**UNIT-2**

 **SUPPLY AND LAW OF SUPPLY**

*The supply of a product refers to the various quantities of the product, which a seller is willing and able to sell at different prices in a given period of time*. Consumers demand goods and services for consumption, while producers produce and supply the same. The term 'supply' is often confused with the ‘stock' of the commodity available with the producer. However, the two terms are totally different stock is the total quantity of a commodity held by the seller, which he can bring out for sale in the market at short notice. Supply is that part of stock which is actually brought in the market for sale. Thus, stock is potential supply, i.e. total quantity produced during a given period less the quantity already sold out plus accumulated production from previous period. If the price is high, larger quantities of a commodity are offered for sale. On the other hand, if the prices are not favourable, the commodities are held back and only small quantities are brought for sale. A large part of agricultural and industrial produce is kept in cold storages and godowns and is offered for sale, when it can fetch better prices. A part of the production may be withheld for self-consumption. In case of perishable goods like vegetable, fruit, etc., the value of stock may not be much different from quantity supplied at a particular time. In other cases, the two may be different due to hoarding of stock for speculation to earn more profits. In brief, the term stock indicates a fixed quantity, while the term 'supply’ implies that the amount offered can be increased or decreased.

**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. Some of the important factors which affect the quantity supplied of a commodity in isolation are as follow

**1.Price**

 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**

 For instance, if the price of a substitute good goes up, the producers will be tempted to produce that good to get higher profit. On the other hand, the rise in the price of a complement (say, petrol) will reduce the supply of the commodity (e.g., cars).

**3. Cost of Production**

 Prices of the factors of production (raw materials, land, labour, capital, etc.) used in the production of a commodity constitute the cost of production. Goods produced on large scale, reduce the cost of production. Better organisation and management is one such important cause to reduce the cost of production.

**4. State of Technology**

 An improvement in technology increases 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.

**5. Goal of Producer**

 The goal of the producer may be to maximise total profits or to maximise 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 maximise social welfare supply larger amount of commodity than profit motivated private firms.

**6. Natural Factors**

 The supply of agricultural goods to a great extent depends upon the natural conditions like rain, fertility of land, improved seeds, irrigation facilities, climate etc. are favourable, supply will increase. On the contrary, earthquakes, heavy rains, floods, droughts adversely affect agricultural production.

**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 fully 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 profits, nature of commodity, number of firms, etc.

# 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 increases, the quantity of the commodity supplied increases and vice-versa, assuming all other factors influencing supply remains unchanged.*

In this statement, change in price is the cause and change in supply is the effect. Thus, price rise leads to supply rise and not otherwise. A hypothetical supply schedule is given in the following table.

***See Classroom lecture***

**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 Maximisation:** Producers supply a commodity 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.

**Exceptions to the Law of Supply:**

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

**(a) Non-Maximisation of Profits**

**(b) Factors Other than Price not Remaining Constant**

**(c) Subsistence Farming**

**DEMAND FORECASTING:**

**Meaning and Need:**

Future is unknown and uncertain. Managers have to operate in uncertain environment. To reduce this uncertainty in planning for future production levels, demand forecasting is essential. Forecasting demand means prediction of future demand. Forecasting of future demand is one of the most important functions of managers of firms.

**SIGNIFICANCE OF DEMAND FORECASTING:**

It is evident from above that demand forecast plays an important role in planning for future level of production, for launching a new product, for expanding production capacity (i.e., making further capital investment) and for entering an industry. This helps a manager to acquire the needed plant and capital equipment, the quantity of required raw materials, the necessary skilled labour and other type of human resources. There can hardly be any capital investment or planning for future production if uncertainty prevails about the likely demand for the product. Therefore, forecast of demand greatly helps in business decisions by reducing uncertainty under which firms operate

**Types of Demand Forecasting**

There are two main types of the demand forecasting i.e. Long term forecasting and Short Term forecasting, and between these two there is Medium Term Forecasting. **Long term Forecasting** of demand is needed for capacity expansion i.e. growth of the firm. Recruitment and diversification of policies for all those decisions which having long term implications. **Medium Term Forecasting** is intermediate between the short term and the long-term situations. A firm feels its need when the industry to which the firm belongs is subjected to the trade cycle of medium term (varying between two to five years). When subjected to business cycles a firm has to assess its demand situation and plan its activities accordingly. **Short Term Forecasting** is concerned with the short time period usually of less than one year. This is required for current production scheduling, purchase of raw materials and inventory of stocks etc.

