

(UNIT-2) MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTING

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MANAGERIAL ECONOMICS (UNIT-2) Demand and Supply analysis-

- Demand-types of demand
- Determinants of demand, demand function
- Law of Demand and Elasticity of demand
- Demand forecasting –purpose, determinants and methods
- Supply-determinants of supply.
- Supply function
- Elasticity of supply.

CONCEPT OF DEMAND

• An economic principle that describes

A consumer's desire and willingness to pay a price for a specific good or service.

Five elements of demand:

- 1. Desire to acquire a commodity.
- 2. Willingness to pay for it.
- 3. Ability to pay for it.
- 4. At a particular Price.
- 5. At a specific period of time.

Individual Demand and Market Demand

Organization and Industry Demand

Autonomous and Derived Demand

Demand for Perishable and Durable Goods

Short-term and Long-term Demand

Price Demand

Income Demand

Cross Demand

DEMAND

Individual and Market Demand

(based on the number of consumers in the market)

Individual demand:

quantity demanded by an individual for a product at a particular price and within the specific period of time. This demand is influenced by the price of a product, income of customers, and their tastes and preferences.



For example, Mr. X demands 200 units of a product at Rs. 50 per unit in a week.

Market Demand:

The total quantity demanded for a product by all individuals at a given price and time is regarded as market demand.



Organization and Industry Demand (basis of market):

The demand for the products of an organization at given price over a point of time is known as organization demand.



The sum total of demand for products of all organizations in a particular industry is known as industry demand.



Autonomous and Derived Demand

(based on dependency on other products)



The demand for a product that is not associated with the demand of other products is known as autonomous or direct demand. (food, shelter, clothes, and vehicles)

derived demand refers to the demand for a product that arises due to the demand for other products. (petrol, diesel, and other lubricants depends on the demand of vehicles.)





Demand for Perishable and Durable Goods:

(Based on the usage of goods.)

Perishable or non-durable goods refer to the goods that have a single use. For example, cement, coal, fuel, and eatables. These goods satisfy the present demand of individuals. The demand for perishable goods depends on the current price of goods and customers' income, tastes, and preferences and changes frequently.





durable goods refer to goods that can be used repeatedly. For example, clothes, shoes, machines, and buildings. durable goods satisfy both present as well as future demand of individuals. the demand for durable goods changes over a longer period of time.



Short-term and Long-term Demand:

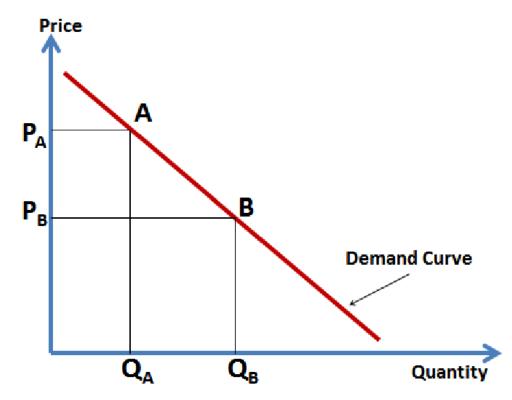
(Based on time period.)

Short-term demand refers to the demand for products that are used for a shorter duration of time or for current period. This demand depends on the current tastes and preferences of consumers. For example, demand for umbrellas, raincoats, sweaters, long boots is short term and seasonal in nature

long-term demand refers to the demand for products over a longer period of time.

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.



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.



INCOME DEMAND

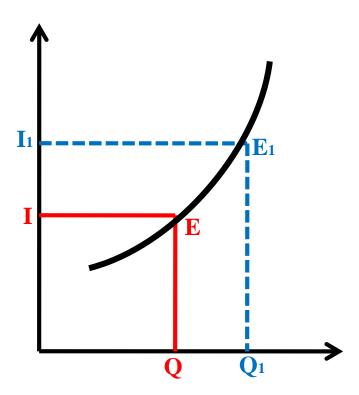
SUPERIOR GOODS

INFERIOR GOODS

Positive relation between income and demand of superior goods.

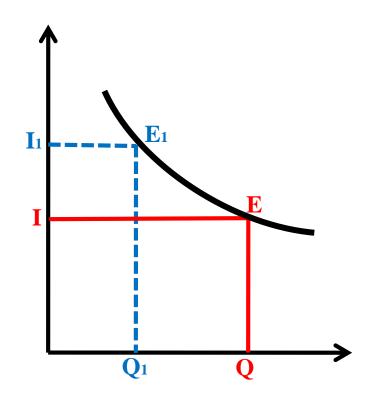
Negative relation between income and demand of Inferior goods.

DEMAND CURVE OF SUPERIOR GOODS



Positive relation between income and demand of superior goods.

DEMAND CURVE OF INFERIOR GOODS



Negative relation between income and demand of Inferior goods.

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.





