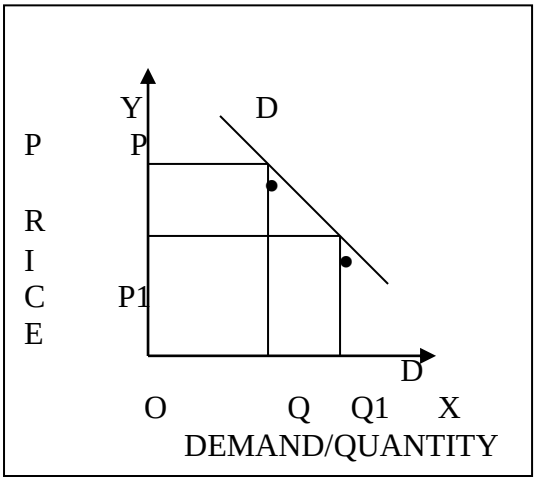
Economists, therefore, distinguish between three kings of demand viz., price demand, income demand, and cross demand as explained below:

3.1 Price Demand. Other things being equal, the relationship between the price of commodity and its demand is technically termed as price demand. Other things being equal, we presume that the prices of related goods, consumer's income, tastes, etc, remain unchanged. Generally, the word demand denotes price demand in economics (if otherwise not specified.) Price demand can be put in the form of the following equation:

Dx = f (Px)

Where, Dx = Demand for X commodity
f = Function of (or depends upon)
Px = Price of X commodity

Fig. 3.1



The relationship between price and demand is inverse as shown in Fig. 3.1, In the figure; DD is the demand curve which slopes downwards to the right. It clearly shows that when price decreases from OP to OP1 the demand for the commodity increases from OQ to OQ1. The demand will decrease from OQ1 to OQ when price increases from OP1 to OP.

3.2 Income Demand. Income demand indicates the relationship between the income of the consumer and the quantity of commodity demanded, other things being equal. In other words, it refers to the various quantities of a commodity that will be purchased by the consumers at various levels of income, other things being equal. Thus, it shows different incomes on the one side and the corresponding quantities of the commodity on the other. Price of the commodity, price of the related goods, tastes and preferences, etc., have been assumed to be constant. Demand here will only be a function of income. Income demand can be shown in the form of an equation as under:

Dx = f (Y)

Where, Dx = Demand for X commodity
f = Function of (or depends upon)
Y = Consumer's income

It is a matter of our common experience that demand for a commodity varies directly with the change in consumer's income. As consumer's income increases,

demand also increases and vice versa. Hence, income demand curve has a positive slope (i.e. income demand curve slopes upwards to the right.) This type of relationship is found in case of normal (or superior) goods.

Fig. 3.2

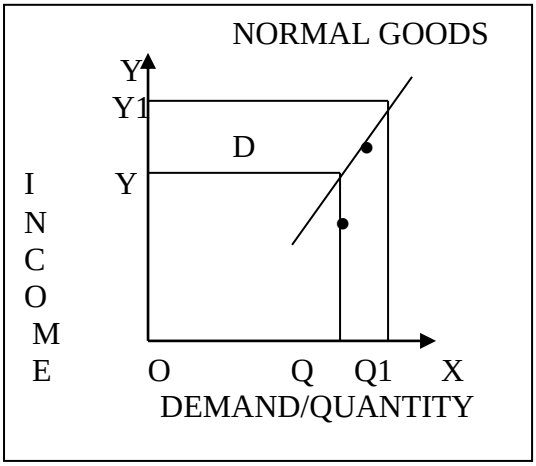
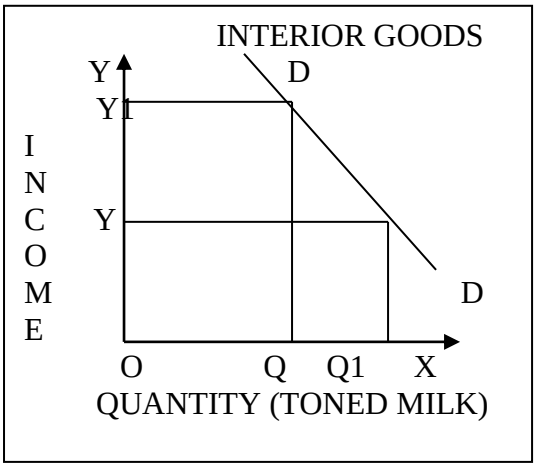


Fig. 3.2 indicates income demand curve for such goods. When consumer's income is OY, he purchases OQ amount of the commodity. With the increase in his income from OY to OY1, the demand for the commodity in creases from OQ to OQ1. Reverse will happen if his income falls.

But, in case of inferior goods (like toned milk, coarse grains, coarse cloth, vegetable ghee, biri, etc.) the income demand relationship will be inverse. The volume of purchases of such goods declines as consumer's income increases. When a consumer becomes richer, he will start consuming more of superior goods in place of inferior goods. So, demand for inferior commodities comes down. For example, when a person becomes better off (in terms of his money income), he will increase the consumption of desi ghee in place of vegetable ghee, of cigarettes in place of biri, of rice in place of wheat and so on. Consequently, demand for inferior goods comes down as the level of income rises. This has been illustrated in Fig. 3.3.

Fig. 3.3.



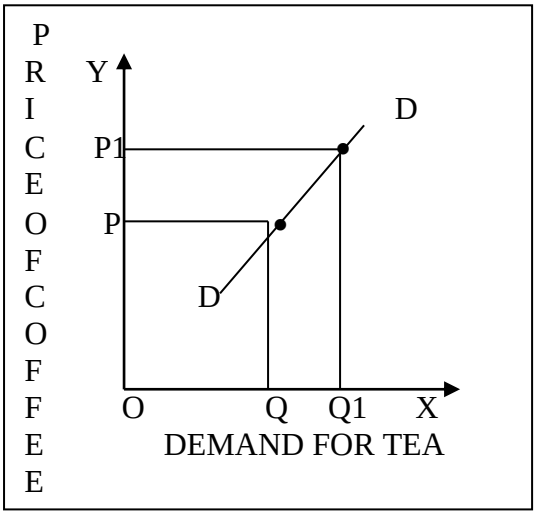
It may be noted here that at the income level of OY, OQ of toned milk is demanded. But at a higher income of OY1, only OQ1 of toned milk is demanded. It is due to the fact that consumer now substitutes pure milk (a superior commodity) for toned milk. Hence, income demand curve here slopes backwards to the right.

3.3 Cross Demand. Other things being equal, the relationship between the price of a commodity and demand for related goods (substitute goods or complementary goods.) is known as cross demand. Thus, it refers to a situation wherein change in the price of one commodity results in the change of the demand of other commodity.

Related goods may be of two types – substitute goods and complementary goods. Let us now see cross demand in case of these related goods.

(a) **Substitute Goods**. Substitute goods are those goods which can be used in place of each other. Tea-coffee, pen-ball pens, Pepsi-coca-cola are some examples of substitute goods. The demand for a commodity may change not because of change in its own price but also because of change in the price of its related goods. For example, demand for tea may increase not because its own price has fallen but because the price of coffee has gone up. Cross demand for substitute goods has been illustrated in Fig. 3.4

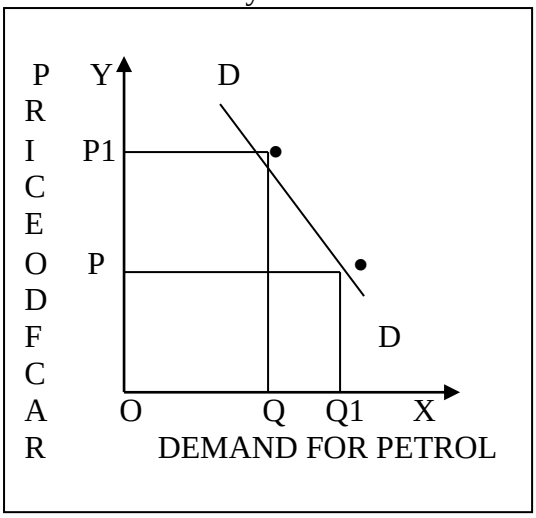
Fig. 3.4



On X-axis, quantity of tea and, on Y-axis, price of coffee have been shown. When price of coffee was OP, demand of tea was OQ. But when price of coffee goes up to OP1, the demand for tea increases to OQ1, (the higher price of coffee has forced the consumers to demand more of tea and less of coffee.) Demand for substitutes is also known as **competitive demand**.

(c) **Complementary Goods.** As pointed our earlier, complementary goods are those which are used together to satisfy a particular want. If we demand for one commodity, we will have to go for another. For example, car-petrol, pen-ink, tea-sugar, etc. In case of such goods, when the price of one commodity increases, the demand for the other will decline and vice-versa. Fig.3.5 illustrates this fact clearly.

Fig.3.5



In fig. 3.5, we take petrol and cars as two complementary goods. If the price of car rises from OP to OP1 demand for petrol declines from OQ to OQ1. On the other hand, if price of car falls from OP1 to OP demand for petrol increases from OQ1 to OQ. The demand curve for complementary goods, thus, slopes downwards to the right.

Demand for complementary goods. (i.e. which are jointly demanded) is also known as **joint demand**. In other words, we can say when two or more goods are used together and when a change in the demand for one good causes a similar change in the demand for the other, the goods are said to be under joint demand.

Difference between Substitute Goods and Complementary Goods.

(a) Substitute goods may be used in place of each other while complementary goods are used together.

(b) The price of one substitute good has positive relationship with the quantity demanded of another substitute good. The price of one complementary good has negative relationship with the quantity demanded of another complementary good.

3.4.Other kinds of Demand.

There can be other forms of demand also. They are

3.4.1 Composite Demand. The demand for a commodity which can be put to several uses is known as composite demand. For example, coal can be used for heating, cooking and operating railway engine, etc. It is a case of composite demand. Likewise, milk is used for preparing cheese, butter, curd, sweets, tea, etc. So, demand for milk is also an example of composite demand. Again, demand for electricity is a case of composite demand as it is demanded by several types of consumers.

3.4.2 Direct Demand. The demand for such commodities which are directly demanded by the consumer for the satisfaction of his want is known as direct demand, such as demand for food, cloth, house, etc. Such demand is known as direct demand because they directly satisfy human wants.

3.4.3 Derived Demand. If a thing is needed for producing some other goods, which we actually need, is called derived demand. For example, the demand of workers by a cycle factory is derived demand because these workers will be helpful in the production of cycles whose demand is direct. Likewise, the demand for bricks, cement, iron, wood etc. is derived while constructing a house.

3.4.4 Alternative Demand. Demand is known as alternative demand, when it is satisfied by alternative ways. For example, demand for food can be satisfied either from rice or chapattis or fruits, etc.

3.4.5 Competitive Demand. When two commodities are close substitutes for each other, an increase in the quantity demanded of one of them will reduce the demand for the other. All such commodities are in competitive demand with one another. It is because the purchase of more of one thing necessitates the purchase of less of others. For example, an increased demand for coffee might reduce the demand for tea. Similarly, a change in the demand for fish might affect the demand for meat.

3.4.6 Individual Demand and Market Demand. The quantity of a commodity that an individual demands at a particular price during a specific period is known as individual demand of a commodity. For example, Gaurav purchases 2kg of milk at a price of Rs. 15 per kg everyday, it is individual demand.

Market demand, on the other hand, refers to the total quantity of a commodity that all the consumers buy at a particular price during a specific period. It is the sum total of individual demands. For example, suppose there are three consumers of milk namely, Vishal, Gaurav and Pratyush in the market whose individual demands at a price of Rs. 15 per kg. are 3 kg, 2kg and 1kg per day respectively then market demand will be 6kg. (3 kg. + 2kg+1 kg)

4. Law of Demand.

4.1 Meaning. The law of demand explains the inverse relationship between the price and quantity demanded of a commodity. According to this law, other things being equal, price and quantity demanded of a commodity move in the opposite direction. In other words, when the price falls, demand increases provided factors other than price remain constant. More units of a commodity are purchased at lower prices because of a substitution effect and an income effect. As a commodity's price falls, consumers normally buy more of this commodity because they are likely to substitute it for other goods whose prices have not changed. Further, when the price of a commodity falls, the consumer can now buy a larger quantity of the commodity with his given income. Remember, law of demand indicates only the direction of change and not the magnitude of change in demand. Further, there is no proportionate relationship between price and demand.

