DEMAND

What is Demand?

Demand is an economic principle referring to a consumer's desire to purchase goods and services and willingness to pay a price for a specific good or service. Holding all other factors constant, an increase in the price of a good or service will decrease the quantity demanded, and vice versa. Market demand is the total quantity demanded across all consumers in a market for a given good. Aggregate demand is the total demand for all goods and services in an economy. Multiple stocking strategies are often required to handle demand.

KEY POINTS

- Demand refers to consumers' desire to purchase goods and services at given prices.
- Demand can mean either market demand for a specific good or aggregate demand for the total of all goods in an economy.
- Demand, along with supply, determines the actual prices of goods and the volume of goods that changes hands in a market.

Understanding Demand

Businesses often spend a considerable amount of money to determine the amount of demand the public has for their products and services. How much of their goods will they actually be able to sell at any given price? Incorrect estimations either result in money left on the table if demand is underestimated or losses if demand is overestimated. Demand is what helps fuel the economy, and without it, businesses would not produce anything.

Demand is closely related to supply. While consumers try to pay the lowest prices they can for goods and services, suppliers try to maximize profits. If suppliers charge too much, the quantity demanded drops and suppliers do not sell enough product to earn sufficient profits. If suppliers charge too little, the quantity demanded increases but lower prices may not cover suppliers' costs or allow for profits. Some factors affecting demand include the appeal of a good or service, the availability of competing goods, the availability of financing, and the perceived availability of a good or service.

Types of Demand

Definition: The **Demand** for a product refers to the quantity of goods and services that the consumers are willing to buy at a particular price for a given point of time.

Types of Demand

The demand can be classified on the following basis:

1. Individual Demand and Market Demand: The individual demand refers to the demand for goods and services by the single consumer, whereas the market demand is the demand for a product by all the consumers who buy that product. Thus, the market demand is the aggregate of the individual demand.

2. Total Market Demand and Market Segment Demand: The total market demand refers to the aggregate demand for a product by all the consumers in the market who purchase a specific kind of a product. Further, this aggregate demand can be sub-divided into the segments on the basis of geographical areas, price sensitivity, customer size, age, sex, etc. are called as the market segment demand.

3. Derived Demand and Direct Demand: When the demand for a product/outcome is associated with the demand for another product/outcome is called as the derived demand or induced demand. Such as the demand for cotton yarn is derived from the demand for cotton cloth. Whereas, when the demand for the products/outcomes is independent of the demand for another product/outcome is called as the direct demand or autonomous demand. Such as, in the above example the demand for a cotton cloth is autonomous.

4. Industry Demand and Company Demand: The industry demand refers to the total aggregate demand for the products of a particular industry, such as demand for cement in the construction industry. While the company demand is a demand for the product which

is particular to the company and is a part of that industry. Such as demand for tyres manufactured by the Goodyear. Thus, the company demand can be expressed as the percentage of the industry demand.

5. Short-Run Demand and Long-Run Demand: The short term demand is more elastic which means that the changes in price or income are reflected immediately on the quantity demanded. Whereas, the long run demand is inelastic, which shows that demand for commodity exists as a result of adjustments following changes in pricing, promotional strategies, consumption patterns, etc.

6. Price Demand: The demand is often studied in parlance to price, and is therefore called as a price demand. The price demand means the amount of commodity a person is willing to purchase at a given price. While studying the demand, we often assume that the other factors such as income of the consumer, their tastes, and preferences, the prices of other related goods remain unchanged. There is a negative relationship between the price and demand Viz. As the price increases the demand decreases and as the price decreases the demand increases.

7. Income Demand: The income demand refers to the willingness of an individual to buy a certain quantity at a given income level. Here the price of the product, customer's tastes and preferences and the price of the related goods are expected to remain unchanged. There is a positive relationship between the income and demand. As the income increases the demand for the commodity also increases and vice-versa.

8. Cross Demand: It is one of the important types of demand wherein the demand for a commodity depends not on its own price, but on the price of other related products is called as the cross demand. Such as with the increase in the price of coffee the consumption of tea increases, since tea and coffee are **substitutes** to each other. Also, when the price of cars increases the demand for petrol decreases, as the car and petrol are **complimentary** to each other.

These are some of the important types of demand that the firms must cater to before deciding on the price and other factors related to their products.

Law of Demand

The law of demand states that, other things remaining the same, the quantity demanded of a commodity is inversely related to its price.

The law of demand is one of the most fundamental concepts in economics. It works with the law of supply to explain how market economies allocate resources and determine the prices of goods and services that we observe in everyday transactions. The law of demand states that quantity purchased varies inversely with price. In other words, the higher the price, the lower the quantity demanded. This occurs because of diminishing marginal utility. That is, consumers use the first units of an economic good they purchase to serve their most urgent needs first, and use each additional unit of the good to serve successively lower valued ends.

It is one of the important laws of economics which was firstly propounded by neo-classical economist, Alfred Marshall.

Other things remaining the same, the amount demanded increases with a fall in price and diminishes with a rise in price.
– Alfred Marshall

Thus, according to the law of demand, there is an inverse relationship between price and quantity demanded, other things remaining the same.

Law of demand expresses the functional relationship

D = f(P)

where,
P is price and
D is quantity demanded of a commodity
Other things being equal, if a price of a commodity falls, the quantity demanded of it will rise, and if the price of the commodity rises, its quantity demanded will decline.

Assumptions under which law of demand is valid

This law will be applicable only if the below mentioned points are fulfilled.

1. No change in price of related commodities.
2. No change in income of the consumer.
3. No change in taste and preferences, customs, habit and fashion of the consumer.
4. No change in size of population
5. No expectation regarding future change in price.

Understanding law of demand using demand schedule

This law can be explained with the help of demand schedule and demand curve as presented below:

Demand Schedule is a tabular representation of various combinations of price and quantity demanded by a consumer during a particular period of time. An imaginary demand schedule is given below:

Price/kg (in Rs.)	Quantity demanded(in kg)
10	10
8	20
6	30
4	40
2	50

The above demand schedule shows negative relationship between price and quantity demanded for a commodity.

Initially, when a price of a good is Rs.10 per kg, quantity demanded by the consumer is 10 kg.