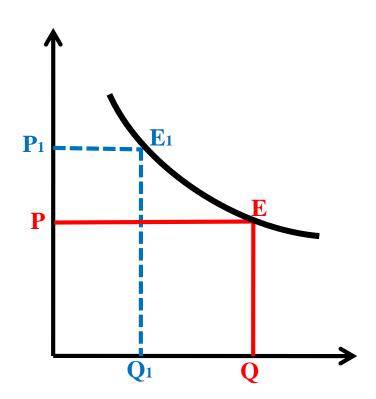
COMPLEMENTARY GOODS

SUBSTITUTE GOODS

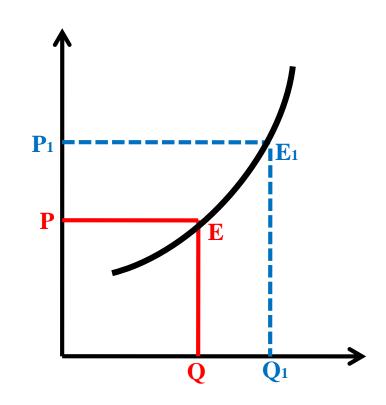
Negative relation between price and demand of Complementary Goods.

Positive relation between price and demand of Substitute Goods.

DEMAND CURVE OF COMPLEMENTARY GOODS



DEMAND CURVE OF SUBSTITUTE GOODS



Negative relation between price and demand of Complementary Goods.

Positive relation between price and demand of Substitute Goods.

LAW OF DEMAND

The law of demand is a fundamental principle which states that, "other things remain constant (the factors affecting demand, other then price), as the price of a good increases (\uparrow) , quantity demanded will decrease (\downarrow) ; conversely, as the price of a good decreases (1), quantity demanded will increase (↑)".The only factor which influences the quantity demanded is the price. The law of demand is the inverse relationship between demand and price.

The Law of Demand states that Quantity demanded Increases with a fall in Price and Diminishes when Price Increases, other things being equal.

Marshall

Determinants of demand



Price of Good or Service



2 Income of Buyers



F = price, income, prices of related goods,tastes, expectations







3 Prices of related goods or services

DEMAND FUNCTION

Demand function is what describes a relationship between one variable and its determinants. It describes how much quantity of goods is purchased at alternative prices of good and related goods, alternative income levels, and alternative values of other variables affecting demand.

In other words; the demand function is the mathematical expression of the relationship between the quantity of a good demanded and those factors that affect the willingness and ability of a consumer to buy the good.

DEMAND FUNCTION: $D_X = f(P_X, P_r, Y, T, E)$

Where, $D_X = Demand$ for Commodity

 $P_X = Price of Commodity X$

 P_r = Price of Other Goods

Y = Income of the Consumer

T = Tastes

E = Expectation of the Consumer

DEMAND SCHEDULE

A demand schedule is a table that shows the quantity demanded of a good or service at different price levels. A demand schedule can be graphed as a continuous demand curve on a chart where the Y-axis represents price and the X-axis represents quantity.

It is a statement in the form of a table that shows the different quantities in demand at different prices. There are two types of Demand Schedules:

- ➤ Individual Demand Schedule
- Market Demand Schedule

DEMAND SCHEDULE

Individual Demand Schedule

It is defined as a Table which shows Quantities of a given commodity which an Individual Consumer will buy at all Possible Prices at a given Time.

Price per unit (in Rs.)	Quantity Demanded (Units)
1	8
2	7
3	6
4	5
5	4

DEMAND SCHEDULE

Market Demand Schedule

It is defined as the Quantities of a Given Commodity which all consumers will buy at all Possible Prices at a given Moment of time.

Price of Commodity 'X' (in Rs.)	Demand of A	Demand of B	Market Demand (Units)
1	10	5	10 + 5 = 15
2	9	4	9 + 4 = 13
3	8	3	8 + 3 = 11
4	7	2	7 + 2 = 9

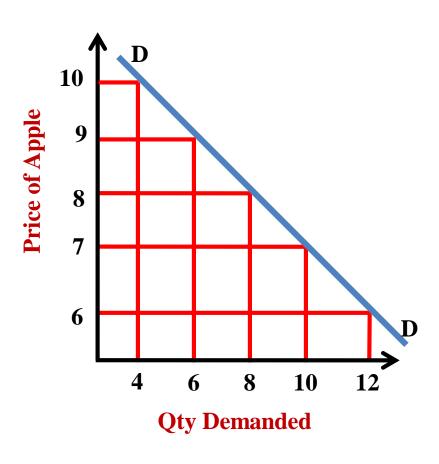
DEMAND CURVE

Demand Curve is a Locus of Points showing various Alternative Price-Quantity Combinations.

It is a graphical representation of the relationship between the price of a good or service and the quantity demanded for a given period of time.

It shows the Inverse Relationship between price and Quantity Demanded.

DEMAND CURVE



Price of Apple (Rs./kg.)	Qty. Demanded (In Kgs.)
10	4
9	6
8	8
7	10
6	12

- STATUS SYMBOL COMMODITY
- FEAR OF STORAGE
- IGNORANCE
- SPECULATION
- GIFFIN GOODS
- BASIC NEEDS OF CONSUMER

GIFFEN GOODS

Those Inferior Goods whose Demand falls even when their prices Falls. Sometimes people buy less goods at a lower price & more of it at higher price.