Some important definitions of the law are as follows:

(i) According to Dr. Marshall, "The amount demanded increases with a fall in price and diminishes with a rise in price."

(ii) According to Prof. Meyers, "Under the same conditions of demand, the quantity of a commodity, which will be purchased, tends to vary inversely with its price."

(iii) In the words of Bilas, "The law of demand states that other things being equal, the quantity demanded per unit will be greater if lower the price and smaller if higher the price. "

(iv) Prof. Samuelson writes, "Law of demand states that people will buy more at lower prices and buy less at higher prices, other things remaining the same. "

4.2 Assumptions of the law (or other things being equal.) In the statement of law, the phrase ***other things being equal*** has been used. It indicates the assumptions on which the law of demand is built. By other things. We mean factors other than price which influence the demand. They are supposed to be constant during the given study periods. They include:

(i) No change in consumer's income.
(ii) No change in the price of related goods.
(iii) No change in consumer's taste, preferences, nature and fashion.
(iv) No expectation of change in the future price of the commodity.
(v) No change in population.
(vi) No change in the total assets.

4.3 Explanation of the Law. Assuming all other factors constant, the law of demand states the relationship only between the price of a commodity and its quantity demanded. Hence, the law can be expressed by the demand function as given below.

$$\mathbf{Dx = f\ (Px, Pr, Y, T, W, P)}$$

In the law of demand, relationship between price of the commodity (Px) and its demand (Dx) is established. Price of related goods (Pr), income of the consumer(Y) tastes and preferences (T) wealth (W) population (P) etc. is assumed

to be constant. Law of demand (i.e. price demand) can be explained with the help of a demand schedule and a demand curve.

4.4 **Demand Schedule**. Demand schedule summarizes the information on prices and quantities demanded in a tabular form. It shows different quantities of a commodity demanded (per period of time) at different prices (per unit of the commodity).

Features of Law of Demand.

1. There is an inverse relationship between price of a commodity and its quantity demanded.
2. The law indicates the direction and not the magnitude of change in demand.
3. Law of demand does not establish proportionate relationship between price and demand.
4. The law explains only the effect of change in price on demand and not the effect of change in demand on price.

Demand schedule may be the individual demand schedule or market demand schedule.

4.4.1 Individual demand Schedule. Individual demand schedule shows different quantities of demand for a commodity by a particular individual at different prices of that commodity at a given moment. (See table 3.1)

Table 3.1
Hypothetical Individual Demand Schedule

Price of sugar Rs. (per kg.)	**Quantity of Sugar Kgs.**
15	1
14	2
13	3
12	4
11	5

The above table shows that the consumer will demand more sugar at a lower price. Other things being equal, for instance, when price is Rs. 15 per kg, he demands only 1 kg of sugar but, at Rs. 14, he is prepared to buy 2 kg. At Rs.13 per kg. 3 kg of sugar and so on. This shows that price and demand are inversely related.

4.4.2 **Market Demand schedule**. In the price theory, we are largely interested in the market demand schedule. Market demand schedule shows the quantities of a given commodity which all consumers in the market will buy at different prices. In other words, individual demand schedules when added together, we obtain market demand schedule. For the sake of simplicity, suppose there are only three consumers A, B and C in the market whose individual demand schedules are given below. Market demand schedule has also been constructed by adding these individual schedules as shown in the example.

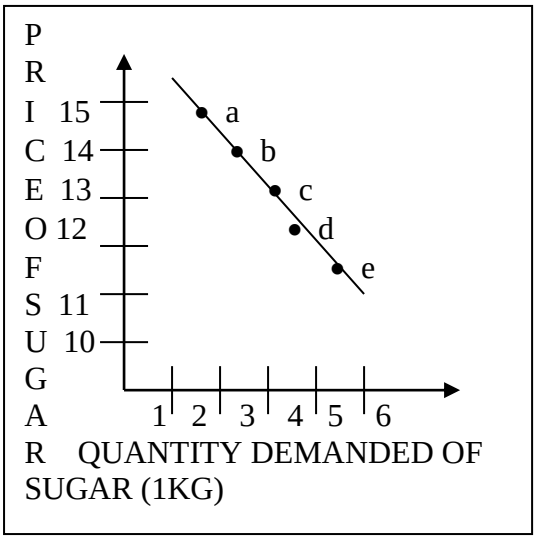
Market demand schedule also depicts the same picture, i.e., it also testifies the law of demand. In our example, when price falls from Rs. 15 to 14 per kg. market demand increases form 6 kg to 9 kg and so on.

Table 3.2
Hypothetical Individual and Market Demand Schedules.

Price of sugar (per kg)	Demand by consumer A (in kg)	Demand by consumer B (in kg)	Demand by consumer C (in kg.)	Market Demand (kg) A+B+C
15	1	2	3	6
14	2	3	4	9
13	3	4	5	12
12	4	5	6	15
11	5	6	7	18

4.5 Demand Curve. The graphic representation of demand schedule is known as demand curve. According to R.G. Lipsey, "The curve, which shows the relation between the price of a commodity and the amount of that commodity the consumer wishes to purchase, is called demand curve." We can construct individual demand curve on the basis of individual demand schedule and market demand curve on the basis of market demand schedule. So, there can by two types of demand curves- individual demand curve and market demand curve. Like individual demand schedule, individual demand curve represents different quantities of the commodity demanded by an individual at different prices. Market demand curve, on the other hand, is the horizontal summation of the individual demand cures in the market. Fig. 3.6 shows the individual demand curve for consumers.

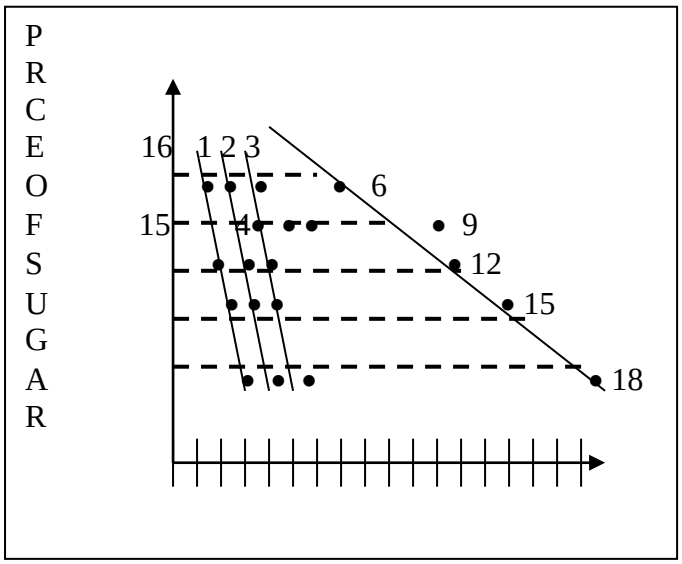
Fig. 3.6



Corresponding to the table 3.1, in fig 3.6 quantity demanded is measured along X-axis and price of sugar is measured along the Y-axis. By plotting 1 unit of the commodity at price Rs. 15, we get point 1 likewise, by plotting 2 units at price Rs. 14, 3 units at price Rs. 13, 4 units at price Rs.12 and 5 units at price of Rs.11 we obtain points b,c.d and e respectively. By joining these points (a,b,c,d, and e) we get an individual demand curve DD, Thus , the demand curve is a graphic presentation of various quantities of the commodity (Sugar in our example) that will be demanded by the consumer at various prices at a given moment of time.

In fig 3.7 A,B and C are the individual demand curves (for consumers A,B, and C) respectively . At a price of Rs. 15, consumer A demands 1 kg. Of sugar, consumer B demands 2kg. Of sugar and the third consumer C demands 3 kg. Of sugar, if we add all these individual demands together, we get the market demand for sugar at this price. According to Fig. 3.7 the market demand at a price of Rs. 15 is 6 kg. (1+2+3) if the same process is repeated for each price level. (i.e. Rs. 14, 13, 12 and 11) the market demand comes to 9 kg. 12 kg. 15 kg and 18 kg. Respectively . By joining these prices and demand combinations, we obtain a market- demand curve as represented by curve, M in the diagram.

Fig 3.7



All the three individual demand curves have a negative slope (i.e. inverse relationship between price and demand.) Consequently, market demand curve is also sloping negatively. The negative slope of the market demand curve (and also those of individual demand curves) shows that more and more of quantity is demanded at lower and lower prices. Note that every demand curve has been drawn on the assumption of ***ceteris paribus*** that is, other things remaining the same.

4.6 Causes of operation of Law of Demand (or why does demand curve slope downwards to the right?) Downward sloping demand curve shows inverse relationship between price and demand, i.e. law of demand. Now the question before us is why does the law of demand operate? Or why does demand curve slope downwards to the right? Following are the main causes responsible for this inverse relationship between price and demand:

(i) **Law of Diminishing Marginal Utility**. The law of diminishing marginal utility states that when every additional unit of any commodity is consumed, the marginal utility declines because the earlier units of consumption have partly satisfied our wants. This law to a large extent affects the law of demand. A rational consumer pays for any commodity according to the amount of utility that he expects to device from its consumption. When every additional unit brings decreasing utility, the consumer would naturally prefer to buy this additional unit only at a lower price. This, therefore, causes inverse relationship between price and demand.

(ii) **Income Effect**. Income effect here implies effect of change in consumer's real income on his demand. As the price of a commodity decreases, the real income of the consumer (i.e. income in terms of goods and services or purchasing power of income) increases. Consumer will now be able to buy more quantity of the commodity by spending the same amount of money. Contrary to it, his real income would fall in case of rise in prices. Consumer will now be able to purchase less quantity of the commodity by spending the same amount of money. Hence, he will be in a position to buy more of a commodity when its price falls (due to his increased purchasing power). But when his real income falls due to rise in price, he will have to forego consumption of some units of the commodity.

(iii) **Substitution Effect.** Substitution effect here means the substitution of cheaper goods for costlier ones. When price of any commodity increases while prices of other substitute goods remain unchanged, consumers would like to prefer any one of these substitute goods. Consequently, the demand of the commodity in question would fall as a result of increase in its price. For example, if the price of coffee raises, the price of tea remaining the same, coffee becomes less attractive to consumers. Since coffee has relatively become costlier, people would shift from the consumption of coffee to the consumption of tea. Reverse will happen in case of fall in the price of coffee.

(iv) **Entry and Exit of Customers**. When the price of a commodity falls, new consumers, who were unable to purchase this commodity earlier, will start buying it as they find it within their reach now. Conversely, in case of increase in its price even some of the old consumers find it difficult to purchase the commodity. This goes beyond their purchasing power, and thus they are forced to reduce its consumption. In this way, the change in number of customers in the market determines the law of demand.

(v) **Various Uses**. Some commodities have alternative uses. For example, milk can be used for preparing curd, cheese, sweets, tea, etc. If the price of such a commodity rises, it will be used for more important uses. Consequently, its demand will go down. On the other hand, when price falls, the commodity will be put to more uses where it was not being used earlier and its demand will go up.

4.7 Exceptions to the Law. There are some situations when the law of demand does not apply. These are called exceptions to the law. Some important exceptions to the law are mentioned below :

(i) **Inferior Goods (or Giffen Goods).** There are certain goods which are inferior from the consumers' viewpoint. A fall in the price of such goods may not increase their demand because consumers start diverting their extra purchasing power to buy superior commodities. Consequently, demand for inferior goods falls. Sir Giffen, a British economist, was the first who attracted our attention towards these goods. Therefore, these goods are also known as Giffen goods. Giffen pointed out that the law of demand did not apply in the case of English workers. He showed it practically that a fall in the price of bread rather reduced the amount of its demand. British workers had two main items of consumption- bread and meat. As the price of bread fell in the market, they could now purchase same amount of bread with less money. The saved purchasing power was spent on purchasing more meat (a superior commodity) instead of bread. The income effect was seen in favour of meat and also there was no substitution effect in favour of bread. In India, maize and bajra are Giffen goods whereas wheat and rice are superior goods. Thus, we may say that demand for inferior goods (such as coarse grain, coarse cloth, and inferior brands of a commodity) will not increase even when their prices fall.

(ii) **Articles of Distinction**. The law of demand does not apply in case of articles of distinction such as jewellery and other luxury good (e.g. precious clothes, high priced watches, AC cars, etc.) This exception was first explained by the American economist, Veblen. According to him, the demand for articles of distinction is more when their price is high. Such goods are mainly purchased because their price is high. A fall in their price may lead rich people to buy less because now rich men's desire for distinction is not satisfied. With the fall in their price, they think, even poor people can purchase them.