As the price decrease from Rs.10 per kg to Rs.8 per kg and then to Rs.6 per kg, quantity demanded by the consumer increases from 10 kg to 20 kg and then to 30 kg respectively.

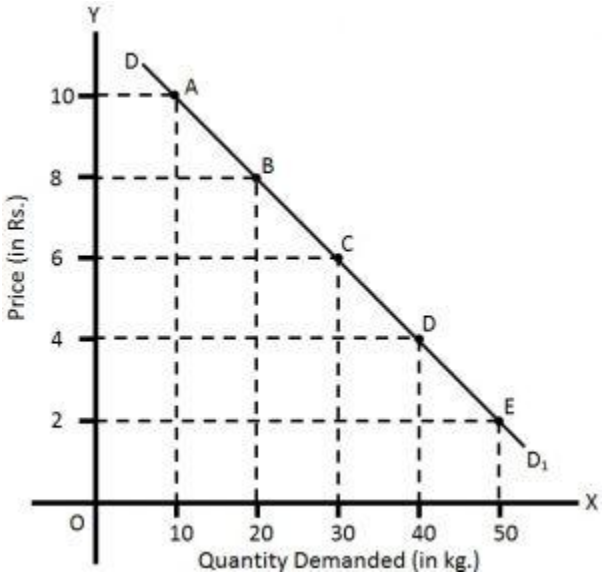
Further, fall in price from Rs.6 per kg to Rs.4 per kg and then to Rs.2 per kg, results in increase in quantity demanded by the consumer from 30 kg to 40 kg and then to 50 kg, respectively.

Thus, from the above schedule we can conclude that there is opposite inverse relationship in between price and quantity demanded for a commodity.

Understanding law of demand using demand curve

It is the graphical representation of demand schedule. In other words, it is a graphical representation of the quantities of a commodity which will be demanded by the consumer at various particular prices in a particular period of time, other things remaining the same.

We can show, the above demand schedule through the following demand curve:



In the figure above, price and quantity demanded are measured along the y-axis and x-axis respectively. By plotting various combinations of price and quantity demanded, we get a demand curve *DD1* derived from points *A*, *B*, *C*, *D* and *E*.

This is a downward sloping demand curve showing inverse relationship between price and quantity demanded.

Reasons for Law of Demand

Definition: The **Law of Demand** explains the downward slope of the demand curve, which posits that as the price falls the quantity demanded increases and as the price rise, the quantity demanded decreases, other things remaining unchanged.

There are several factors that explain **why the demand curve slopes downward** or **why the law of demand showing an inverse relation between the price and quantity is valid**?

Reasons for Law of Demand

1. **Substitution Effect:** The Substitution effect is seen when the quantity demanded for one commodity changes due to the change in the price of other closely related commodity. Such as, if the price of the commodity decreases while the price of the other is assumed to remain the same, then the latter becomes dearer and the demand for the cheaper commodity increases.

For example, suppose the price of tea decreases while the price of coffee remains unchanged, then the tea will be substituted for coffee and thus the demand for tea increases. This effect of increase in the demand for tea is called as the substitution effect.

2. Income Effect: The income effect explains the change in demand due to the change in the real income of the consumer as a result of the change in the price of the given commodity. Such as, with the fall in the price of a commodity, the real income (purchasing power) of the consumer increases since the consumer can now purchase more units of the commodity with the same amount of money income. Thus, the increase in demand due to the increase in the real income is called as the income effect.

For example, Suppose a boy purchases 5 ice-creams for Rs 50, and if the price of ice-cream falls to Rs 8, now he can purchase 6 ice-creams with the same amount of money

income or may decide to buy the same quantity and save the rest of the money, as he is required to spend less.

3. **Utility-Maximizing Behavior:** The consumer theory posits that the consumer buys goods and services to maximize his total utility (satisfaction). We know, that the marginal utility decreases with each additional unit of the commodity and thus, this is one of the reasons for the downward slope of the demand curve, which shows that the demand for the normal goods increases with the fall in the prices.

A person exchanges his money income for the purchase of the commodity so as to maximize his satisfaction. He continues to buy the commodity as long as the marginal utility of money (MU_m) is less than the marginal utility of the commodity (MU_x).

4. **Large Number of Consumers:** The effect on demand due to the change in the number of consumers as a result of a change in the price also causes the demand curve to slope downwards. Such as, if the price of the commodity falls, then many new consumers who were earlier not able to afford the commodity due to its high price, starts purchasing it. And as a result, the demand for the commodity increases.On the other hand, if the price rises, then few rich people can buy it, and many consumers will withdraw themselves from the market. And as a result, the demand for the commodity decreases.

5. **Varied Uses of the Product:** This is one of the important reasons for the law of demand, which explains that the product has several uses and can be utilized for different purposes. When the price of the commodity rises, then the consumer restricts its usage for the most important purpose. On the other hand, if the commodity becomes cheap then it can be utilized for all kinds of purposes, whether important or not.

For example, if the price of coal increases, then it will be more used in the industries where it is an essential raw material, whereas its demand for less important use such as in household (bonfire) gets reduced.

Thus, these are the important factors that explain the slope of the demand curve and advocates that the law of demand is valid.

Exceptions to the Law of Demand

Definition: There are certain situations where the law of demand does not apply or becomes ineffective, i.e. with a fall in the price the demand falls and with the rise in price the demand rises are called as the **exceptions to the law of demand**.

Exceptions to the Law of Demand

1. Giffen Goods: Giffen goods are the inferior goods whose demand increases with the increase in its prices. There are several inferior commodities, much cheaper than the superior substitutes often consumed by the poor households as an essential commodity. Whenever the price of the Giffen goods increases its quantity demanded also increases because, with an increase in the price, and the income remaining the same, the poor people cut the consumption of superior substitute and buy more quantities of Giffen goods to meet their basic needs.

For Example, Suppose the minimum monthly consumption of food grains by a poor household is 20 Kg Bajra (Inferior good) and 10 Kg Rice (superior good). The selling price of Bajra is Rs 5 per kg, and the rice is Rs 10 per kg, and the household spends its total income of Rs 200 on the purchase of these items. Suppose, the price of Bajra rose to Rs 6 per kg then the household will be forced to reduce the consumption of rice by 5 Kg and increase the quantity of Bajra to 25 Kg in order to meet the minimum monthly requirement of food grains of 30 kg.