Eg: Dalda Ghee

It can be apply only when:

- Good should be Inferior.
- There is no Substitution.
- Consumer are spending a important part of his income on the same product.

STATUS SYMBOL COMMODITY

There are certain commodity which has prestige value i.e., car, jewelries, diamonds, luxury product.



FEAR OF STORAGE

If people feel that in future there will be the shortage of the commodity they would like to store more commodity at any price.

Eg: Food grain, Transport.

IGNORANCE

Sometimes consumers may be ignore about the price prevailing in the market due to ignorance it may not be possible for him to purchase more units at a lower price. Eg: Vegetables Shopping.



SPECULATION

The law of demand doesn't apply in case of speculation. Normally speculation occurs in the stock exchange market.



ELASTICITY OF DEMAND

Elasticity of Demand is defined as the Responsiveness of the Quantity Demanded of a good to Change on one of the variables on which Demand Depends. An elastic demand is one in which the change in quantity demanded due to a change in price is large. An inelastic demand is one in which the change in quantity demanded due to a change in price is small. The formula for computing elasticity of demand is:

% Change in Q.D.

% Change in one of the Variable On which Demand depends

CONCEPTS OF ELASTICITY OF DEMAND



PRICE ELASTICITY

It is measured as a percentage change in quantity demanded divided by the percentage change in price, other thing remaining same.

% Change in Price

$$Ep = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$
Here: Ep = Price Elasticity
$$\Delta = \text{Very Small Change}$$

$$P = \text{Price}$$

$$Q = \text{Quantity Demanded}$$

Note: Ep is (-)ve due to Inverse Relationship between price and quantity demanded.

DEGREES OF PRICE ELASTICITY

The demand for a product can be elastic or inelastic, depending on the rate of change in the demand with respect to change in price of a product. It is measured as a percentage change in quantity demanded divided by the percentage change price, other thing remaining same.

Perfectly elastic

$$E = \infty$$

Perfectly Inelastic

$$E = 0$$

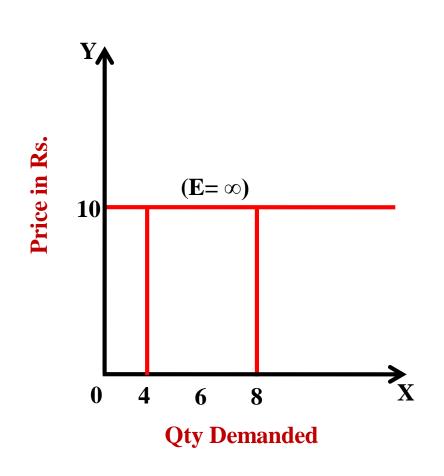
Unit Elastic

$$E=1$$

More than unit Elastic (Elastic)

Less than unit elastic (Inelastic)

Perfectly Elastic Demand (E=∞)

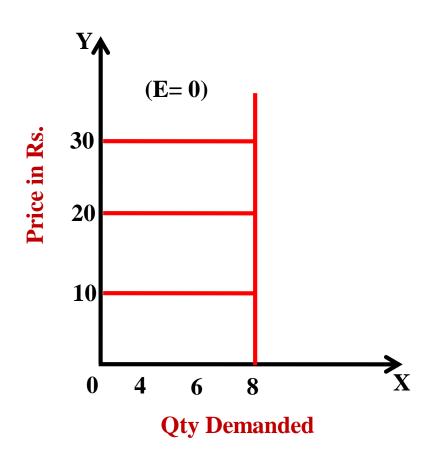


When a small change in price of a product causes a major change in its demand, it is said to be perfectly elastic demand.

A very little rise in price causes the demand to fall to zero and a very little fall in price causes demand to extend to infinity.

Under perfect competition, Demand Curve of a firm is parallel to OX Axis.

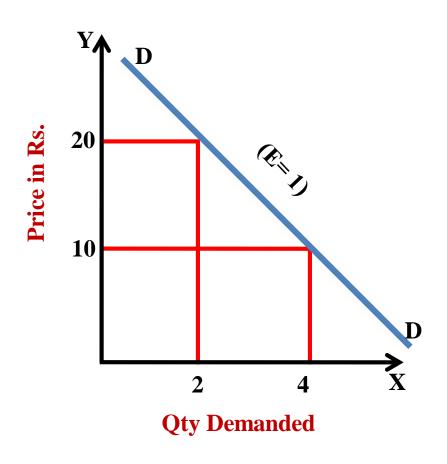
PERFECTLY INELASTIC DEMAND (E = 0)



When there is no change produced in the demand of a product with the change in its price, is said to be perfectly inelastic demand. (Example: Salt)

In this situation, Demand Curve is parallel to OY Axis.