(iii) **Necessities of Life**. The law also does not operate in case of necessities such as food grains, salt, medicines, etc. A minimum quantity of such goods has to be purchased irrespective of their high price.

(iv) **Future Expectations Regarding Change in Price**. There are many commodities whose prices are expected to change in near future. Under such circumstances, consumers may behave opposite to the law of demand. For example, if we expect a fall in price of the commodity in future, we would like to purchase lesser quantity of the commodity at present even at reduced price. Similarly, if we expect that the price of the commodity will go higher in future, we may prefer to buy its large quantity even in the present state of rising price.

(v) **Ignorance**. If consumers are ignorant about quality of the commodity, the law will not apply. In such cases, consumers would judge the quality of the commodity from its price. They regard high-priced commodities are better in quality as compared to low-priced commodities. A low priced commodity is considered inferior and thereby is demanded less. Benham has explained this fact with the help of an example. During the First World war, a book containing pictures was published .Its price was 10 ½ dollars. It did not sell much because of its low price. After the war, the same book was reprinted and priced at 3 ¼ dollars. This time the book was completely sold out because people thought that the book would be better.

(vi) **Abnormal Conditions**. In abnormal conditions (like wars, famine, flood, riots, etc.) people do not behave in a normal way. They may purchase goods at any price.

(vii) **Change in weather**. With the change in weather, the demand of the goods also changes, irrespective of any change in their prices. For example, in summer, the demand for ice increases in spite of rise in its price. Similarly, demand for umbrellas increases in rainy season even when their prices rise.

(viii) **Loss of Faith in Quality**. When people have no faith in the quality of the product, the law will not apply. Any fall in the price of that commodity will be insufficient to bring about a rise in its demand.

Difference between Normal Goods and inferior Goods.

Basis	**Normal Goods**	**Inferior Goods.**
1. Meaning	Normal goods refer to those goods whose demand increase as income of their buyers increases.	Inferior goods are those goods whose demand decrease as income rises.

2. Shift in Demand Curve	In case of normal goods, income effect is positive. As income increases demand curve shifts upward to the right, see the following diagram. Refer Diagram 3.9 In the figure 3.9, when income of the consumer increases from Rs. 1,000 per month to Rs. 1,500 per month, the demand curve shifts upwards. This implies that he buys more even at the same price.	In case of inferior goods, income effect is negative. A rise in income leads to fall in demand and thereby demand curve shifts downwards to the left. See the following diagram. Refer Diagram 3.11 In the figure 3.11, demand curve shifts downward to the left when income of the consumer falls, which implies that he now buys less of the commodity even at the same price.

Difference between Giffen Goods and Inferior Goods

Giffen goods (named after Sir Robert Giffen) refer to those goods; in case of which price effect is positive i.e. demand falls as price decreases and rises with an increase in price. Income effect, in case of such goods, is negative i.e. as income increases demand falls and vice-versa.

Giffen goods may be distinguished from inferior goods. In both kinds of goods (i.e. inferior goods and giffen goods.) income effect is negative. But in case of Giffen goods,negative income effect is stronger than the positive substitution effect, so that when price falls, demand also falls. But in case of inferior goods, though income effect is negative, but is not stronger than the substitution effect. So, these goods (i.e. inferior goods) do not violate the law of demand, while Giffen goods necessarily violate the law of demand. So ***all Giffen goods are inferior goods but all inferior goods are not Giffen goods.***

5. Changes in Demand.

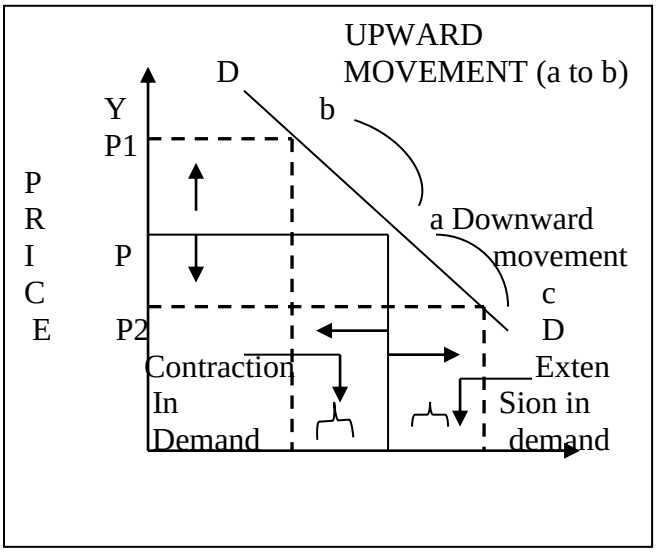
As noted above, demand for any commodity depends on several factors besides its price. These factors are. Consumer's income, their tastes and preferences, price and availability of substitutes, future expectations regarding change in price, etc. We now group all these factors into two categories. In the first category, we place price of the commodity and, in the second category, all factors other than price are included. On

the basis of this classification of factors influencing demand, we shall discuss below two types of changes in demand.

1. Movement along the same demand curve,
2. Shift of the demand curve.

5.1 Movement along the same Demand Curve (OR change in Quantity Demanded.) other things being equal, when there is a change in the price of a commodity, the resulting change in demand is shown along the same demand curve through two different points. Such movement is called change in the quantity demanded. In such cases, there is only one demand curve. When the price of the commodity falls, its demand expands which is technically termed as **extension in demand**. On the other hand, price- rise will result in the reduction in demand which is called **contraction in demand**. A change in demand, due to change in price is known as extension or contraction of demand. These changes have been illustrated in Fig. 3.8

Fig. 3.8

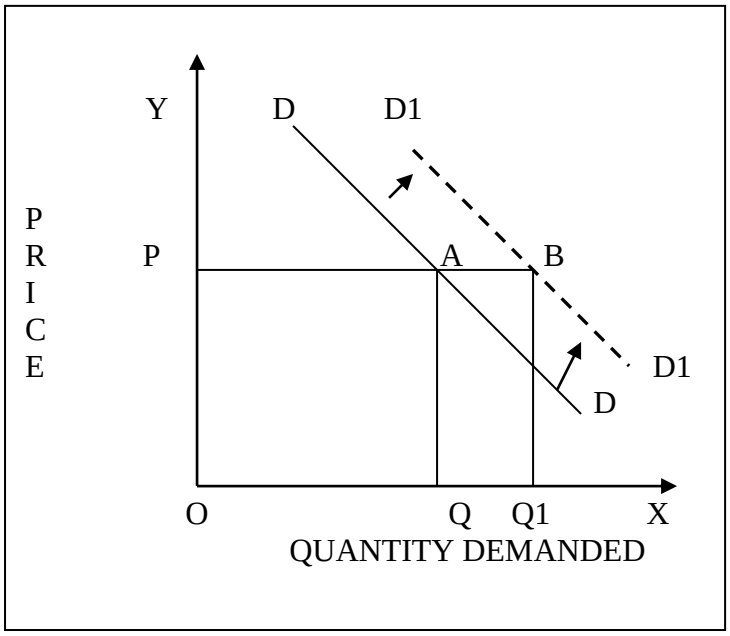


In Fig. 3.8, X-axis measures quantity demanded whereas price is measured on the Y-axis. In the figure at price OP, quantity demanded is OQ. When price raises to OP1 demand contracts to OQ1. Thus, fall in demand from OQ to OQ1 is contraction of demand. Due to this change, there is upward movement on the demand curve from points 'a' to point 'b' Likewise, when price falls from OP1 to OP2 the demand expands from OQ1 to OQ2 . This change (OQ2) is called extension of demand and now movement on the demand curve is between the points a to c.

5.2 Shift of the Demand Curve (or change in Demand) As we know, the demand for a commodity changes not only due to change in its own price but also due to change in other factors, such as consumers' income, tastes and preferences, price of related goods, etc. When the demand changes on account of the factors other than change in price, there will be a shift in the demand curve. This situation is termed as change in demand. Demand curve may shift either rightwards or leftwards. When, due to change in factors other than prices, there is reduction is demand, it is called decrease in demand. Demand curve in such a case will shift leftwards. Conversely, when, due to change in factors other than price of the commodity, more quantity of the commodity is demanded, it is technically called increase in demand. The demand curve will shift

upwards to the right. These types of changes in demand have been shown below diagrammatically.

Fig. 3.9



5.2.1 **Increase in Demand**. Fig. 3.9 represents the situation of increase in demand. This shows how more quantity of the commodity is demanded even at the same price. OP is the original price at which quantity demanded was OQ. Now due to increase in demand (as reflected by demand curve D1 D1), demand increases to OQ1 at the same price of OP. The increase in demand of QQ1 here is not due to fall in product price but due to change in factors other than price. These may include the following.

(a) Increase in consumer's income.
(b) Increase in the price of substitutes.
(c) Fall in the price of complementary commodity.
(d) Fear of the price- increase of the commodity in near future.
(e) Change in consumer's tastes and preferences in favour of the commodity.

Fig. 3.10

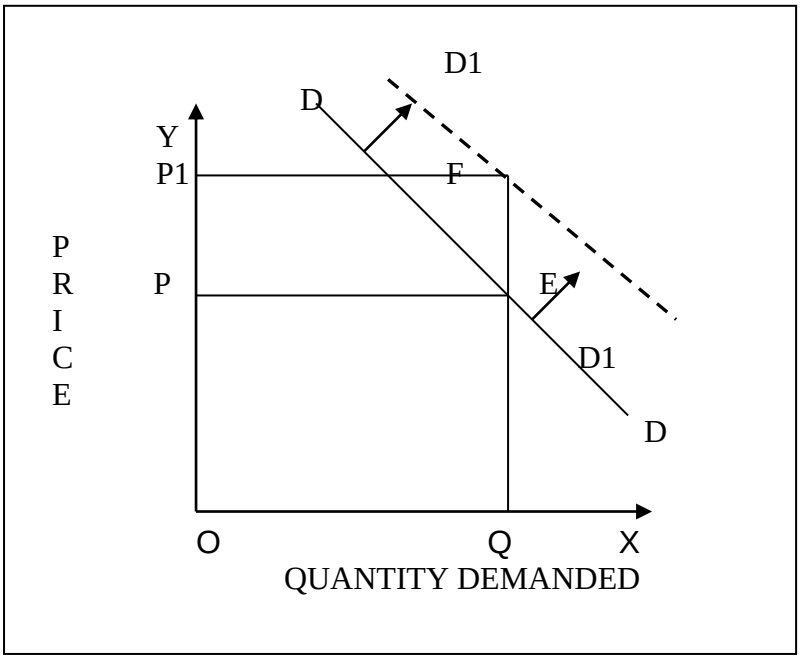


Fig. 3.10 represents the same fact (i.e. increase in demand) in a different way. At original price of OP, quantity demand is OQ. Now when demand increases as indicated by shift in demand curve to D1 D1, quantity demanded remains the same even at higher price (OP1). It shows the same level of demand. (OQ) at higher price (OP1) the rise in price from OP to OP1 for the same quantity here is due to increase in demand.

To sum up, increase in demand for a commodity implies that:

(a) Consumers' demand increase at the same price, or

(b) They are prepared to pay higher price for the same quantity of demand.

5.2.2 Decrease in Demand. As told earlier, decrease in demand implies downward shift of the demand curve to the left. Figures 3.11 and 3.12 represent the situations of decrease in demand.