2. Veblen Goods: Another exception to the law of demand is given by the economist Thorstein Veblen, who proposed the concept of **"Conspicuous Consumption."** According to Veblen, there are a certain group of people who measure the utility of the commodity purely by its price, which means, they think that higher priced goods and services derive more utility than the lesser priced commodities.

For example, goods like a diamond, platinum, ruby, etc. are bought by the upper echelons of the society (rich class) for whom the higher the price of these goods, the higher is the prestige value and ultimately the higher is the utility or desirability of them.

3. Expectation of Price Change in Future: When the consumer expects that the price of a commodity is likely to further increase in the future, then he will buy more of it despite its

increased price in order to escape himself from the pinch of much higher price in the future.

On the other hand, if the consumer expects the price of the commodity to further fall in the future, then he will likely postpone his purchase despite less price of the commodity in order to avail the benefits of much lower prices in the future.

4. Ignorance: Often people are misconceived as high-priced commodities are better than the low-priced commodities and rest their purchase decision on such a notion. They buy those commodities whose price are relatively higher than the substitutes.

5. Emergencies: During emergencies such as war, natural calamity- flood, drought, earthquake, etc., the law of demand becomes ineffective. In such situations, people often fear the shortage of the essentials and hence demand more goods and services even at higher prices.

6. Change in fashion and Tastes & Preferences: The change in fashion trend and tastes and preferences of the consumers negates the effect of law of demand. The consumer tends to buy those commodities which are very much 'in' in the market even at higher prices.

7. Conspicuous Necessities: There are certain commodities which have become essentials of the modern life. These are the goods which consumer buys irrespective of an increase in the price. For example TV, refrigerator, automobiles, washing machines, air conditioners, mobile phone etc.

8. Bandwagon Effect: This is the most common type of exception to the law of demand wherein the consumer tries to purchase those commodities which are bought by his friends, relatives or neighbors. Here, the person tries to emulate the buying behavior and patterns of the group to which he belongs irrespective of the price of the commodity.

For example, if the majority of group members have smart phones then the consumer will also demand for the smartphone even if the prices are high.

Thus, these are some of the exceptions to the law of demand where the demand curve is upward sloping, i.e. the demand increases with an increase in the price and decreases with the decrease in price.

Determinants of Elasticity of Demand

Definition: The **Elasticity of Demand** is a measure of sensitiveness of demand to the change in the price of the commodity.

Determinants of Elasticity of Demand

Apart from the price, there are several other factors that influence the elasticity of demand. These are:

1. Consumer Income: The income of the consumer also affects the elasticity of demand. For high-income groups, the demand is said to be less elastic as the rise or fall in the price will not have much effect on the demand for a product. Whereas, in case of the low-income groups, the demand is said to be elastic and rise and fall in the price have a significant effect on the quantity demanded. Such as when the price falls the demand increases and vice-versa.

2. Amount of Money Spent: The elasticity of demand for a product is determined by the proportion of income spent by the individual on that product. In case of certain goods, such as matchbox, salt a consumer spends a very small amount of his income, let's say Rs 2, then even if their prices rise the demand for these products will not be affected to a great extent. Thus, the demand for such products is said to be inelastic.

Whereas foods and clothing are the items where an individual spends a major proportion of his income and therefore, if there is any change in the price of these items, the demand will get affected.

3. Nature of Commodity: The elasticity of demand also depends on the nature of the commodity. The product can be categorized as luxury, convenience, necessary goods. The demand for the necessities of life, such as food and clothing is inelastic as their demand cannot be postponed. The demand for the Comfort Goods is neither elastic nor inelastic. As with the rise and fall in their prices, the demand decreases or increases moderately.

Whereas the demand for the luxury goods is said to be highly elastic because even with a slight change in its price the demand changes significantly. But, however, the demand for the prestige goods is said to be inelastic, because people are ready to buy these commodities at any price, such as antiques, gems, stones, etc.

4. Several Uses of Commodity: The elasticity of demand also depends on the number of uses of the commodity. Such as, if the commodity is used for a single purpose, then the change in the price will affect the demand for commodity only in that use, and thus the demand for that commodity is said to be inelastic. Whereas, if the product has several uses, such as raw material coal, iron, steel, etc., then the change in their price will affect the demand for these commodities in its many uses. Thus, the demand for such products is said to be elastic.

5. Whether the Demand can be Postponed or not: If the demand for a particular product cannot be postponed then, the demand is said to be inelastic. Such as, Wheat is required in daily life and hence its demand cannot be postponed. On the other hand, the items whose demand can be postponed is said to have elastic demand. Such as the demand for the furniture can be postponed until the time its prices fall.

6. Existence of Substitutes: The substitutes are the goods which can be used in place of one another**.** The goods which have close substitutes are said to have elastic demand. Such as, tea and coffee are close substitutes and if the price of tea increases, then people will switch to the coffee and demand for the tea will decrease significantly. Whereas, if there are no close substitutes for a product, then its demand is said to be inelastic. Such as salt and sugar do not have their close substitutes and hence lower is their price elasticity.

7. Joint Demand: The elasticity of demand also depends on the complementary goods, the goods which are used jointly. Such as car and petrol, pen and ink, etc. Here the elasticity of demand of secondary (supporting) commodity depends on the elasticity of demand of the major commodity. Such as, if the demand for pen is inelastic, then the demand for the ink will also be less elastic.

8. Range of Prices: The price range in which the commodities lie also affects the elasticity of demand. Such as the higher range products are usually bought by the rich people, and they do not care much about the change in the price and hence the demand for such higher range commodities is said to be inelastic.

Also, the lower range commodities have inelastic demand because these are already low priced and can be bought by any sections of the society. But the commodities in middle range prices are said to have an elastic demand because with the fall in the prices the middle class and the lower middle class are induced to buy that commodity and therefore the demand increases. But however, if the prices are increased the consumption reduces and as a result demand falls.

Thus, these are some of the important determinants of elasticity of demand that every firm should understand properly before deciding on the price of their offerings.