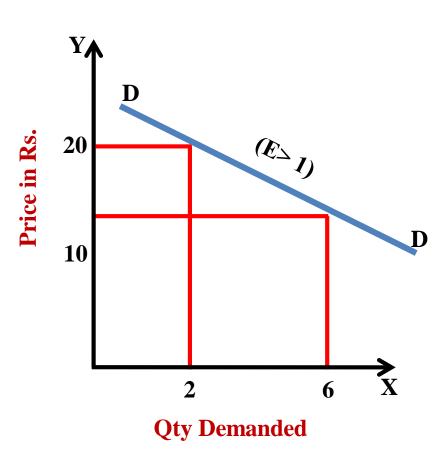
UNITARY ELASTIC DEMAND (Ep=1)



When the percentage change in demand produces the same change in the price of the product the demand is referred as unitary elastic demand.

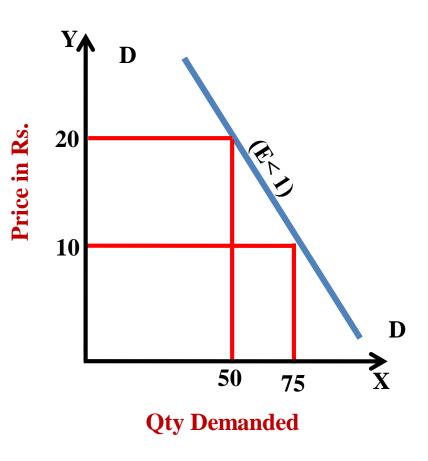
This type of Demand Curve is called Rectangular Hyperbola.

RELATIVELY ELASTIC DEMAND (Ep > 1)



It refers to the demand when the proportionate change produced demand is greater than the proportioned change in price of a product.

RELATIVELY INELASTIC DEMAND (Ep < 1)



When the percentage change produced in demand is less than the percentage change in the price of a product.

INCOME ELASTICITY

It is measured as a percentage change in quantity demanded divided by the percentage change in price, other thing remaining same.

% Change in Q.D.

% Change in Income

Degrees of Income Elasticity of Demand

Positive Income Elasticity of Demand.

Unitary Income Elasticity of Demand.

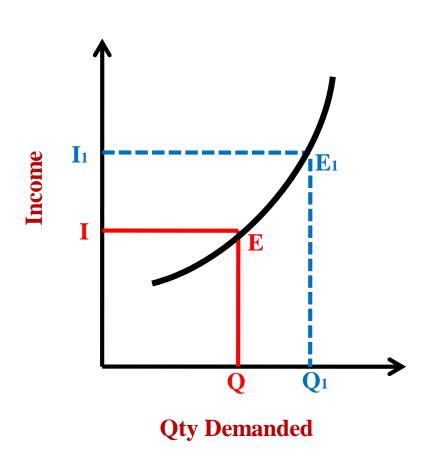
Less than Unitary Income Elasticity of Demand.

More than Unitary Income Elasticity of Demand.

Negative Income Elasticity of demand.

Zero Income Elasticity of Demand.

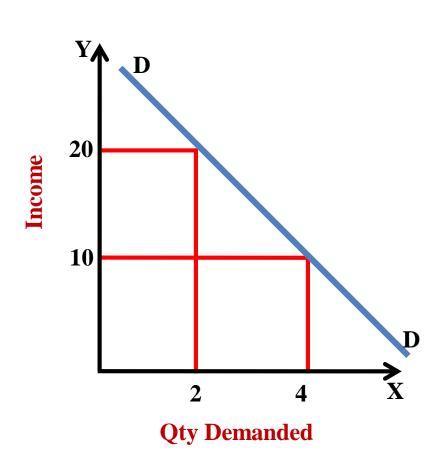
Positive Income Elasticity of Demand



Income elasticity of Demand for a Good is Positive, When the demand for a product increases with increase in consumer's income and Vice Versa.

It is Positive in case of Normal Goods.

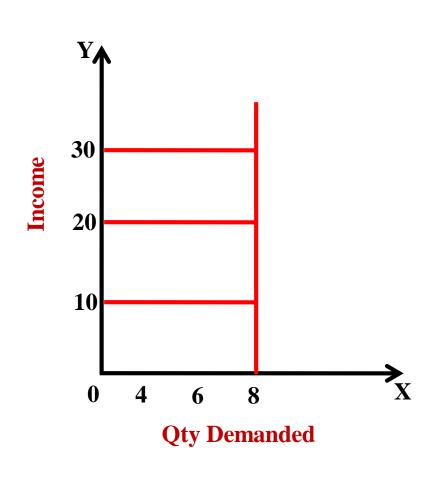
Negative Income Elasticity of Demand



Income elasticity of Demand for a Good is Negative, When the demand for a product decreases with increase in consumer's income and Vice Versa.

It is Positive in case of Giffen Goods..

Zero Income Elasticity of Demand



If there is no effect off increase in consumers income on the demand of product.

For example salt is demanded in same quantity whether price is high or low.

CROSS ELASTICITY

It is measured as a percentage change in quantity demanded (y) divided by the percentage change in price (x), other thing remaining same.