Fig 3.11

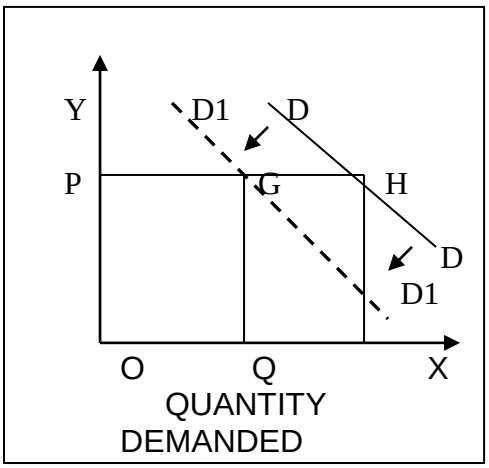
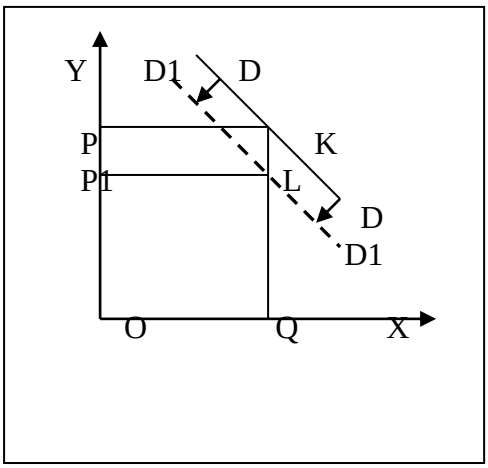


Fig 3.12



In Fig 3.11 OP is the original price at which quantity demand is OQ, when there is decrease in demand as reflected by demand curve D1D1, demand decreases from OQ to OQ1 even though the price of the commodity remains unchanged. This decrease in demand form OQ to OQ1 may be due to the following factors:

(a) Decrease in the number of consumers.
(b) Reduction in income of the consumers.
(c) Decline in tastes, preferences, etc.
(d) Expected fall in the price of the commodity in near future.
(e) Decrease in the price of substitute goods.
(f) Rise in the price of complementary commodity.

Fig. 3.12 shows the same fact in another way. In the figure, OP and OQ are the original price and quantity demanded respectively. Now demand decreases as indicated by leftward shift in the demand curveD1D1, a given quantity of demand i.e., OQ is demanded only at a price lower than OP. In other words, consumers buy the same amount of the commodity (OQ) only at a lower price, i.e., OP1. The fall in price (from OP to OP1) for the same quantity of demanded here is due to decrease in demand.

In short, decrease in demand will take place whenever:

(a) consumers demand less at the same price, or

(b) They are willing to pay only a lower price for a given quantity of demand.

We can now sum up the difference between extension and increase in demand and contraction and decrease in demand as under:

Difference between Extension and Increase in Demand

Basis	Extension of Demand	Increase in Demand
1.Meaning	Other things being equal, when with a fall in price, demand for a commodity rises, it is called extension of demand.	An increase in demand means that consumers now demand more at each and every price than they did before.
2.Demand curve	Under it, there is downward movement along the same demand curve as shown under. But the consumer remains on the same demand curve. Fig.3.13 (Refer above diagrams and draw urself)	Under it, consumer's demand curve shifts upward to right. Fig.3.14 (Refer above diagrams and draw urself)
3.Example	Price (Rs. Per unit) / Demand (units) 10 / 100 8 / 150	Price (Rs. Per unit) / Demand (units) 10 / 100 10 / 150
4.Cause	It is caused by fall in commodity's own price	It is caused by the following factors; (i) increase in Consumer's income. (ii) rise in price of Substitute commodity. (iii) fall in the price of complementary Commodity. (iv) when price of the commodity is expected to increase in near future (v) increase in number Of consumers.

Difference between Contraction and Decrease in Demand

Basis	Contraction of Demand	Decrease in Demand
1.Meaning	Other things being the same, when demand for a commodity falls, as a result of rise in its own price, it is called contraction of demand	Decrease in demand implies that at any given price a smaller amount is purchased due to change in factors other than the rise in price of the commodity or a given quantity of commodity is purchase only at a lower price
2.Demand curve	Under it, there is upward movement along the same demand curve as shown under: Fig.3.15 (Draw urself)	Under it, there is leftward shift in the demand curve as shown under: Fig.3.16 (Draw urself)
3.Example	Price (Rs. Per unit) Demand (units) 10 100 12 80	Price (Rs. Per unit) Demand (units) 10 100 10 80
4.Cause	It is caused by rise in price.	It is caused by the following factors: (i) fall in consumers' income (ii) fall in the price of Substitute goods. (iii) rise in price of the complementary goods (iv) decrease in number Of consumers.

On the basis of foregoing analysis, we may now conclude the difference between the two types of change in demand, viz., movement along the same demand curve and shifts in the demand curve as under.

Difference between Movement along the same Demand curve and Shifts in Demand Curve

Basis	**Movement along the same Demand Curve (or change in Quantity Demand**	**Shifts in Demand curve (or change in Demand.)**
1. Meaning	When expansion and contraction of demand are shown on a demand curve, it is called movement along a demand curve.	When increase and decrease in demand are reflected graphically, it is called shift in demand curve.
2. Movements/shifts	There are two types of movements along a demand curve as shown under : a) downward movement b) upward movement Fig.3.17 (Draw urself)	There are two types of shifts in demand curve as shown under a) upward shift in demand curve b) downward shift in demand curve Fig.3.18 (Draw urself)
3. Cause	It occurs due to change in price .Here consumer behaves according to the law of demand.	It occurs due to change in other factors, Here, consumer is under the influence of other factors like change in income, price of related goods, etc.

ELASTICITY OF DEMAND

In the previous chapter, we discussed how various factors like own price, income, price of related goods, tastes, etc. affect the demand for a commodity. The direction of change was our focus – whether demand increase or decrease as price, income and other factors change. As against this, the concept of elasticity of demand measures the magnitude of change in demand as a result of change in price .The concept of elasticity of demand was developed by Marshall in his book 'Principles of Economics'(1890).

1. Meaning of Elasticity of Demand

The term 'elasticity 'indicates responsiveness of one variable to change in other variable. For example, when variable X responds to change in variable Y, variable X is said to be elastic. Likewise, demand is said to be elastic if it responds to change in price. There are three main determinants of demand, viz., price of the commodity, income of the consumers, and price of the related goods. Thus, elasticity of demand means responsiveness of demand due to change in price of the commodity, income of consumer, and price of the related goods. In other words, ***it measures the degree of change in the quantity demanded of the commodity in response to a given change in price of the commodity, change in consumers' income or price of the related goods***. Accordingly, there are **three main types** of elasticity of demand:

(i) Price elasticity of demand
(ii) Income elasticity of demand , and
(iii) Cross elasticity of demand

1.1 Price Elasticity of Demand. Price elasticity of demand measures the responsiveness of demand for a commodity due to change in its price.

1.2 Income Elasticity of demand. It indicates the responsiveness of demand to change in consumers' income. It may be defined as the degree of change of demand to a change in the income of the consumers.

1.3 Cross Elasticity of demand. It refers to changes in the quantity demanded of commodity X as a result of changes in the price of related commodity Y.

The classical writers discussed elasticity of demand only with reference to price changes (i.e., price elasticity of demand as it is now called) but modern economists also talk of other types of elasticity of demand namely 'income elasticity of demand ' and 'cross elasticity of demand'.

2. Price Elasticity of Demand

2.1. Meaning. Price elasticity of demand means the change in the quantity demanded of a commodity in response to changes in its price .It measures the degree of change of demand in response to changes in price. It indicates how consumers react to changes in price. The greater the reaction, the greater will be the elasticity; the lesser the reaction, the smaller will be the elasticity. For instance , it the prices of milk and wheat both rise by 15 per cent and, consequently , their demand falls by 20 per cent and 5 per cent respectively , the demand for milk is said to be more elastic and demand for wheat is less elastic . Some popular **definitions** of price elasticity of demand are given below:

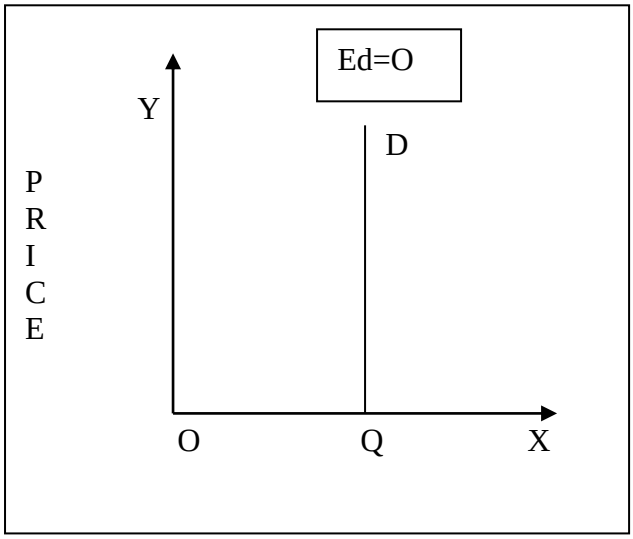
(i) According to Kenneth Boulding, "Elasticity of demand measures the responsiveness of demand to changes in price."
(ii) In the words of Dr. Marshall , "Elasticity of demand (or responsiveness of demand) in a market is great or small according to the amount demanded increases much or little for a given fall in price and diminishes much or little for given rise in price."

(iii) According to A.K. Cairncross,"The elasticity of demand is the rate at which quantity bought changes as the price changes."
Remember, ***price elasticity of demand is commonly called the elasticity of demand.*** This is because price is the most changeable factor affecting the demand. Another noteworthy point is that ***price elasticity of demand is always negative*** as price and demand are inversely related. The negative sign is generally not used in writing the price elasticity of demand. It is understood.

2.2 Degrees (or kinds) of Price Elasticity of Demand. Price elasticity of demand differs from commodity to commodity and also from individual to individual. As noted above, a given change in price may lead to significant or small change in the quantity demanded. If change in demand is significant, demand of the commodity is said to be elastic. Demand is said to be inelastic when rate of change in demand is small. Price elasticity of demand may be zero Economists, in fact, speak of ***five degrees*** of price elasticity which are explained below:

(i) **Perfectly Inelastic Demand**. When quantity demanded does not change at all as a result of change in price of the commodity, demand of that commodity will be said to be perfectly inelastic. In such a case, quantity demanded is independent of price changes. That is, any rise or fall in the price of a commodity causes no change in the quantity demanded of that commodity. Demand here is non-responsive and the numerical value of price elasticity (E_d) WILL BE ZERO. Demand curve will be parallel to Y-axis as shown in Fig.4.1

Fig.4.1



In the Fig. demand remains unchanged. This type of situation is normally not found in our real life. This is a special case if the product is absolutely essential like medicine or salt, etc.

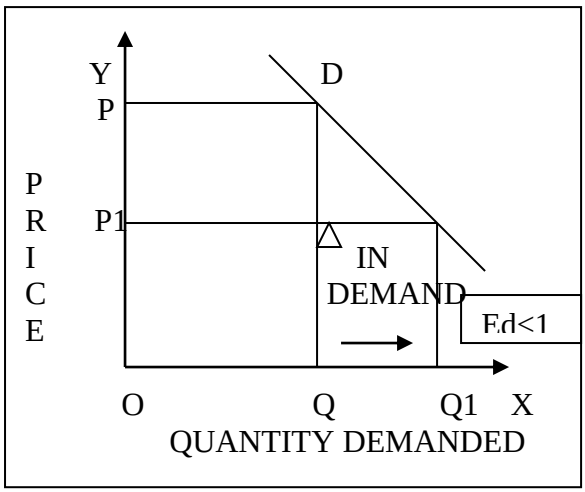
Example:

Price of Commodity (Rs. Per.kg.)	Demand (kg.)
18	4
20	4
22	4

Perfectly inelastic demand may also be illustrated with the help of an example as given above. In the example quantity demanded remains unchanged (i.e.,4 kgs) even when price of the commodity falls from Rs. 20 to Rs. 18 per kg or rises from Rs. 20 to Rs. 22 per kg.

(ii) Inelastic Demand. When a large change in price does not bring so much change (proportionate change) in the demand, the demand is said to be inelastic. In this situation, percentage (or proportionate) change in demand is lesser than the percentage (or proportionate) change in price. For example, a fall in price by 10 per cent leads to rise in demand by only 5 per cent. Such a situation will arise when the demand for commodity is very urgent (i.e. when its consumption cannot be postponed) or the expenditure on it is very small or its close substitutes are not available in the market. The numerical value of price elasticity here will be less than unity (i.e., **Ed < 1**). The slope of an inelastic demand curve is steep (inclined more towards Y-axis) as shown in Fig. 4.2.