Elasticity of Demand

Definition: The **Elasticity of Demand** measures the percentage change in quantity demanded for a percentage change in the price. Simply, the relative change in demand for a commodity as a result of a relative change in its price is called as the elasticity of demand.

let's look at the definition of the elasticity of demand: "Elasticity of demand is the responsiveness of the quantity demanded of a commodity to changes in one of the variables on which demand depends. In other words, it is the percentage change in quantity demanded divided by the percentage in one of the variables on which demand depends."

The variables on which demand can depend on are:

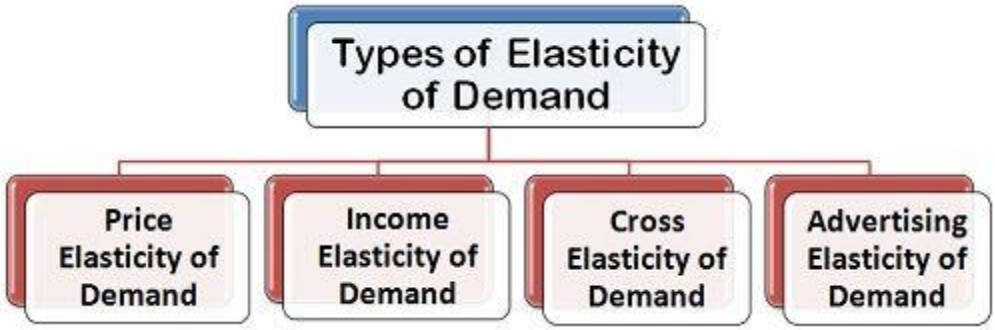
- Price of the commodity
- Prices of related commodities
- Consumer's income, etc.

Let's look at some examples:

a. The price of a radio falls from Rs. 500 to Rs. 400 per unit. As a result, the demand increases from 100 to 150 units.
b. Due to government subsidy, the price of wheat falls from Rs. 10/kg to Rs. 9/kg. Due to this, the demand increases from 500 kilograms to 520 kilograms.

In both cases above, you can notice that as the price decreases, the demand increases. Hence, the demand for radios and wheat responds to price changes.

Types of Elasticity of Demand



Price Elasticity of Demand: The price elasticity of demand, commonly known as the elasticity of demand refers to the responsiveness and sensitiveness of demand for a product to the changes in its price. In other words, the price elasticity of demand is equal to

$$E_p = \frac{\text{Proportionate change in Quantity Demanded}}{\text{Proportionate change in Price}}$$

Numerically,

$$E_p = \frac{\Delta Q}{\Delta P} X \frac{P}{Q}$$

Where,
$\Delta Q = Q_1 - Q_0$, $\Delta P = P_1 - P_0$, Q_1= New quantity, Q_2= Original quantity, P1 = New price, P0 = Original price

The following are the main **Types of Price Elasticity of Demand**:

- Perfectly Elastic Demand
- Perfectly Inelastic Demand
- Relatively Elastic Demand
- Relatively Inelastic Demand
- Unitary Elastic Demand

2. **Income Elasticity of Demand:** The income is the other factor that influences the demand for a product. Hence, the degree of responsiveness of a change in demand for a product due to the change in the income is known as income elasticity of demand. The formula to compute the income elasticity of demand is:

$$E_y = \frac{\text{Percentage Change in Demand for a product}}{\text{Percentage Change in Income}}$$

For most of the goods, the income elasticity of demand is greater than one indicating that with the change in income the demand will also change and that too in the same direction, i.e. more income means more demand and vice-versa.

3. **Cross Elasticity of Demand:** The cross elasticity of demand refers to the change in quantity demanded for one commodity as a result of the change in the price of another commodity. This type of elasticity usually arises in the case of the interrelated goods such as substitutes and complementary goods. The cross elasticity of demand for goods X and Y can be expressed as:

$$E_c = \frac{\text{Proportionate Change in Purchase of Commodity X}}{\text{Proportionate change in the Price of Commodity Y}}$$

The two commodities are said to be complementary, if the price of one commodity falls, then the demand for other increases, on the contrary, if the price of one commodity rises the demand for another commodity decreases. For example, petrol and car are complementary goods.

While the two commodities are said to be substitutes for each other if the price of one commodity falls, the demand for another commodity also decreases, on the other hand, if the price of one commodity rises the demand for the other commodity also increases. For example, tea and coffee are substitute goods.

4. Advertising Elasticity of Demand: The responsiveness of the change in demand to the change in advertising or rather promotional expenses, is known as advertising elasticity of demand. In other words, the change in the demand as a result of the change in advertisement and other promotional expenses is called as the advertising elasticity of demand. It can be expressed as:

$$E_a = \frac{\text{Proportionate change in Demand}}{\text{Proportionate change in Advertising Expenditure}}$$

Numerically,

$$E_a = \frac{\frac{Q_2 - Q_1}{Q_2 + Q_1}}{\frac{A_2 - A_1}{A_2 + A_1}}$$

Where,
Q1 = Original Demand
Q2= New Demand
A1= Original Advertisement Outlay
A2 = New Advertisement Outlay

These are some of the important types of elasticity of demand that helps in understanding the criteria of demand for the goods and services and the factors that influence the demand.

Factors affecting Elasticity of Demand

Various factors which affect the elasticity of demand of a commodity are:

1. Nature of commodity:
Elasticity of demand of a commodity is influenced by its nature. A commodity for a person may be a necessity, a comfort or a luxury.

i. When a commodity is a necessity like food grains, vegetables, medicines, etc., its demand is generally inelastic as it is required for human survival and its demand does not fluctuate much with change in price.

ii. When a commodity is a comfort like fan, refrigerator, etc., its demand is generally elastic as consumer can postpone its consumption.

iii. When a commodity is a luxury like AC, DVD player, etc., its demand is generally more elastic as compared to demand for comforts.

iv. The term 'luxury' is a relative term as any item (like AC), may be a luxury for a poor person but a necessity for a rich person.

2. Availability of substitutes:

Demand for a commodity with large number of substitutes will be more elastic. The reason is that even a small rise in its prices will induce the buyers to go for its substitutes. For example, a rise in the price of Pepsi encourages buyers to buy Coke and vice-versa.