% Change in Price (x)

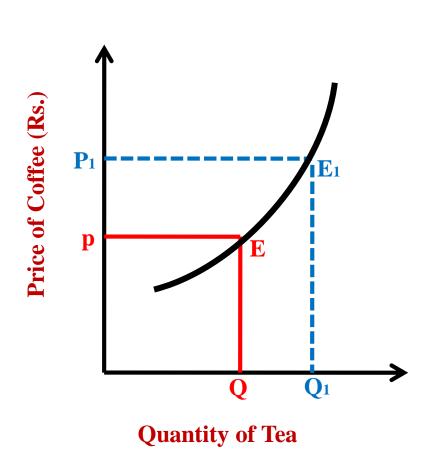
$$Ep = \frac{\Delta Qy}{\Delta Px} \times \frac{Px}{Qy}$$
Here: Ep = Price Elasticity
$$\Delta = \text{Very Small Change}$$

$$P = \text{Price}$$

$$Q = \text{Quantity Demanded}$$

Note: Ep is (-)ve due to Inverse Relationship between price and quantity demanded.

Positive Cross Elasticity of Demand

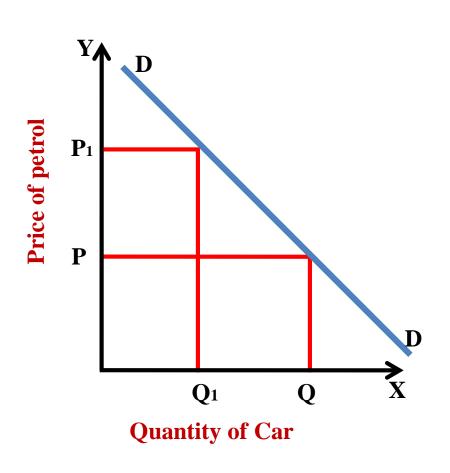


When Increase in the price of one good (X) causes increase in the demand for the other relative good (Y).

For example, Rise in the price of coffee will lead to Increase in Demand for Tea.

The Curve slopes upwarad from left to right.

Negative Cross Elasticity of Demand



When Increase in the price of one good (X) causes decrease in the demand for the other relative good (Y).

For example, Rise in the price of petrol will bring down the Demand for Car.

The Curve slopes downward from left to right.

Zero Cross Elasticity of Demand

Cross Elasticity of Demand is zero, when two goods (X) and (Y) are not related to each other.

For example, Rise in the price of wheat will have no effect on the demand for shoes.

DEMAND FORECASTING

Demand forecasting is the process of making estimations about future customer demand over a defined period, using historical data and other information.

Demand forecasting is a combination of two words; the first one is Demand and another forecasting. Demand means outside requirements of a product or service. In general, forecasting means making an estimation in the present for a future occurring event. Here we are going to discuss demand forecasting and its usefulness.

IMPORTANCE OF DEMAND FORECASTING

Forecasting means predicting about the future events most lightly to happen under certain given conditions. Demand forecasting is a systematic process that involves anticipating the demand for the product and services of an organization in future under a set of uncontrollable and competitive forces.

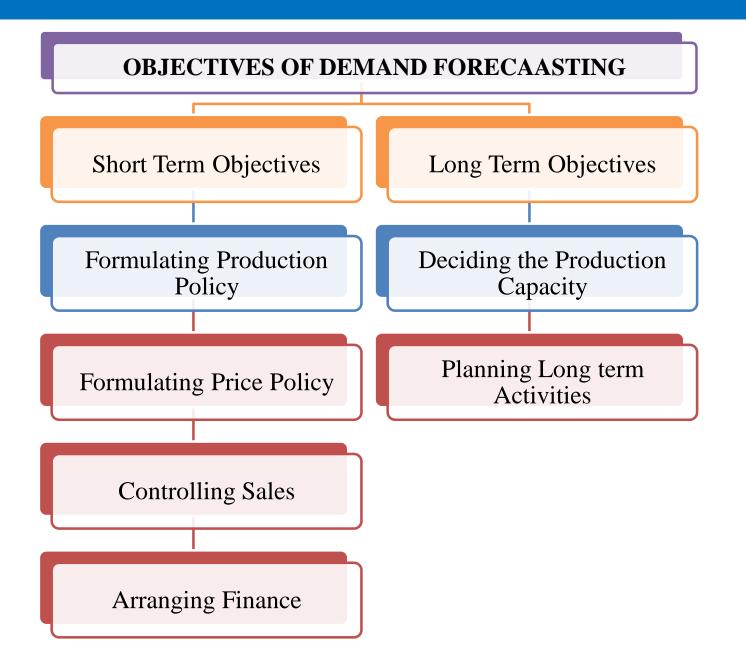
Cundiff and Still, "Demand forecasting is an estimate of sale during a specified future period based on proposed marketing plan and a set of particular uncontrollable and competitive forces."

Demand forecasting enables an organization to take various business decisions, such as planning the production process, purchasing raw materials, managing funds, price decisions etc.