Fig.4.2

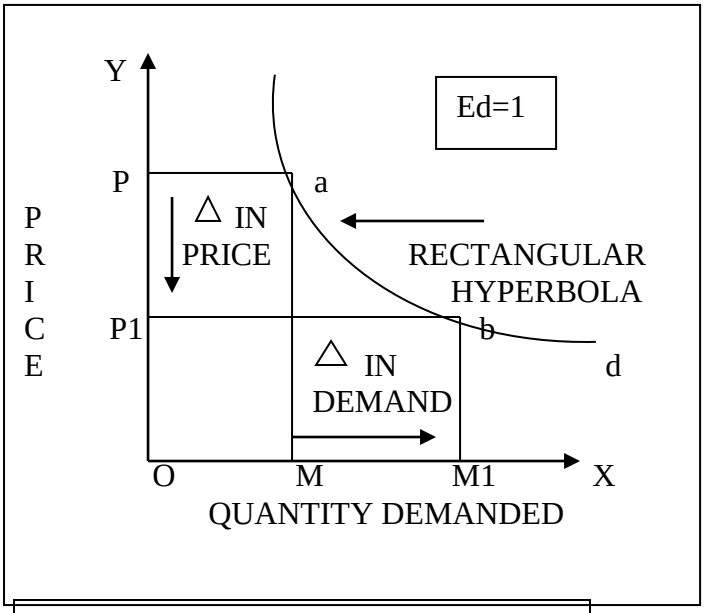


In Fig.4.2, a change in price of PP_1 bring only a small in quantity demanded (QQ_1) only

Change in Demand < Change in Price

(iii) **Unit Elastic Demand**. In this situation, percentage change in demand is equal to percentage change in price .For instance, if price of milk rises by 20 per cent and consequently its demand also falls by 20 per cent, price elasticity of demand for milk will be unitary elastic. According to Dr. Marshall, if price elasticity of demand is equal to unity , total expenditure on the commodity remains the same even when the price changes .This case has been shown in the following diagram .In Fig.4.3,change in demand and change in price are equal .(**Ed = 1)**

Fig.4.3



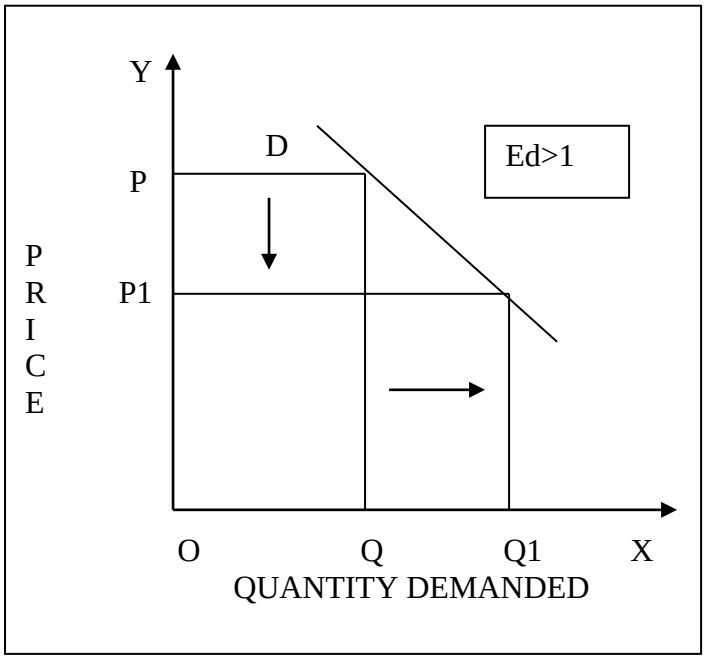
Change in Demand = Change in Price

Elasticity of demand will be equal to one when demand curve takes the shape of rectangular hyperbola .Rectangular hyperbola is a curve under which all rectangular area (such as OPaM and OP1bM1 in the above diagram) are equal. Each rectangular area shows the total expenditure spent on the commodity at various prices. Price of the commodity multiplied by its quantity demanded gives us total expenditure on the commodity.

This is a special case in which demand curve extends towards X-axis and Y-axis in a uniform manner without touching them.

(iv) **Elastic Demand** .Demand is said to be elastic when percentage change in demand is much greater than percentage change in price .For example, if price of a commodity falls by 10 per cent and, as a result of it, its demand rises by 20 per cent, demand of the commodity will be said to be elastic .The numerical value of price elasticity will be greater than unity (i.e., **Ed > 1**). This type of situation occurs when (a) we study luxury goods ;(b) close substitutes of the commodity are large; (d) the commodity has many uses. [See Fig.4.4].

Fig.4.4

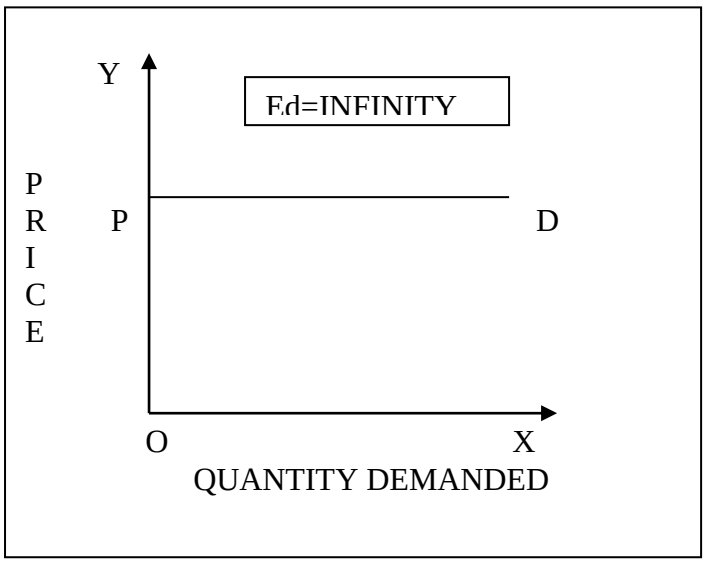


Change in Demand > Change in Price

In the above diagram, DD is an elastic demand curve. When price declines from OP to OP1, demand increase from OQ to OQ1. It is very clear here that change in demand (QQ1) is much more than change in price (PP1). It is a flatter curve. Its slope is inclined towards X-axis. The numerical value of price elasticity will be greater than one.

(v) **Perfectly Elastic Demand Curve** .It is a situation in which a small change in price causes an infinitely large change in amount demanded .A small rise in price on the part of the seller reduces the demand to zero. A small reduction in price, on the other hand, leads to infinitely large increase in demand (i.e., no seller is able to satisfy this demand at the reduced price). In our real life, we do not have any such commodity having perfectly elastic demand. Here, elasticity of demand is equal to infinity (Ed=∞) and demand curve becomes parallel to X-axis as shown in Fig. 4.5. This is another special case. Here the commodity is demanded only at the particular price that is OP in the diagram.

Fig. 4.5

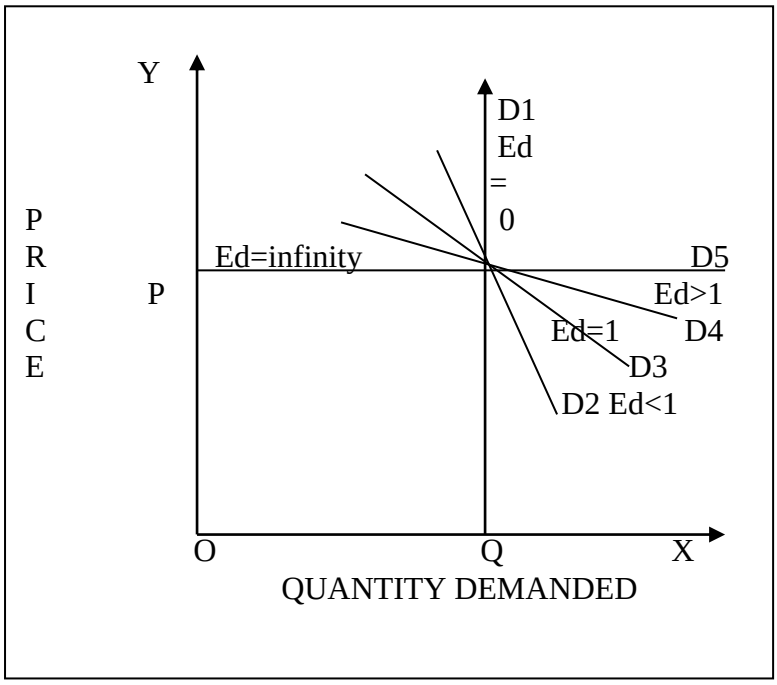


Different kinds/degrees of Price Elasticity of Demand – A Brief Review

S. No.	Value of Elasticity of Demand	Types of price Elasticity of Demand	Description
(i)	Ed= 0	Perfectly inelastic	Change in price does not affect demand at all.
(ii)	Ed= 1	Elastic	% change in demand is greater than % change in price
(iii)	Ed > 1	Unit elastic	% change in demand is equal to % change in price.
(iv)	Ed<1	Inelastic or less elastic I	%change in demand is lesser than % change in price
(v)	Ed=∞	Perfectly elastic	Infinite increase in demand at an even slightly lower price and no demand at all at an even slightly higher price.

Fig. 4.6 shows the comparison of different demand curves having different degrees of price elasticity. Price elasticity of demand, thus, may have a value from zero to infinity as summarized above.

Fig. 4.6

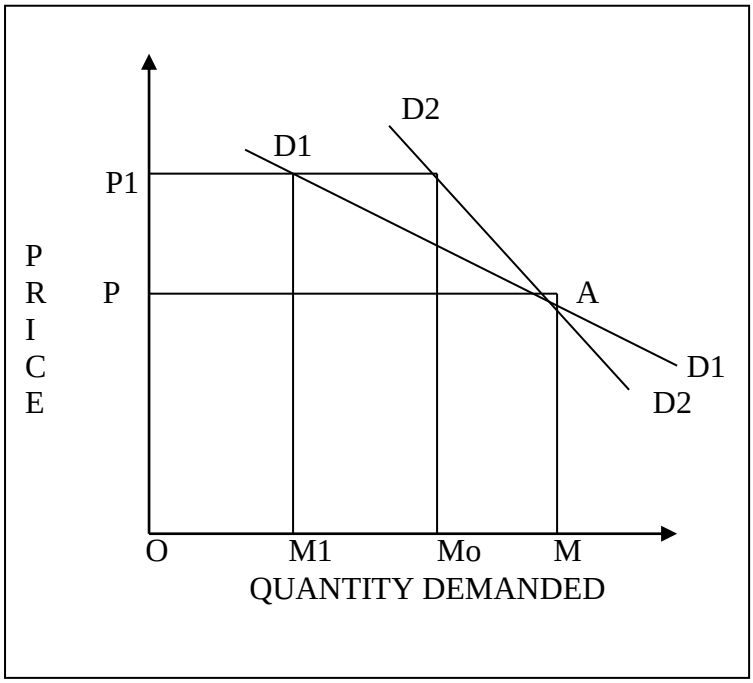


Higher value of price elasticity always means greater elasticity. Negative sign (-) of elasticity is ignored because of the inverse relationship between price of a commodity and its quantity demanded.

Cases of Price Elasticity	
Special cases	**Common cases**
(i) Ed = 0	(i) Ed > 1
(ii) Ed= ∞	(ii) Ed < 1
(iii) Ed= 1	

Remember, if the two demand curves intersect each other, the elasticity of demand, at the point of their intersection will be higher on the flatter curve. This has been illustrated in the following diagram.

Fig. 4.7



In Fig. 4.7, demand curves D1D1 and D2D2 intersect each other at point A. At this point, the price is OP and quantity demanded is OM. Its price rises to OP1 the quantity demanded falls more along the flatter curve D1D1. It falls by M1 M amount (from OM to OM1) but fall in quantity demanded in case of steeper demand curve D2D2, is less. It is M0 M. Therefore, price elasticity associated with flatter demand curve is higher.

2.3 Factors Affecting Elasticity of Demand. Price elasticity of demand depends upon several factors. Important among them are explained below.

(i) **Nature of the Commodity**. Price elasticity for necessaries of life, such as food grains, medicines, textbooks, etc. is very low in comparison to luxury goods where price elasticity is quite high. The consumers will buy almost the same quantity of a necessary commodity per unit of time whether its price is somewhat higher or lower.

Surely the demand for butter, eggs, meat, etc. is highly elastic for a poor man as compared to food grains, medicines, salt, etc. where demand is inelastic.

(ii) **Availability of Substitutes**. Secondly, demand for a commodity will be more elastic if its close substitutes are available in the market. For example, demand for Coca Cola is elastic since its close substitutes, like Pepsi or Thumbs-Up, etc. is available at competitive prices. If price of Coca cola goes up, people will be encouraged to buy Pepsi or Thumbs-Up or other brand of the commodity. The demand for Coca Cola will therefore fall down. Reverse will happen if price of coca cola falls down. Salt, milk on the other hand, have no close substitutes. Hence, they are considered necessities. Therefore, their demand will be inelastic.