Thus, availability of close substitutes makes the demand sensitive to change in the prices. On the other hand, commodities with few or no substitutes like wheat and salt have less price elasticity of demand.

3. Income Level:

Elasticity of demand for any commodity is generally less for higher income level groups in comparison to people with low incomes. It happens because rich people are not influenced much by changes in the price of goods. But, poor people are highly affected by increase or decrease in the price of goods. As a result, demand for lower income group is highly elastic.

4. Level of price:

Level of price also affects the price elasticity of demand. Costly goods like laptop, Plasma TV, etc. have highly elastic demand as their demand is very sensitive to changes in their prices. However, demand for inexpensive goods like needle, match box, etc. is inelastic as change in prices of such goods do not change their demand by a considerable amount.

5. Postponement of Consumption:

Commodities like biscuits, soft drinks, etc. whose demand is not urgent, have highly elastic demand as their consumption can be postponed in case of an increase in their prices. However, commodities with urgent demand like life saving drugs, have inelastic demand because of their immediate requirement.

6. Number of Uses:

If the commodity under consideration has several uses, then its demand will be elastic. When price of such a commodity increases, then it is generally put to only more urgent uses and, as a result, its demand falls. When the prices fall, then it is used for satisfying even less urgent needs and demand rises.

For example, electricity is a multiple-use commodity. Fall in its price will result in substantial increase in its demand, particularly in those uses (like AC, Heat convector, etc.), where it was not employed formerly due to its high price. On the other hand, a commodity with no or few alternative uses has less elastic demand.

7. Share in Total Expenditure:

Proportion of consumer's income that is spent on a particular commodity also influences the elasticity of demand for it. Greater the proportion of income spent on the commodity, more is the elasticity of demand for it and vice-versa.

Demand for goods like salt, needle, soap, match box, etc. tends to be inelastic as consumers spend a small proportion of their income on such goods. When prices of such goods change, consumers continue to purchase almost the same quantity of these goods. However, if the proportion of income spent on a commodity is large, then demand for such a commodity will be elastic.

8. Time Period:

Price elasticity of demand is always related to a period of time. It can be a day, a week, a month, a year or a period of several years. Elasticity of demand varies directly with the time period. Demand is generally inelastic in the short period.

It happens because consumers find it difficult to change their habits, in the short period, in order to respond to a change in the price of the given commodity. However, demand is more elastic in long rim as it is comparatively easier to shift to other substitutes, if the price of the given commodity rises.

9. Habits:

Commodities, which have become habitual necessities for the consumers, have less elastic demand. It happens because such a commodity becomes a necessity for the consumer and he continues to purchase it even if its price rises. Alcohol, tobacco, cigarettes, etc. are some examples of habit forming commodities.

Finally it can be concluded that elasticity of demand for a commodity is affected by number of factors. However, it is difficult to say, which particular factor or combination of factors determines the elasticity. It all depends upon circumstances of each case.

Demand Forecasting

Meaning of Demand Forecasting:

Accurate demand forecasting is essential for a firm to enable it to produce the required quantities at the right time and arrange well in advance for the various factors of production e.g., raw materials, equipment, machine accessories etc. Forecasting helps a firm to access the probable demand for its products and plan its production accordingly. Forecasting is an important aid in effective and efficient planning.

It reduces the uncertainty and making the organization more confident of coping with the external environment. The increasing availability of economic data, the continuous improvement of technique and the expanded computational ability provided by the

computer made it possible for firms to forecast their demand/sales with considerable accuracy.

Accurate demand forecasting is essential for a firm to enable it to produce the required quantities at the right time and arrange well in advance for the various factors of production.

According to Henry Fayol, "the act of forecasting is of great benefit to all who take part in the process and is the best means of ensuring adaptability to changing circumstances. The collaboration of all concerned lead to a unified front, an understanding of the reasons for decisions and a broadened outlook".

Importance of Demand Forecasting:

The importance of demand/sales forecasting can be understood by the following lines:

1. Helpful in deciding the number of salesmen required to achieve the sales objective.
2. Determination of sales territories.
3. To determine how much production capacity to be built up.
4. Determining the pricing strategy.
5. Helpful in deciding the channels of distribution and physical distribution decision.

It is a technique for estimation of probable demand for a product or services in the future. It is based on the analysis of past demand for that product or service in the present market condition. Demand forecasting should be done on a scientific basis and facts and events related to forecasting should be considered.

Therefore, in simple words, we can say that after gathering information about various aspect of the market and demand based on the past, an attempt may be made to estimate future demand. This concept is called forecasting of demand.

For example, suppose we sold 200, 250, 300 units of product X in the month of January, February, and March respectively. Now we can say that there will be a demand for 250 units approx. of product X in the month of April, if the market condition remains the same.

6. To decide to enter a new market or not.
7. To prepare standard against which to measure performance.
8. To assess the effect of a proposed marketing programme.
9. To decide the promotional mix.
10. Helpful in the product mix decisions relating to width and length of product line.

Usefulness of Demand Forecasting

Demand plays a vital role in the decision making of a business. In competitive market conditions, there is a need to take correct decision and make planning for future events related to business like a sale, production, etc. The effectiveness of a decision taken by business managers depends upon the accuracy of the decision taken by them.

Demand is the most important aspect for business for achieving its objectives. Many decisions of business depend on demand like production, sales, staff requirement, etc. Forecasting is the necessity of business at an international level as well as domestic level.

Demand forecasting reduces risk related to business activities and helps it to take efficient decisions. For firms having production at the mass level, the importance of forecasting had increased more. A good forecasting helps a firm in better planning related to business goals.

There is a huge role of forecasting in functional areas of accounting. Good forecast helps in appropriate production planning, process selection, capacity planning, facility layout planning, and inventory management, etc.

Demand forecasting provides reasonable data for the organization's capital investment and expansion decision. It also provides a way for the formulation of suitable pricing and advertisement strategies.

Following is the importance/significance of Demand Forecasting:

- Fulfilling objectives of the business
- Preparing the budget
- Taking management decision
- Evaluating performance etc.

Moreover, forecasting is not completely full of proof and correct. It thus helps in evaluating various factors which affect demand and enables management staff to know about various forces relevant to the study of demand behavior.