**Determinants of Demand Forecasting or the requirements of Demand Forecasting**

**A. Elements concerning to Consumers**

1. Total number of consumers; 2. Distribution of consumers or products; 3. Total purchasing power;

4. Income elasticity’s;5. Consumers tastes and preferences;6. Effect of design, colour etc. on consumer preferences.

**B. Elements concerning the Suppliers**

1. Current level of the stock; 2. Current stocks of goods; 3. Market Share

4. Research and Development Trends; 5. Company strengths and weaknesses 6.NewProduct Possibilities

**C. Elements concerning the Market**

1. The effect of price change; 2. Number and nature of competitors

3. Forms of market competitors; 4. General Price level 5. Price of similar goods

**D. Other Factors**

1. Government Policies; 2. Taxation Levels 3. International Economic Climate

**METHODS OF DEMAND FORECASTING (TECHNIQUES):**

Demand forecasting is divided into two parts, (1) Qualitative techniques and (2) Quantitative techniques.

**Demand Forecasting Techniques**

**1. Expert Opinion Poll Method**

**2. Consumer Interview or Survey Method**

**(A) Qualitative Techniques**

**(iv) Simultaneous Equation Method**

**(iii) Leading Indicator Method**

**(ii) Regression Method**

**(i) Trend Method**

**(B) Quantitative Techniques**

**1.2. Delphi Technique**

**1.3. Market Studies & Experiment**

**1.1. Expert Opinion Method**

**2.2. Sample Survey Method**

**2.3. End Use Method**

**2.1. Complete Enumeration Survey Method**

**(A) Qualitative Techniques**

**1. Opinion Poll Method** - This technique of forecasting demand seeks the views of experts on the likely level of demand in the future. Experts are informed persons who know the product very well as they have been dealing with it and related products for a long time. They thus have a rich experience of the behaviour of demand. This personal insight of experts is used for developing future expectations. The opinion poll methods include.

**1.1. Expert Opinion Method** - Firms having good network of sales representatives can put them to the work of assessing the demand for the product in the areas, regions or cities that they represent. The estimates of the probable demand thus obtained from the different regions are thus added up to get the overall probable demand for the product.

**1.2. Delphi Technique** - A specific form of experts opinion method is the Delphi Technique initially developed at the ***Rand Corporation of USA*** in late 1940's. This technique is widely used in technological forecasting, deference strategies and in business forecasting. In this method, panels of experts are approached in a number of rounds for interrogation, response and feedback. There are considerable difficulties in this method.

**a. First**, setting of the panel is very difficult

**b.Second**, the responses may not be free from bias.

**c. Third**, since the panel never meets at one place, there may be considerable time loss in contacting them in the frequent rounds.

**1.3.Market Studies and Experiments** - An alternative method of collecting necessary, information regarding demand is to carry out market studies and experiments on consumers’ behaviour under actual though controlled market conditions. This method is known in common parlance as market experiment method.

**Advantages of opinion survey**

a. It is simple to conduct.

b. Can be used where quantitative data is not possible.

c. The forecast is reliable as it is based on the opinion of people who know the product very well.

d. It is inexpensive

e. It takes little time.

**Disadvantages of Opinion Survey**

a. The results are based on mere hunch of one or more persons and not on scientific analysis.

b. The experts may be biased

c. The method is subjective and the forecast could be unfavorably influenced by persons with vested interests.

**2. Consumer Interview or Survey Method** - Survey methods are generally used where the purpose is to make short run forecast of demand. Under this method consumer survey are conducted to collect information about their intentions and future purchase plans. It may be in the form of

**2.1. Complete Enumeration Method** - This method is based on a complete survey of all the consumers for the commodity under consideration. Interviews or questionnaires are used to ask consumers about the quantity of the commodity they would like to buy in the forecast period. All the data is then collected and added up to arrive at the total expected demand for that product.

**Advantages**

a. Quite accurate as it surveys all the consumers of a product.

b. It is simple to use.

c. It is not affected by personal biases

d. It is based on collected data.

**Disadvantage**

a. It is costly.

b. It is time consuming.

c. It is difficult and practically impossible to survey all the consumers.

d. The size of the data increases the chances of faulty recording and wrong interpretation.

e. Useful only for products with limited consumers.

**2.2. Sample survey Method**-This is a miniature form of the complete enumeration method. Here instead of surveying all the consumers of a commodity, only a few consumers are selected and their views on the probable demand are collected the sample is considered true representatives of the entire population.