(iii) **Number of Uses**. Thirdly, the greater the number of uses of a commodity, higher is the price elasticity of demand. For example, coal, steel, electricity, milk, etc. all these commodities can be put to many uses. For example, milk can be used in making sweets, preparing tea, curd, cheese, etc. If its price rises, it will be put only to important uses and, therefore, quantity demanded of milk will fall considerably. On the other hand, if price of milk falls, consumers will start using it in even less important uses and consequently its demand will increase. Conversely, demand for bangles will be inelastic as the same are used only by women and have no other use.

(iv) **Possibility of Postponement**. Fourthly, price elasticity of demand also depends upon the possibility of postponing the purchase of a commodity. If the demand for a particular commodity can be postponed for sometime, its demand will be elastic or vice-versa. Take the example of VCR. If price of VCR goes up, people try to postpone its purchase and therefore, its demand will fall significantly. On the other hand, demand for food grains, medicines, etc. is inelastic as the consumption of same cannot be postponed.

(v) **Proportion of Income Spent**. Fifthly, elasticity of demand for a commodity depends upon the proportion of income spent by a consumer on that commodity. For example, a consumer spends very small part of his income on the purchase of match-boxes, boot-polish, etc. Therefore, even a large change in their price will not induce him to change his level of demand. But when we take commodities like furniture, clothes, etc. where the consumer spends a considerable part of his total income, their demand will be elastic.

(vi) **Habits**. Those goods which have become habitual necessities for the consumers have low price elasticity. For example, the demand for cigarettes and wine, etc, is inelastic.

(vii) **Time Period**. Price elasticity of demand is always related to period of time. It varies with the length of time period. Generally speaking, longer the duration of period, greater will be the price elasticity of demand and vice-versa. This is because of the fact that consumers can change their consumption habits in the long period (as compared to short period) in favour of cheaper substitutes of the commodity.

(viii) **Price Level**. Price elasticity of demand also depends upon the price level of the commodity. Highly priced goods like diamonds and low-priced goods like postcards, matchbox, coarse grains etc. have low price elasticity of demand, because their consumers are not responsive to price –changes. But middle class commodities are quite price-elastic. For example, demand for radios, cycles, watches, etc. is price elastic as their consumers are quite conscious of changes in price.

(ix) **Joint Demand**. Finally, joint demand for goods also affects the elasticity of demand. For example, if demand for car is inelastic, the demand for petrol will also be inelastic. Likewise, price elasticity of demand for ink depends directly upon the elasticity of demand for pens.

Why Does Elasticity of Demand Vary Among Individuals?

Elasticity of demand not only varies from commodity to Commodity but also varies among different individuals. The demand for a commodity would depend upon the nature and tastes of people. Suppose Pratyush likes Coke and does not take any other drink, whatever price (a bit higher or a bit lower) he has to pay for it, he will pay and demand coke. Similar is the case with habitual necessities. For example even a 50 per cent increase in the price of Cigarettes would probably not be able to reduce consumption of chain smokers. But car may be a luxury item for an office clerk but surely a necessity for a doctor. Similarly for persons with a high social status like the president or the Prime Minister, big buildings, ACs, expensive cars are necessities and hence their demand is inelastic. But for persons with ordinary status these things will constitute luxuries of life and demand for such commodities to them will be elastic.

Price Elasticity in Case of some Selected Commodities.

Item	Price – elasticity	Reason
1. Air Conditioner	Highly elastic	It is a luxury item
2. Rice in Bengal	Inelastic	It is a staple good item in Bengal.
3. Eating in a Five Star Restaurant	Elastic	It is a luxury for many people.
4. Opium	Inelastic	It is a habitual necessity
5. Salt	Inelastic	It is an essential item
6. Tata salt	Elastic	Because other brands of salt are available in the market.
7. News Paper	Inelastic	Because a very small proportion of income is spent on it
8. Milk	Inelastic	Milk has no good substitutes.
9. Car	Elastic	Car is a luxury item.
10. Refrigerators	Moderately Elastic	It is neither an essential item nor a luxury item.
11. Sugar	Inelastic	It has no good substitute
12. Match boxes	Inelastic	Consumer spends a very small proportion a very small proportion of his income.
13. Electricity	Elastic	Electricity can be put to several uses.
14. Textbooks	Inelastic	Textbooks are essential goods
15. Tea	Elastic	Because coffee is its good substitute.
16. Food grains	Inelastic	Because demand for food grains cannot be postponed.
17. Seasonal Vegetable	Inelastic	People prefer to consume them.
18. Coke	Elastic	Because it’s close substitute (i.e. Pepsi) is available.

19. Diamond Necklace	Inelastic	Diamond necklace is bought by the rich who don't bother much about the prices.
20. Cigarettes	Inelastic	Their consumers are habituated
21.Four square Cigarettes	Elastic	Because other brands of cigarettes are available in the market.
22. Butter for a poor man	Elastic	Butter is a luxury item for a poor man.
23. Taxi Rides	Elastic	Taxi rides are relatively expensive.
24. Public transportation in Metropolitan cities	Inelastic	There are no inexpensive good substitute for public transportation

Income Elasticity of Demand:

The income elasticity of demand is a measure of the extent to which the demand for a good changes when income changes, other things remaining the same.
The formula used to calculate the income elasticity of demand is:

$$\text{Income elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}.$$

1. For a normal good, the income elasticity of demand is positive.
2. When the income elasticity of demand is greater than 1, demand is income elastic.
3. When the income elasticity of demand is between zero and 1, demand is income inelastic.
4. For an inferior good, the income elasticity of demand is less than 0 i.e., negative.
5. In this case, quantity demanded remain the same, even though money income increases.ie, changes in the income doesn't influence the quantity demanded (Eg.salt, sugar etc). Here Ey (income elasticity) = 0

Cross Elasticity of Demand:

The cross elasticity of demand is a measure of the extent to which the demand for a good changes when the price of a substitute or complement changes, other things remaining the same.

The formula used to calculate the cross elasticity of demand is:

$$\text{Cross elasticity of demand} = \frac{\text{Percentage change in quantity demanded of a good}}{\text{Percentage change in price of one of its substitutes or complements}}.$$

1. The cross elasticity of demand for a substitute is positive.
2. The cross elasticity of demand for a complement is negative.
3. The cross elasticity of demand for an unrelated/independent goods is zero.

Importance of Elasticity of Demand.

(1) Useful to a Producer: Every producer has to decide the price of his product at which he has to sell it. While deciding it, elasticity of demand becomes important for him. If the demand of his product is less elastic, he will fix up a higher price or vice- versa. If the producer is a monopolist, his policy of price

discrimination would depend upon the elasticity of demand in different markets. Price discrimination would be profitable for him only when elasticity of demand is different in different markets. Those consumers, whose demand is inelastic, can be charged a higher price than those whose demand is elastic. The concept of elasticity also comes to producers' help when they have to determine the price of jointly produced goods. For example, oil and oilcakes are two jointly produced goods. If the demand for oil is inelastic as compared to the demand for oilcakes, a higher price for oil is charged.

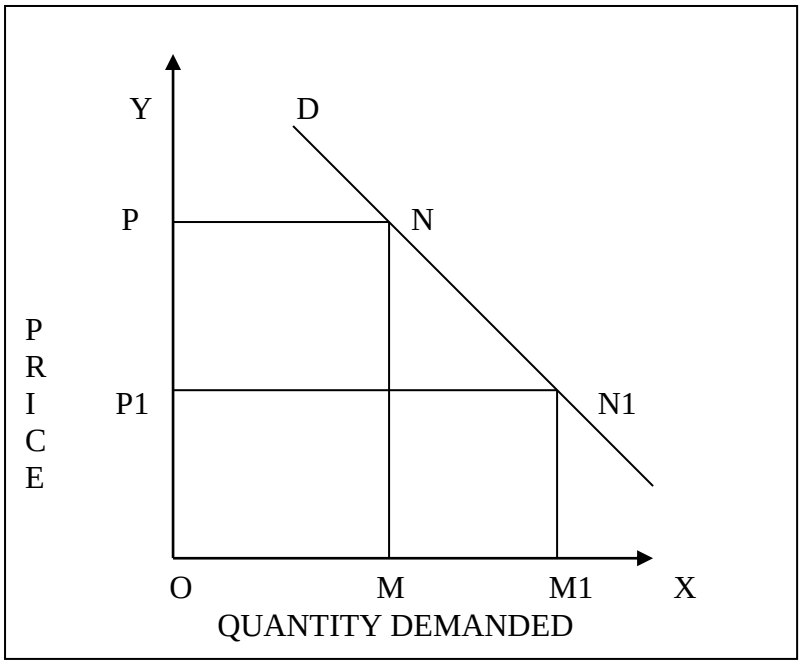
(2) Importance in Factor Pricing. The concept of elasticity of demand is useful in the determination of factor prices. The factors of production, for which demand is less elastic, can, obtain a higher price as compared to those having elastic demand. Workers producing products having inelastic demand can easily get their wages raised.

(3) Useful to a Finance Minister. The finance minister of a country makes use of the concept while imposing taxes. He often taxes those commodities whose demand is less elastic. Because when demand is less elastic, and increase in the price (due to increase in tax) of these commodities will not affect their demand much. And the finance minister can easily raise revenue from taxation.

(4) Importance in International Trade. The idea of elasticity of demand enables us to determine the terms of trade between the two countries. For example, if Pakistan knows that India's demand for its cotton is inelastic, it can very easily increase the price of cotton. Similarly, if India knows that Pakistan must buy coal from her (i.e. demand for coal is inelastic) India would take advantage of her position, and thus will increase the price of coal.

(5) Explains the Paradox of Poverty. The income of farmers remains low even when their production has increased. When a rich harvest actually fetches them less money, this is called the paradox of poverty .This paradox can be better explained with the help of price elasticity of demand. Owing to inelasticity of demand of agricultural goods, prices of these commodities have to be kept very low, when their production increases considerably. This can be explained with the help of the following diagram :

Fig. 4.8



In Fig. 4.8, if the farmers produce OM level of output, the buyers will be prepared to purchase the whole of this output at OP price and thereby , the income of the farmers will be OPNM (i.e. , Price x Quantity = Total revenue). Suppose, owing to a rich harvest, their production increases to OM_1, and then the whole of this output can only be sold if prices are reduced to OP_1, which is much lower than OP. The income of the farmers would now be OP_1 N1M1 which is quite lesser than the precious income of OPNM. It shows that bumper crop instead of being a cause of their prosperity may prove harmful. It is because the demand for the commodity is inelastic.

3. Difference between Law of Demand and Elasticity of Demand

Basic	**Law of Demand**	**Elasticity Of Demand**
1. Meaning	Law of demand states, other things being equal, the inverse relation between price of a commodity and its quantity demanded.	Elasticity of demand is the rate of change in quantity demanded of a commodity as a result of change in its price.
2. Change in Demand	It reflects the direction of change in demand	It tells us the magnitude of the change in demand

4. Methods of Measurement

There are several methods of measuring elasticity of demand. Here we will discuss only three popular methods. These are:

1. Percentage Method
2. Total Expenditure Method
3. Geometrical (or Point or Tangent) Method.

4.1 Percentage (or Proportionate Method). According to this method, elasticity of demand is measured by dividing the percentage change in demand by the percentage change in price. If the percentage (or proportionate) change in demand is higher than the percentage change in price, elasticity of demand will be greater than unity.
We can write in the from of formula as:

$$E_d = \frac{\text{Percentage change in demand}}{\text{Percentage change in price}}$$

OR

$$= \frac{\dfrac{\text{Change in demand}}{\text{Original demand}} \times 100}{\dfrac{\text{Change in price}}{\text{Original Price}} \times 100}$$

Mathematically, the above formula can be presented as under:

$$E_d = \frac{\frac{\Delta Q}{Q} \times 100}{\frac{\Delta P}{P} \times 100} \quad \text{OR} \quad E_d = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}}$$

Here,

E_d	=	Elasticity of demand
ΔQ	=	Change in demand
Q	=	Original demand
ΔP	=	Change in price
P	=	Original price

Since, under this method elasticity of demand is measured mathematically, so this method is also known as 'mathematical method'.
The absolute value of the coefficient of elasticity ranges from zero to infinity ($0 \leq E_d \leq \infty$).