The Scope of Demand Forecasting

The scope of demand forecasting depends upon the operated area of the firm, present as well as what is proposed in the future. Forecasting can be at an international level if the area of operation is international. If the firm supplies its products and services in the local market then forecasting will be at local level.

The scope should be decided considering the time and cost involved in relation to the benefit of the information acquired through the study of demand. Cost of forecasting and benefit flows from such forecasting should be in a balanced manner.

Types of Forecasting

There are two types of forecasting:

- Based on Economy
- Based on the time period

1. Based on Economy

There are three types of forecasting based on the economy:

i. **Macro-level forecasting:** It deals with the general economic environment relating to the economy as measured by the Index of Industrial Production(IIP), national income and general level of employment, etc.

ii. **Industry level forecasting:** Industry level forecasting deals with the demand for the industry's products as a whole. For example demand for cement in India, demand for clothes in India, etc.

iii. **Firm-level forecasting:** It means forecasting the demand for a particular firm's product. For example, demand for Birla cement, demand for Raymond clothes, etc.

2. Based on the Time Period

Forecasting based on time may be short-term forecasting and long-term forecasting

i. **Short-term forecasting:** It covers a short period of time, depending upon the nature of the industry. It is done generally for six months or less than one year. Short-term forecasting is generally useful in tactical decisions.

ii. **Long-term forecasting casting:** Long-term forecasts are for a longer period of time say, two to five years or more. It gives information for major strategic decisions of the firm. For example, expansion of plant capacity, opening a new unit of business, etc.

Methods of Demand Forecasting

Demand forecasting is the art as well as the science of predicting the likely demand for a product or service in the future. This prediction is based on past behavior patterns and the continuing trends in the present. Hence, it is not simply guessing the future demand but is estimating the demand scientifically and objectively. Thus, there are various methods of demand forecasting which we will discuss here.

Methods of Demand Forecasting

There is no easy or simple formula to forecast the demand. Proper judgment along with the scientific formula is needed to correctly predict the future demand for a product or service. Some methods of demand forecasting are discussed below:

1] Survey of Buyer's Choice

When the demand needs to be forecasted in the short run, say a year, then the most feasible method is to ask the customers directly that what are they intending to buy in the forthcoming time period. Thus, under this method, potential customers are directly interviewed. This survey can be done in any of the following ways:

a. **Complete Enumeration Method:** Under this method, nearly all the potential buyers are asked about their future purchase plans.

b. **Sample Survey Method:** Under this method, a sample of potential buyers are chosen scientifically and only those chosen are interviewed.

c. **End-use Method:** It is especially used for forecasting the demand of the inputs. Under this method, the final users i.e. the consuming industries and other sectors are identified. The desirable norms of consumption of the product are fixed, the targeted output levels are estimated and these norms are applied to forecast the future demand of the inputs.

Hence, it can be said that under this method the burden of demand forecasting is on the buyer. However, the judgments of the buyers are not completely reliable and so the seller should take decisions in the light of his judgment also.

The customer may misjudge their demands and may also change their decisions in the future which in turn may mislead the survey. This method is suitable when goods are supplied in bulk to industries but not in the case of household customers.

2] Collective Opinion Method

Under this method, the salesperson of a firm predicts the estimated future sales in their region. The individual estimates are aggregated to calculate the total estimated future sales. These estimates are reviewed in the light of factors like future changes in the selling price, product designs, changes in competition, advertisement campaigns, the purchasing power of the consumers, employment opportunities, population, etc.

The principle underlying this method is that as the salesmen are closest to the consumers they are more likely to understand the changes in their needs and demands. They can also easily find out the reasons behind the change in their tastes.

Therefore, a firm having good sales personnel can utilize their experience to predict the demands. Hence, this method is also known as Salesforce opinion or Grassroots approach method. However, this method depends on the personal opinions of the sales personnel and is not purely scientific.

3] Barometric Method

This method is based on the past demands of the product and tries to project the past into the future. The economic indicators are used to predict the future trends of the business. Based on future trends, the demand for the product is forecasted. An index of economic indicators is formed. There are three types of economic indicators, viz. leading indicators, lagging indicators, and coincidental indicators.

The leading indicators are those that move up or down ahead of some other series. The lagging indicators are those that follow a change after some time lag. The coincidental indicators are those that move up and down simultaneously with the level of economic activities.

4] Market Experiment Method

Another one of the methods of demand forecasting is the market experiment method. Under this method, the demand is forecasted by conducting market studies and experiments on consumer behavior under actual but controlled, market conditions.

Certain determinants of demand that can be varied are changed and the experiments are done keeping other factors constant. However, this method is very expensive and time-consuming.

5] Expert Opinion Method

Usually, market experts have explicit knowledge about the factors affecting demand. Their opinion can help in demand forecasting. The Delphi technique, developed by Olaf Helmer is one such method.

Under this method, experts are given a series of carefully designed questionnaires and are asked to forecast the demand. They are also required to give the suitable reasons. The opinions are shared with the experts to arrive at a conclusion. This is a fast and cheap technique.

6] Statistical Methods

The statistical method is one of the important methods of demand forecasting. Statistical methods are scientific, reliable and free from biases. The major statistical methods used for demand forecasting are:

a. **Trend Projection Method:** This method is useful where the organization has a sufficient amount of accumulated past data of the sales. This date is arranged chronologically to obtain a time series. Thus, the time series depicts the past trend and on the basis of it, the future market trend can be predicted. It is assumed that the past trend will continue in the future. Thus, on the basis of the predicted future trend, the demand for a product or service is forecasted.

b. **Regression Analysis:** This method establishes a relationship between the dependent variable and the independent variables. In our case, the quantity demanded is the dependent variable and income, the price of goods, the price of related goods, the price of substitute goods, etc. are independent variables. The regression equation is derived assuming the relationship to be linear. Regression Equation: $Y = a + bX$. Where Y is the forecasted demand for a product or service.

Supply

Supply is the willingness and ability of producers to create goods and services to take them to market. Supply is positively related to price given that at higher prices there is an incentive to supply more as higher prices may generate increased revenue and profits.

Meaning of Supply

Supply refers to the amount of a good or service that the producers/providers are willing and able to offer to the market at various prices during a period of time. There are two important aspects of supply:

- Supply refers to what is offered for sale and not what is finally sold.
- Supply is a flow. Hence, it is a certain quantity per day or week or month, etc.