SIGNIFICANCE OF DEMAND FORECASTING

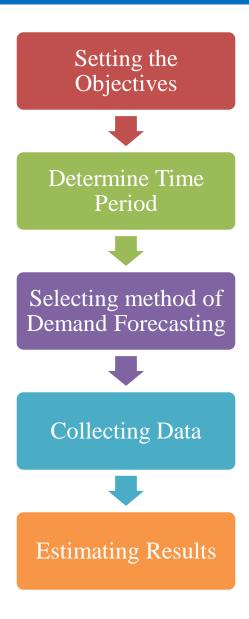
- 1. Fulfilling Objectives.
- 2. Preparing the budget.
- 3. Expanding Organization
- 4. Stabilizing Employment and Production.
- 5. Taking Management decisions.
- 6. Evaluation Performance.
- 7. Helping Government.

PURPOSE OR OBJECTIVES OF DEMAND FORECASTING

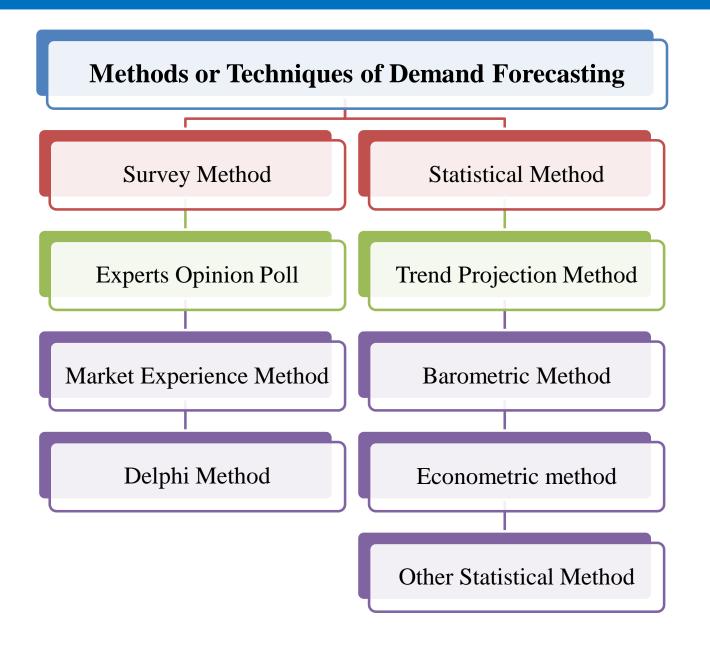


STEPS OF DEMAND FORECASTING

The demand forecasting process of an organization an be effective only when it is conducted systematically and scientifically. It involves a number of steps, which are shown in figure:



METHODS OR TECHNIQUES OF DEMAND FORECASTING



METHODS OF DEMAND FORECASTING: Survey Method

- 1. Experts Opinion Poll: method in which experts are requested to provide their opinion about the product. Generally in an organization, sales representatives act as experts who can assess the demand for the product in different areas, regions or cities.
- 1. Delphi Method: The Delphi method, also known as the estimate-talk-estimate technique (ETE), is a systematic and qualitative method of forecasting by collecting opinions from a group of experts through several rounds of questions.
- 2. Market Experiment Method: It Involves collecting necessary information regarding the current and future demand for a product. In this method, some areas of markets are selected with similar features such as population income levels, cultural background, and tastes of consumers.

METHODS OF DEMAND FORECASTING: Statistical Method

- 1. Trend Projection Method: Trend projection or least square method is the classical method of business forecasting which is concerned with the movement of variables through time. In this method, a large amount of reliable data is required for forecasting demand. In addition, this method assumes that the factors, such as sales and demand, responsible for past trends would remain the same in future.
- 2. Barometric Method: In barometric method, demand is predicted on the basis of past events or key variables occurring in the present. This method is also used to predict various economic indicators, such as saving, investment, and income. This method was introduced by Harvard Economic Service in 1920 and further revised by National Bureau of Economic Research (NBER) in 1930s.

METHODS OF DEMAND FORECASTING: Statistical Method

3. Econometric Methods: Econometric methods combine statistical tools with economic theories for forecasting. The forecasts made by this method are very reliable than any other method. An econometric model consists of two types of methods namely, regression model and simultaneous equations model.

i. Regression Methods:

In regression method, the demand function for a product is estimated where demand is dependent variable and variables that determine the demand are independent variable.

The equation to calculate simple regression is as follows:

Y = a + bx

Where, Y = Estimated value of Y for a given value of X b = Amount of change in Y produced by a unit change in X a and b = Constants

METHODS OF DEMAND FORECASTING: Statistical Method

Simultaneous Equations: Involve several simultaneous equations.

There are two types of variables that are included in this model, which are as follows:

i. Endogenous Variables:

Refer to inputs that are determined within the model. These are controlled variables.

ii. Exogenous Variables:

Refer to inputs of the model. Examples are time, government spending, and weather conditions. These variables are determined outside the model.

METHODS OF DEMAND FORECASTING: Other Statistical Method

Other Statistical Measures:

- > Index Number.
- > Time Series Analysis
- Decision Tree Analysis.