NUMERICAL EXAMPLE

Example 1. Find out the elasticity of demand on the basis of the following data:

Price	Quantity
Rs. 10	20 quintals
Rs. 20	15 quintals

Solution.

$$E_d = \frac{\frac{\Delta Q}{Q} \times 100}{\frac{\Delta P}{P} \times 100}$$

$\Delta Q = 5$

$Q = 20$

$\Delta P = 10$ Rs.

$P = 10$Rs.

By putting these values:

$$Ed = 5 \div 20 \times 10 \div 10 = 0.25$$

Ans. Demand here is less elastic

4.2 Total expenditure (or Outlay) Method. This method of measuring price elasticity was given by Dr. Marshall. In this method, the change in price and the consequent change in the total amount of money spent on it are considered. Marshall distinguished between three separate cases of changes in total expenditure resulting from a change in the price of the commodity. These can be shown with the help of Table 4.1

Table 4.1
Three cases of Prices Elasticity

Part	Price Per kg. (Rs.)	Quantity Demanded (in kgs)	Total Expenditure (Rs.)	Value of price elasticity	Relation between price and Total Expenditure
I	10 9 8 7	1 2 3 4	10 18 24 28	Greater than unity	Inverse
II	6 5	5 6	30 30	Equal to unity	Constant
III	4 3 2 1	7 8 9 10	28 24 18 10	Less than unity	Positive

According to this method, there can be three cases of price elasticity:

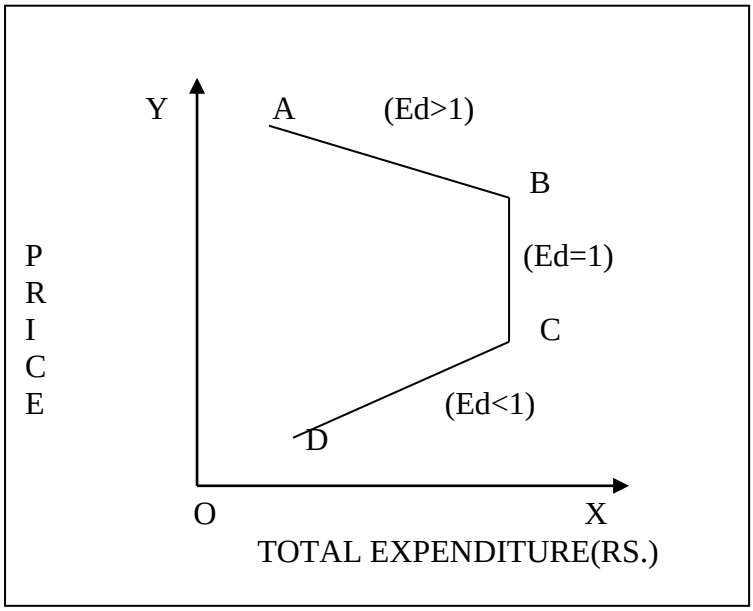
(i) If a fall in price of the commodity leads to increase in total expenditure or a rise in price reduces total expenditure, price elasticity of demand will be greater than unity. In this case, price and total expenditure move in the opposite direction. This happens when proportionate change in demand is greater than change in price. The first part of the table shows this situation.

(ii) If price and total expenditure move in the same direction (as in the third part of our table), elasticity of demand is said to be inelastic or less than unity. This happens when change is demand is proportionately less than the change in price.

(iii) If the change in price of the commodity does not result in change in total expenditure, elasticity of demand within that range of price is equal to one. This happens when the change in price and the change in demand for the commodity are equal (or proportionate). (In such a case, there will be no change in the total expenditure of the consumers).Observe the second part of the table.

The above mentioned three cases of price elasticity of demand can also be made clearer through following diagram.

Fig. 4.11

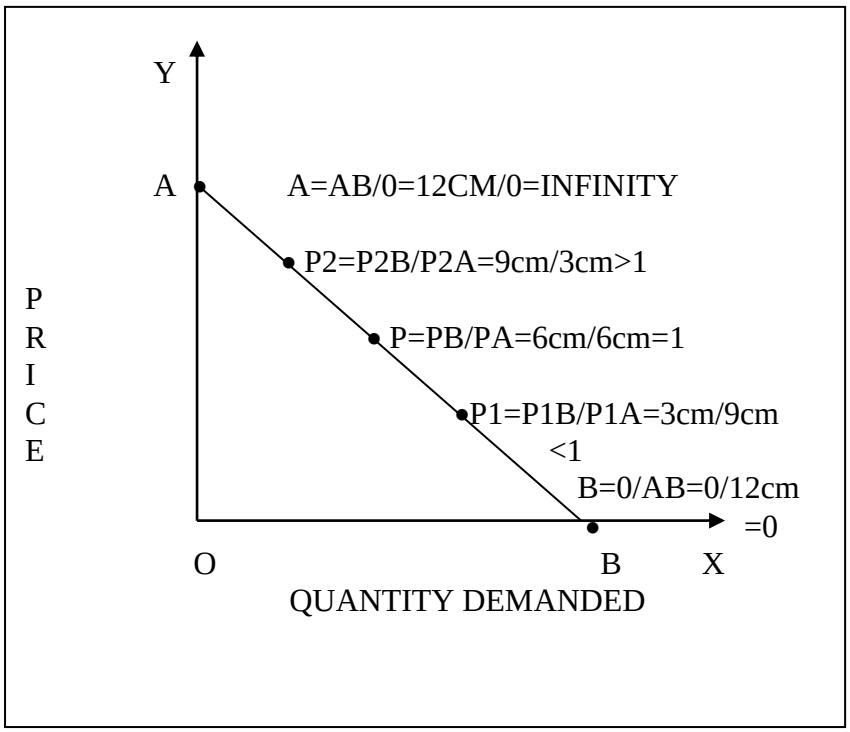


In fig. 4.11, price is shown on the vertical axis and total outlay on horizontal axis. ABCD is the total outlay curve (i.e. expenditure curve) which has three different shapes indicating three different cases of price elasticity. In the AB part of the curve, price and total outlay are inversely related. So, price elasticity here will be greater than unity. In BC part, total outlay remains unaffected even when price changes. Therefore, elasticity of demand in the part will be equal to one. CD is the last part of the curve. It indicates the movement of price and total expenditure in the same direction. The value of price elasticity here is less than unity.

Remember, total expenditure method does not measure value of price elasticity exactly but indicates only three broad cases.

4.3 Geometrical (or point) Method. This method of measuring elasticity of demand was also given by Dr. Marshall. In this method, we make use of a demand curve while measuring price elasticity. That is why it is called the graphic method or the geometrical method. Through this method, we can measure elasticity of demand, at any point on the demand curve. This can be illustrated with the help of a diagram.

Fig. 4.12



In Fig. 4.12, we have taken a straight line (i.e. linear) demand curve AB measuring exactly 12 centimeters. We have taken five different points on it. Elasticity of demand at any point can be measured by using the following formula.

P is the middle point which divides the demand curve AB into two equal parts of 6 cm each. So, at this point, Ed=1. Obviously, any point above P shows price elasticity greater than unity because the lower part of the curve will become larger than the upper part. Similarly, at any point below P, price elasticity will be less than unity. Elasticity of demand will be zero at point B and infinity at point A.

Exercises

1. A dentist was charging Rs. 300 for a standard cleaning Job and per month it used to generate total revenue equal to Rs. 30,000. She has since last month increased the price of dental cleaning to Rs. 350. As a result, fewer customers are now coming for dental cleaning, but the total revenue is now Rs. 33,250. From this , what can we conclude about the elasticity of demand for such a dental service ?
2. On the basis of information given below, compare price elasticities of goods A and B.

Commodity A		Commodity B	
Price per unit	Total Expenditure	Price per unit	Total Expenditure
4	20	3	15
5	30	4	24

SUPPLY

To use Watson's words, "In economics, the words supply always means a schedule –a – schedule of possible prices and of amounts that would be sold at each price. A supply function is the relation between different quantities sold and the determinants of the quantities. In ordinary conversation, however, the word supply often signifies some one definite amount, such as the number of bushels of wheat produced last year.

In the words of K.E. Boulding, "The relation between a price and the quantity supplied is rather like the relation between a whistle and a dog-the louder the whistle, the faster comes the dog; raise the price and the quantity supplied increases. If the dog is responsive – in economic terminology elastic-quite a small crescendo in the whistle will send him bounding along. If the dog is unresponsive or inelastic we may have to whistle very loudly before he comes along at all ".

FACTORS AFFECTING SUPPLY

Supply refers to various quantities of a commodity which a producer will actually offer for sale at a particular time at various corresponding prices. Supply of commodity depends upon a number of factors. It is difficult to analyses the effect of a simultaneous change in all the factors. It is difficult to analyses the effect of a simultaneous change in all the factors. While studying the effect of any factor, other factors are assumed to be constant. Some of the important factors which affect the quantity supplied of a commodity in isolation are as follow:

1. **Price**

It is the most important determinant of supply of a commodity. The higher the price of the commodity, more of the commodity will be offered for sale on account of rise in its profitability and vice-versa. The direct relationship between price and supply of a commodity is also referred to as the law of supply.

2. **Prices of Related Goods**.

Supply of a commodity also depends upon the prices of the related goods by affecting its relative profitability. For instance, if the price of a substitute good goes up, the producers will be tempted produce that good to get higher profit. Similarly, if the price of the substitute good falls, production of other commodity will become more profitable. On the other hand, the rise in the price of a complement (say, petrol) will reduce the suppler of the commodity (e.g. cars) However, the change in the quantity supplied of one commodity is lesser in response to a change in the price of other commodity than to change in its own price. In the former case, producers of a commodity can shift to several alternative products, when its price falls.

3. **Cost of Production**

Prices of the factors of production (raw materials, land, labour, capital) used in the production of a commodity constitute the cost of production. If the prices of these factors rise, the total cost of production goes up. In such a situation, the producers will divert their resources to the production of some other commodity using relatively less quantity of these factors, which can be produced at a lower cost. For example, a rise

in the price of land will discourage the production of agricultural products. On the other hand, use of high yielding varieties of seeds, chemical fertilizers, tractors, etc reduce the per unit cost of production of agricultural products. The cost of manufacturing products can be reduced through the use of sophisticated machines. Goods produced on large scale, reduce the cost of production. Better organization and management is one such important cause to reduce the cost of production.

4. **State of Technology**

The state of technology changes over time. Improvements in technology increase the knowledge about the means of production and raises factor productivities. Hence, improvements in the methods of production reduce the cost of production and increase the profits. Discoveries and innovations also bring new variety of products. All this contributes to raise the supply upward. Firms supply more than before at the given prices as a result.

5. Goal of Producer

The objective with which the producer undertakes production also affects the supply of the commodity. The goal of the producer may be to maximize total profits or to maximize sales to capture the market or to improve status. Goodwill and prestige in the market. Public enterprises whose goal is to increase production and generate more employment to maximize social welfare supply larger amount of commodity than profit motivated private firms. The producers may also decide to cut back production or destroy stock in order to raise prices. During the great depression, the production of rubber, tea and some other commodities was restricted through international agreements among the producers. Coffee was thrown into the sea in Brazil.

6. Natural Factors

The supply of agricultural goods to a great extent depends upon the natural conditions. If these factors (like rain, fertility of land, improved seeds, irrigation facilities, climate etc.) are favorable, supply will increase. On the contrary, earthquakes, heavy rains, floods, droughts adversely affect agricultural production. India experienced large production in the agricultural sector on account of Green Revolution and more supply of agricultural inputs, fertilizer, water supply, pesticides, credit, etc.

7. Means of Transportation, Communication, Banking and Insurance

Proper development of infrastructure ensures adequate supply of the commodities. In case of short supply, goods can be brought from surplus areas to the deficient ones.

8. **Length of Time**.

The supply of commodity remains more or less fixed in the market period, particularly, in case of perishable goods. In short period, the supply of a commodity can be increased by utilizing the capacity full by altering the factor proportion, in the long period, the output level can be adjusted fully.

9. Other factors

Some other factors which affect the supply of a commodity are expected changes in prices, taxation and other policies of the Government, fear of war, strikes, lockouts, weather business conditions, degree of competition in the market, agreement among the firms to earn large profit, nature of commodity, number of firms , etc.