Determinants of Supply

While the price is an important aspect for determining the willingness and desire to part with goods/services, many other factors determine the supply of a product or service as discussed below:

Price of the Good/ Service

The most obvious one of the determinants of supply is the price of the product/service. With all other parameters being equal, the supply of a product increases if its relative price is higher. The reason is simple. A firm provides goods or services to earn profits and if the prices rise, the profit rises too.

Price of Related Goods

Let's say that the price of wheat rises. Hence, it becomes more profitable for firms to supply wheat as compared to corn or soya bean. Hence, the supply of wheat will rise, whereas the supply of corn and soya bean will experience a fall.

Hence, we can say that if the price of related goods rises, then the firm increases the supply of the goods having a higher price. This leads to a drop in the supply of the goods having a lower price.

Price of the Factors of Production

Production of a good involves many costs. If there is a rise in the price of a particular factor of production, then the cost of making goods that use a great deal of that factors experiences a huge increase. The cost of production of goods that use relatively smaller amounts of the said factor increases marginally.

For example, a rise in the cost of land will have a large effect on the cost of producing wheat and a small effect on the cost of producing automobiles.

Therefore, the change in the price of one factor of production causes changes in the relative profitability of different lines of production. This causes producers to shift from one line to another, leading to a change in the supply of goods.

State of Technology

Technological innovations and inventions tend to make it possible to produce better quality and/or quantity of goods using the same resources. Therefore, the state of technology can increase or decrease the supply of certain goods.

Government Policy

Commodity taxes like excise duty, import duties, GST, etc. have a huge impact on the cost of production. These taxes can raise overall costs. Hence, the supply of goods that are impacted by these taxes increases only when the price increases. On the other hand, subsidies reduce the cost of production and usually lead to an increase in supply.

Other Factors

There are many other factors affecting the supply of goods or services like the government's industrial and foreign policies, the goals of the firm, infrastructural facilities, market structure, natural factors etc.

Determinants of Supply

The factors on which the supply of a commodity depends are known as the determinants of demand. These are:

- Price of the Commodity
- Firm Goals
- Price of Inputs or Factors
- Technology
- Government Policy
- Expectations
- Prices of other Commodities
- Number of Firms
- Natural Factors

1. Price of the Commodity

It is the main and the most important determinant of demand. When the price of the commodity is high, the producers or suppliers are willing to sell more commodities.

Thus, the supply of the commodity increases. Similarly, when the price is low the supply of the commodity decreases owing to the direct relationship between the price of a commodity and its supply.

2. Firm Goals

The supply of goods also depends on the goals of an organization. An organization may have various goals such as profit maximization, sales maximization, employment maximization, etc.

Where the firm's objective is the maximization of profit, it will sell more goods when profits are high and less quantity of goods when the profits are low.

3. Price of Inputs or Factors

The price of inputs or the factors of production such as land, labor, capital, and entrepreneurship also determine the supply of the goods. When the price of inputs is low the cost of production is also low.

Thus, at this point, the firms tend to supply more goods in the market and vice-versa.

4. Technology

When a firm uses new technology it saves the inputs and also reduces the cost of production. Thus, firms produce more and supply more goods.

5. Government Policy

The taxation policies and the subsidies given by the government also impact the supply of goods.

When the taxes are high the producers are unwilling to produce more goods and thus, the supply will decrease.

On the other hand, when the government grants various subsidies and gives financial aids to the producers, they increase the production of goods. Thus, the supply also increases.

6. Expectations

When the producers or suppliers expect that the price shall increase in future they hoard the goods so that they can sell them at higher prices later. This will result in a decrease in the supply of goods.

Similarly, in case they expect a fall in price, they will increase the supply of goods.

7. Prices of other Commodities

When the price of complementary goods increases their supply also increases. Thus, this results in the increase in the supply of commodity also and vice-versa.

Also, when the price of the substitutes increases their supply also increases. This results in a decrease in the supply of goods.

8. Number of Firms

When the number of firms in the market increase the supply of goods also increases and vice-versa.

9. Natural Factors

The factors like weather conditions, flood, drought, pests, etc. also affect the supply of goods. When these factors are favorable the supply will increase.

Supply Function

Law of supply states that when the price of a commodity increases its supply also increases. Similarly, when the price of a commodity decreases its supply also decreases. Hence, there is a direct relationship between price and supply of a commodity. However, here we shall study the Supply Function in detail.

Supply Function or Function of Supply

It explains the relationship between the supply of a commodity and the factors determining its supply. We can better represent the supply function in the form of the following equation:

Sx = f (Px, PI, T, W, GP)

Where,
Sx = supply of commodity x
Px = Price of commodity x
PI = Price of inputs
T = Technology
W = Weather conditions
GP = Government Policy

Law of Supply

We as individuals are always looking to increase our profit margins. Evidently, when we get more value for something we pounce on that opportunity in the same way a tiger does on a deer! When suppliers get more value for their produce, they behave in the same manner. This is the law of supply.

Supply

To recollect, supply is the number of goods and services that the suppliers are both willing and able to supply at a particular price during a given period of time. To point out, the willingness to supply should be backed by the ability to supply.

Now, supply depends on a large number of factors. A change in any of these factors induces a change in the supply. Of all these determinants of supply, the price is the most important one.

The Law of Supply

As mentioned in the introduction, a man of normal intellect always prefers to increase his profit. Talking about the suppliers, when a supplier gets more price for his supply, the normal behavior would be to increase the supply, in order to extract greater profits. This is the law of supply.

Technically, the law of supply states that other factors remaining constant, the quantity of a good produced and offered for sale would increase with an increase in its price and decrease as the price falls.

Thus the law of supply acts as a bridge between the supply of a commodity and its price. Further, we can say that there is a direct relationship between the supply of a commodity and its price.