SUPPLY ANALYSIS

SUPPLY ANALYSIS

Supply means a quantity of commodity that the seller are willing and able to offer for sale at a particular price at any given time. It is naturally that more goods will be offer for sale at a higher price and less goods at lower price.

SUPPLY

Willing and Able to offer to the market at various prices during period of time. What Firms offer for sale, not necessarily to what they succeed in selling. It is a flow i.e. as per unit of time, per day, per week or per year.

DEFINITIONS OF SUPPLY

The Supply of Goods is the Quantity offered for sale in a given Market at a given time at various prices.

By: Thomas

Supply refers to the Amounts of a good that producer in a given market desire to sell, during a given time period at various prices, ceteris paribus.

By: Samuelson

DETERMINATS OF SUPPLY

- PRICE OF THE GOOD.
- PRICE OF RELATED GOODS.
- PRICE OF THE FACTORS OF PRODUCTION.
- STATE OF TECHNOLOGY.
- GOVERNMENT POLICY.
- OTHER FACTORS.

LAW OF SUPPLY

Law of supply expresses a relationship between the supply and price of a product. It states a direct relationship between the price of a product and its supply, while other factors are kept constant.

Law of supply:

"Other things remaining same, the supply of a commodity increases with a rise in its price and decreases with a fall in its price."

The Law of Supply states that other things being equal, the quantities of any commodity that firms will produce & offer for sale, is positively related to the commodities own price, rising when price rises & falling when price falls.

By: Lipsey

SUPPLY SCHEDULE

Supply schedule shows a tabular representation of law of supply. It presents the different quantities of a product that a seller is willing to sell at different price levels of that product.

A supply schedule can be of two types, which are as follows:

i. Individual Supply Schedule:

Refers to a supply schedule that represents the different quantities of a product supplied by an individual seller at different prices...

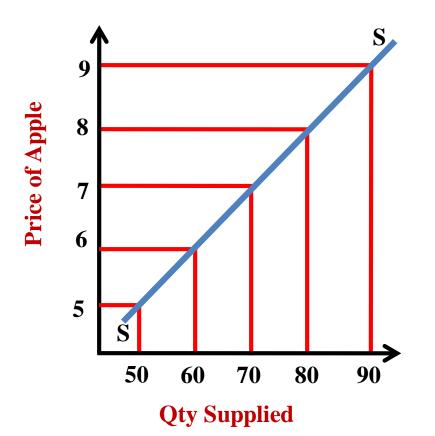
ii. Market Supply Schedule:

Refers to a supply schedule that represents the different quantities of a product that all the suppliers in the market are willing to supply at different prices. Market supply schedule can be drawn by aggregating the individual supply schedules of all individual suppliers in the market.

SUPPLY ANALYSIS

Supply Curve:

The graphical representation of supply schedule is called supply curve. In a graph, price of a product is represented on Y-axis and quantity supplied is represented on X-axis.



Price of Apple (Rs./kg.)	Qty. Supplied (In Kgs.)
5	50
6	60
7	70
8	80
9	90

EXCEPTIONS OF LAW OF SUPPLY

The exceptions to the law of supply are as: follows

- Closure of business
- > Agricultural products
- Monopoly
- Competition
- Perishable Goods
- Rare goods
- Out of fashion goods

EXCEPTIONS OF LAW OF SUPPLY

1. Closure of business

When a business is on the verge of closure, the seller may sell the goods even at low prices in order to clear the stock. Thus, in this case, the law of supply shall not hold true.

2. Agricultural products

We know that land is a limited resource and thus the agricultural produce can also not be increased beyond a certain level. Hence, even if the prices increase the supply cannot be increased.

3. Monopoly

Monopoly is a situation where there is only a single seller of a commodity. Thus, he is the price maker and has control over the prices.

In such a case, the law of supply may not apply as he may not be willing to increase the supply even if the prices are high.

EXCEPTIONS OF LAW OF SUPPLY

4. Competition

When there is a cut-throat competition in the market, the sellers may sell more quantity of goods even at low prices. This is a situation where the law of supply will not apply.

5. Perishable Goods

A seller is willing to sell more goods that are perishable in nature even at low prices because if they remain unsold they will yield only loss.

6. Rare goods

The goods that are rare such as artistic or precious goods have a limited supply. The supply of these goods cannot be increased according to their demand or rising prices.

7. Out of fashion goods

The out of fashion goods have low prices. The sellers may sell them out of fashion goods even at low prices. As these will become dead inventory and also in order to realize the amount invested in the inventory.

ELASTICITY OF SUPPLY

The elasticity of supply establishes a quantitative relationship between the supply of a commodity and it's price.

According to Prof Thomas, "The supply of a commodity is said to be elastic when as a result of a charge in price, the supply changes sufficiently as a quick response. Contrarily, if there is no change or negligible change in supply or supply pays no response, it is elastic."