**Advantages**

a. An important tool especially for short-term projections.

b. It is simple and does not cost much.

c. Since only a few consumers are to be approached, the method works quickly.

d. The risk of erroneous data reduced.

e. This method gives excellent results if used carefully.

**Disadvantages**

a. The conclusions are based on the view of only a few consumers and not all of them.

b. The sample may not be a true representative of the entire population.

**2.3. End Use Survey -** The end use method focuses on forecasting the demand for intermediary goods. Such goods can also be exported or imported besides being used for domestic. For example milk is a commodity which can be used as an intermediary good for the production of ice cream, pannier and other dairy products.

**Advantages**

a. This method yields accurate predictions.

b. It provides sector wise demand forecast for different industries.

c. It is especially useful for producers good's.

**Disadvantages**

a. It requires complex and diverse calculations.

b. It is costlier as compared to the other survey methods and is more time consuming.

c. Industry data may not be readily available.

**(B) Quantitative Technique:**

These forecasting techniques make use of historical quantitative data. A statistical concept is applied to this existing data about the demand for a commodity over the past years, in order to generate the predicted demand in the forecast period. Due to this reason, these quantitative techniques are known as statistical method. Some of the statistical methods discussed below are as follows.

**(i)Trend Projection Method** - This technique assumes that whatever has been the pattern of demand in the past, will continue to hold goods in the future as well. Historical data can thus be used to predict the demand for a commodity in the future. In the trend projection method, historical data is collected and fitted into some kind of a trend, i.e. repetitive behaviour pattern. This trend colour be linear or curvilinear or have any other complex shape. Future demand through the trend method can be found by either of the two methods i.e. Graphical and Algebraic Method.

In the graphical method, the past data will be plotted on a graph and the identified trend will be extended further in the same pattern to ascertain the demand in the forecast period. This has been shown by the graph given below.

***See Classroom lecture***

**Advantage of Trend Method**

a .It is very simple method.

b. The method provides reasonably accurate forecasts.

c. It is quick and inexpensive.

**Disadvantages**

a. Can be used only when the past data is available.

b. It is not necessary that the past trends may continue to hold good in the future as well.

**(ii) Regression Method**- This involve the use of econometric methods to determine the nature and degree of association between or among the set of variable. The principal advantage of this method is that it is prescriptive as well as descriptive. That is besides generating demand forecast; it explains why the demands are what it is. In other words this technique has got both explanatory and predictive value.

**Advantage**

1. It produces reliable and calculable results.

2. Besides generating the forecast it also explains the economic phenomenon.

3. This method not only forecast the direction but also the magnitude of the change.

**Disadvantage**

1. This method uses complex calculations.

2. It is costly and time consuming

3. It requires the use of some other forecasting technique for estimating the value of the casual variable.

**(iii) Barometric or Leading Lag method** - This consists in discovering a set of series of some variables which exhibit a close association in their movement over a period of time. For example the bank rate changed by the Central Bank is a leading indicator of interest relates charged by commercial bank. Following graph make, it more clear.

***See Classroom lecture***

The graph shows the movement of agricultural income AY and the sale of the tractors ST. The movement of AY is similar to that of ST but the movement in ST takes place after a year's time lag compared to the movements in AY. Thus if one knows the direction of the movement in agricultural income AY, one can predict the direction of movement of tractors sale ST for the next year. Thus agricultural income AY may be used as a barometer (a leading indicator) to help the short term forecast for the sale of tractors.

**(iv)Simultaneous Equation Method** - When the inter relationship between the economic variable becomes complex, the use of single equation regression method becomes difficult. In such cases, forecasting of demand is done using multiple simultaneous equations.

**Criteria of a Good Demand Forecasting**

**1. Accuracy** - The accuracy of a forecast is determined by it prediction coming out to be true to realities. No forecast is 100% correct but the margin of error should be tolerable say 10 to 20%.

**2. Simplicity -** The management should be able to comprehend the forecasting technique and understand the interpretation of the results if they are to have confidence in the forecasts*.*

**3. Economy** - A good forecasting method must balance the benefits of greater accuracy against the higher costs.

**4. Availability** - The forecasting technique should able to produce meaningful results quickly.

**5. Capacity to Update Forecast** - A good forecasting method is one, which helps the management to maintain the forecast up to date. Such method has three aspects.

* The relationship underlying the forecasting technique should be stable over time.
* The data required for use in forecasting procedure should be available at different intervals of time.
* The forecasting procedures should allow some changes in its structure as new factor appear in the market.