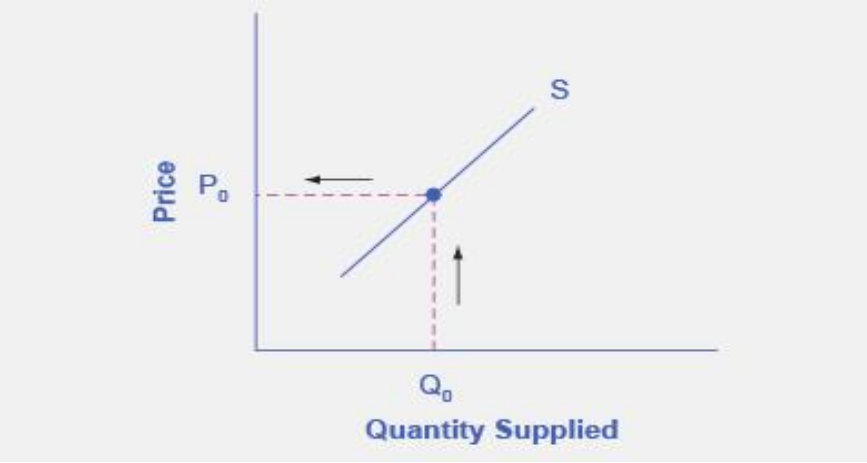
Again, this law is a result of common sense, as at higher prices a supplier would be looking at greater profit margins and hence it acts as an incentive for increasing the supply.

This law is true for a majority of day-to-day occurrences of supply. However, there are some exceptions to the law of supply. The supply of labor at high wages, for example, decreases instead of increasing.

This is because an employer pays more only when you possess a skill which is not so common. Thus, the supply depends upon the phenomenon under consideration and the extent to which supply can be altered.

Further, the behavior of supply is also the slave of time, for obvious reasons. When talking about short-run, we can play with supply only up to a certain extent, permissible under the short time frame.

On the contrary, in the long run, changes on a large scale become a part of the equation allowing us to alter the supply to a greater extent. Below, is the graphical representation of the law of supply, the supply curve.



Elasticity of Supply

The law of supply states that there is a direct relationship between the quantity supplied and the price of a commodity. To point out, this is a very qualitative statement. However, markets for different commodities differ in ways we can't even imagine. Interestingly, the concept of elasticity of supply handles all this with ease.

Elasticity of Supply

The elasticity of supply establishes a quantitative relationship between the supply of a commodity and it's price. Hence, we can express the numeral change in supply with the change in the price of a commodity using the concept of elasticity. Note that elasticity can also be calculated with respect to the other determinants of supply.

Meaning of Elasticity of Supply:

The law of supply indicates the direction of change—if price goes up, supply will increase. But how much supply will rise in response to an increase in price cannot be known from the law of supply. To quantify such change we require the concept of elasticity of supply that measures the extent of quantities supplied in response to a change in price.

Elasticity of supply measures the degree of responsiveness of quantity supplied to a change in own price of the commodity. It is also defined as the percentage change in quantity supplied divided by percentage change in price.

However, the major factor controlling the supply of a commodity is its price. Therefore, we generally talk about the price elasticity of supply. The price elasticity of supply is the ratio of the percentage change in the price to the percentage change in quantity supplied of a commodity.

$$\mathbf{Es= [(\Delta q/q)\times 100] \div [(\Delta p/p)\times 100] = (\Delta q/q) \div (\Delta p/p)}$$

Δq= The change in quantity supplied

q= The quantity supplied

Δp= The change in price

p= The price

Elasticity from a Supply Curve

Along with the method mentioned above, there are two more ways to calculate the price elasticity of supply, both of which make use of the supply curve. We can either calculate the elasticity at a specific point on the supply curve, known as point elasticity or between two prices, known as arc-elasticity.

The formula for calculating the point elasticity of supply is:

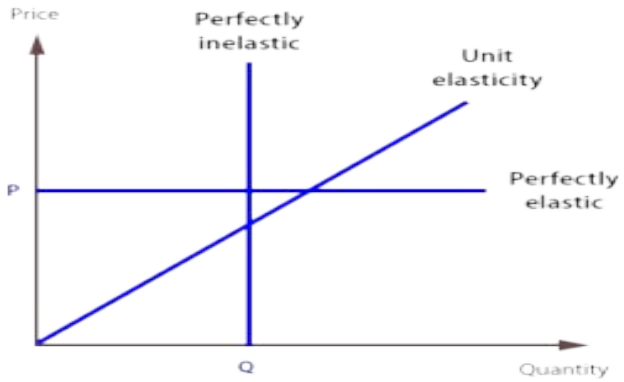
$$Es = (dq/dp) \times (p/q)$$

Here dq/dp is the slope of the supply curve.

The formula for calculating the arc-elasticity of supply is:

$$Es = [(q1 - q2)/(q1 + q2)] \times [(p1 + p2)/(p1 - p2)]$$

Types of Elasticity of Supply



1. Perfectly Inelastic Supply

A service or commodity has a perfectly inelastic supply if a given quantity of it can be supplied whatever might be the price. The elasticity of supply for such a service or commodity is zero. A perfectly inelastic supply curve is a straight line parallel to the Y-axis. This is representative of the fact that the supply remains the same irrespective of the price.

The supply of exclusive items, like the painting of Mona Lisa, falls into this category. Whatever might be the price on offer, there is no way we can increase its supply.

2. Relatively Less-Elastic Supply

When the change in supply is relatively less when compared to the change in price, we say that the commodity has a relatively-less elastic supply. In such a case, the price elasticity of supply assumes a value less than 1.

3. Relatively Greater-Elastic Supply

When the change in supply is relatively more when compared to the change in price, we say that the commodity has a relatively greater-elastic supply. In such a case, the price elasticity of supply assumes a value greater than 1.

4. Unitary Elastic

For a commodity with a unit elasticity of supply, the change in quantity supplied of a commodity is exactly equal to the change in its price. In other words, the change in both price and supply of the commodity are proportionately equal to each other. To point out, the elasticity of supply in such a case is equal to one. Further, a unitary elastic supply curve passes through the origin.

5. Perfectly Elastic supply

A commodity with a perfectly elastic supply has an infinite elasticity. In such a case the supply becomes zero with even a slight fall in the price and becomes infinite with a slight rise in price. This is indicative of the fact that the suppliers of such a commodity are willing to supply any quantity of the commodity at a higher price. A perfectly elastic supply curve is a straight line parallel to the X-axis.