Thus, supply of commodity X(Sx) can be put as a function of price of that commodity (Px) the price of related commodities (Py, Pz,…..) cost of production (C) , technology (T), goals of the producer (G) and other factors (O) .This function can be written as:

Sx = f (Px, Py, Pz,……..,C,T,G,O)

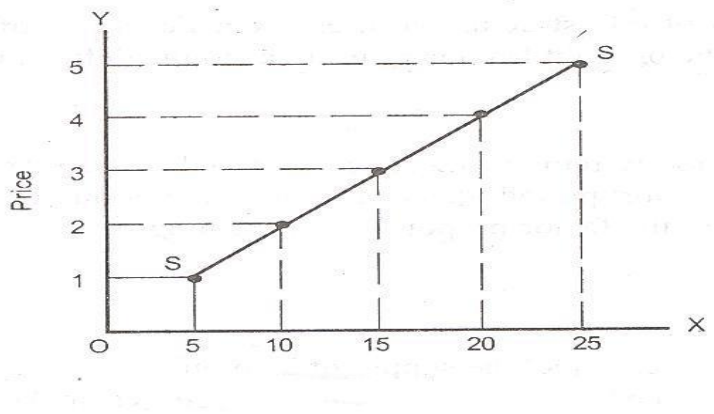
LAW OF SUPPLY

The law of supply shows a direct relationship between price and supply of a commodity. The law states that *as the price of a commodity increase, the quantity of the commodity supplied per unit of time increases and vice versa, assuming all the other factors influencing supply remains unchanged.* In this statement, change in the price is the cause and change in supply is the effect. Thus, price rise leads to supply rise and not otherwise.

The relationship between price and supply can be shown by drawing the supply curve for a product depicts the direct relation between the price of that commodity and the quantity, producers wish to supply at that price. This curve can be drawn by preparing supply schedule, which is a tabular statement that gives different prices of a commodity and the quantities which a producer is willing to supply per unit of time, at each price, assuming other factors affecting the supply to be constant. A hypothetical supply schedule is given in the following table 5.1.

Price (Rs.)	Quantity(Units)
1	5
2	10
3	15
4	20
5	25

Supply curve based on this imaginary data is shown below (Fig.5.1)



This curve is drawn on the assumption that all other factors(other than the price of the commodity) that affect the supply remain same. Supply curve conveys the same information as a supply schedule. The higher the price, the greater is the inducement to the producer to produce more and vice- versa. The upward sloping supply curve is a diagrammatic representation of the law of supply.

Like the demand curve, the supply curve also indicates the planned or expected behaviour of the sellers. It shows the maximum quantity produced and supplied at any given price or the minimum price expected by each seller for a given quantity of a commodity.

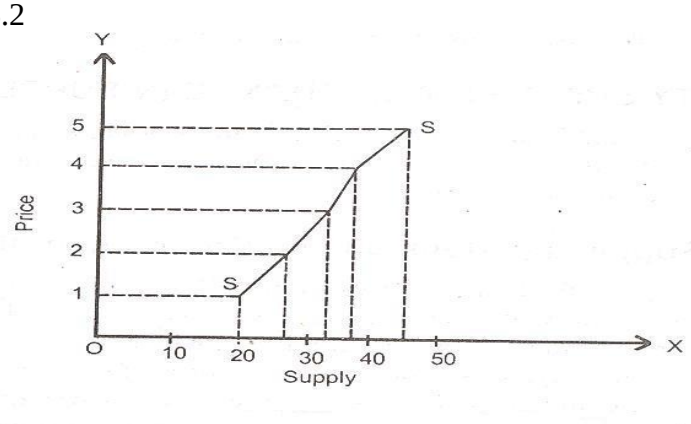
In the market, many producers supply a commodity. Market (or industry) supply at a particular price of the commodity is obtained by adding the amounts supplied by the individual producers at that price. A market supply schedule for a commodity is the sum of the individual supply schedules of all the producers engaged in the production of a commodity during a given time .It reflects the total of various quantities offered for sale by all the producers at different prices.

Suppose, there are only two producers, Anu and Manu, producing a commodity. Individual supply schedules and the resultant market supply schedule are given below in the table 5.2

Price (Rs.)	Individual Supply Schedules Quantities Supplied : by Anu(Q_A)	by Manu (Q_B)	Market Supply Schedule $Q_A + Q_B$
5	25	20	45
4	20	16	36
3	18	15	33
2	15	12	27
1	10	10	20

Market supply curve is the horizontal summation of individual supply curves. Alternatively, we can get market supply curve by plotting the various price quantity combination (shown in the market supply schedule) on a diagram. Fig 5.2 depicts the market supply curve based on the market supply schedule prepared in table 5.2

Fig 5.2



The law of supply operates on account of the following reasons:

(a) **Law of Diminishing Marginal Productivity**: As we produce more and more beyond a certain limit, the additional return to the variable factor diminishes. Marginal and average cost of production increase as a result. This implies that more quantity of the commodity can be produced and supplied only at a higher price so as to cover higher cost of production.

(b) **Profit Maximization**: Producers supply a commodity to secure maximum to secure maximum profits. An increase in the price of a commodity raises the level of profit, with conditions of cost remaining the same. So producers increase the supply of the commodity by releasing big quantities from their stocks. Similarly, lower price forces the producers to decrease the supply of the commodity by building up their inventories with the expectation that the price may rise in the future yielding larger profits.

There are a few exceptions to the law of supply. Some of the exceptions are as follows:

(a) **Non-Maximisation of Profits**: Sometimes, the goal of firm is not to maximize the profits, but, to maximize the sales. In that case, the Quantity supplied may increase even when price does not rise. This usually happens, when firm is interested in the maximization of long term profits.

(b) **Factors Other than Price not Remaining Constant**: The law of supply is stated on the assumption that factors other than the price of the commodity remain constant. The quantity supplied of a commodity may fall at a given price if price of other commodities show a rising trend. The change in the state of technology can also bring about a change in the quantity supplied even if the price of that commodity does not undergo a change. Similarly, expectations of rise in the price in the future may induce the sellers to with hold supplies so as to get greater profits later on.

(c) **Subsistence Farming:** In underdeveloped economies like India, where agricultural farms are in subsistence rather than commercial .As prices of food grains rise, marketable surplus of food grains fall rather than rising, resulting in backward sloping supply curve. With rise in the prices of food grains, farmer can get the required amount of income by selling less and keeping the balance for their own consumption than before.

CHANGE IN QUANTITY SUPPLIED AND CHANGE IN SUPPLY

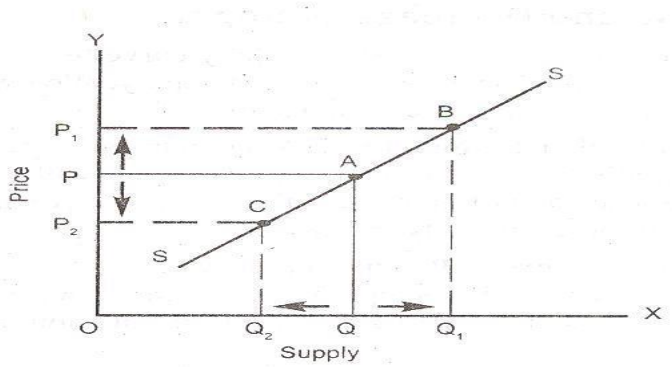
If the supply of a commodity changes due to change in its price, it is called change in quantity supplied. On the other hand, if the quantity of a commodity changes due to factors other than the price of the commodity, we call it change in supply.

Change in Quantity Supplied (Extension and Contraction of Supply)

The change in quantity supplied can be of two types. When the quantity supplied falls due to the fall in the price of a commodity, it is termed as contraction of supply. Here, supply contracts as a result of the fall in the price of the commodity. Similarly, when the quantity supplied rises due to rise in the price of the commodity, it is called extension of supply.

Here, supply extends as a result of rise in the price of the commodity. In both the cases, the law of supply applies. Thus, the change in quantity supplied is the result of changes in price of the commodity in question, other things remaining constant. It will be clear from the Fig. 5.3 that the change in quantity supplied (both extension and contraction) involve movement along the same supply curve with the changes in price. In this figure, the movement from point A to point B represents extension of supply, as quantity supplied has increased from OQ to OQ1 due to rise in price from OP to OP1 . Similarly, the movement from point A to point C represents contraction in supply, as the quantity supplied has decreased from OQ to OQ2 due to fall in price from OP to OP2.

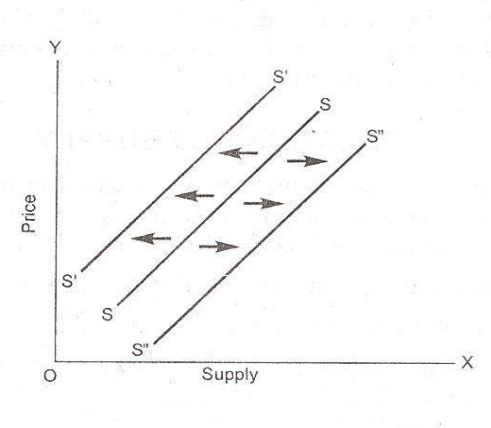
Fig. 5.3



Change in Supply (Increase and Decrease in Supply)

The change in supply can be of two types. When the quantity of a commodity rises due to factors (other than price of the commodity in question) like an innovation or the discovery of a cheap raw material, use of better techniques, decrease in prices of other commodities, expectations of fall in the price of the commodities in future etc. it is termed as increase in supply. Increase in supply implies a rightward shift of the supply curve, showing that producers are willing to supply more at each price (or same quantity at a higher price). It is shown by the shift of curve from SS to S'S'in Fig. 5.4 on the other hand, when the quantity of commodity supplied falls at the same price, it is referred to as a decrease in supply. It is represented by a leftward shift of the supply curve indicating that producers are willing to supply less at each price. It is shown by shift in curve from SS to S"S" in Fig. 5.4 Thus, change in supply can be shown by shift in supply curve.

Fig. 5.4



The important distinction between a shift of a supply curve and a movement along a supply curve is that, where a shift of the supply curve occurs due to a change in conditions of supply. Price of the commodity remaining constant. While a movement along supply curve occurs due to a change in the price of the commodity, conditions of supply remaining constant.

Reasons for Increase and Decrease of Supply

The reasons for movement along the same supply curve (extension and contraction of supply), are explained under causes of operation of law of supply. We give below the reasons for the changes in supply (both increase and decrease in supply):

a) **Change in price of other Commodities:** A fall in the price of other commodities raises the supply of the commodity in question at each price, as this will increase the profits. Similarly, a rise in the price (on account of higher taxation or otherwise) of other commodities leads to a fall in the supply of the commodity in question.

b) **Changes in price of Factors of Production:** Increase in the price of factors of production raise the cost of production and so supply is reduced at each price. Similarly, decrease in the prices of factors of production decline the cost of production and thereby raising supply at each price.

C) **Change in Technology:** An improvement in technology decreases the cost of production and producer tends to produce and supply more at each price. Conversely, loss in technical knowledge leads to fall in supply at each price.

d) **Change or Expectations of Change in Price of Commodities:** Supply of a commodity can also change due to expectation of high or low price in future. For instance, expectation of a rise in the prices in future contracts the supply, while expectation of fall in the prices induces the sellers to unload the supply now resulting in an increase in the supply.

e) **Other factors:** Improvement in the means of transportation and communication (unless it encourages exports), increase in the number of sellers can increase supply, while political disturbances, fear of war may be responsible for the with holding of supply by the sellers. The change in the government policy can also affect the supply, since the government may restrict production of certain articles on the ground of health and social welfare (e .g. opium in India) or discourage the supply of the commodity by imposing taxes or encourage the supply of the commodity by providing subsidies. In all the above cases, supply curve shift to the right or left in case of favourable or unfavorable changes in factors (other than the price of the commodity in question) respectively.

QUESTIONS

1. Define supply, Explain factors on which supply of a commodity depends,
2. State and explain the law of supply .Illustrate it with the help of a supply schedule and supply curve. How the market supply curve is obtained from individual supply curves?
4. What are the main determinants of elasticity of supply of a commodity?
5. Distinguish between the following :
   (a) Stock and supply
   (b) Extension and increase in supply
   (c) Contraction and decrease in supply
   (d) Change in supply and change in quantity supplied.