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

 Δq = The change in quantity supplied

Q = The quantity supplied

 Δp = The change in price

P = The price

Perfectly elastic

$$E = \infty$$

Perfectly Inelastic

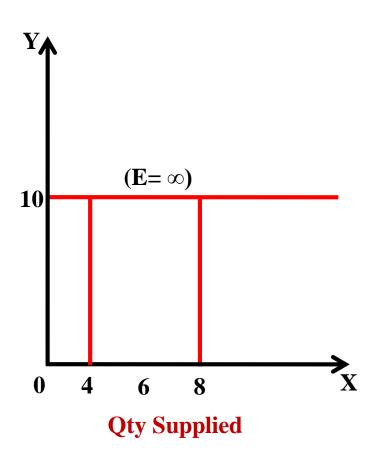
$$E = 0$$

Unit Elastic

$$E=1$$

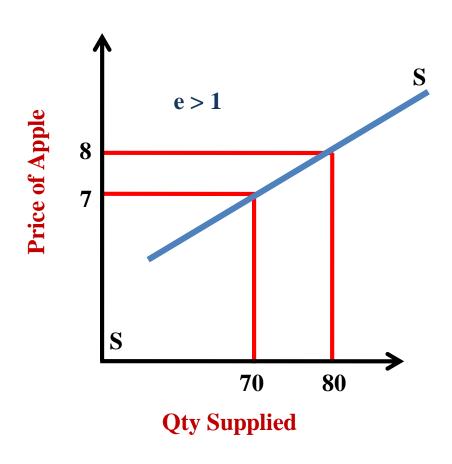
More than unit Elastic (Elastic)

Less than unit elastic (Inelastic)



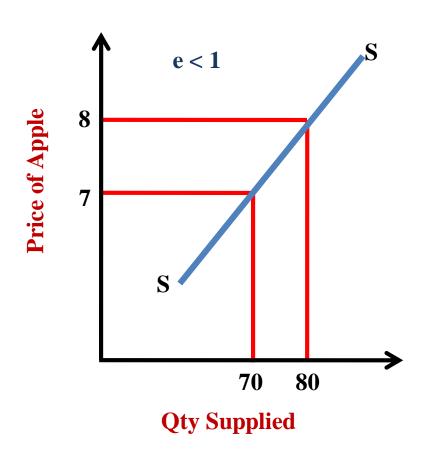
i. Perfectly Elastic Supply:

Refers to a situation when the quantity supplied completely increases or decreases with respect to proportionate change in the price of a product. In such a case, the numerical value of elasticity of supply ranges from zero to infinity $(e_s = \infty)$ This situation is imaginary as there is no as such product whose supply is perfectly elastic.



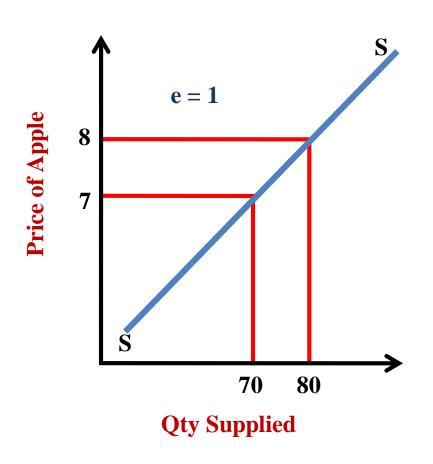
ii. Relatively Elastic Supply:

Refers to a condition when the proportionate change in the quantity supplied is more than proportionate change in the price of a product. In such a case, the numerical value of elasticity of supply is greater than one $(e_S>1)$ For example, if the quantity supplied increases by 30% with respect to 10% change in the price of a product, it is called relatively elastic supply.



iii. Relatively Inelastic Supply:

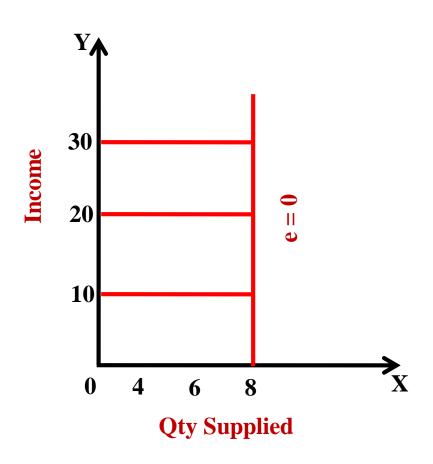
Refers to a condition when the proportionate change in quantity supplied is less than proportionate change in the price of a product. In such a case, the numerical value of elasticity of supply is less than one $(e_S < 1)$. For instance, the elasticity of supply would be less than unit, if the quantity supplied increases by 20% with respect to 30% change in the price of a product.



iv. Unit Elastic Supply:

ADVERTISEMENTS:

Refers to a situation when the proportionate change in the quantity supplied is equal to the Proportionate change in the price of a product. The numerical value of unit elastic supply is equal to one (e_s =1).



v. Perfectly Inelastic Supply:

Refers to a situation when the quantity supplied does not change with respect to proportionate change in price of a product. In such a case, the quantity supplied remains constant in all instances of change in price. The numerical value of elasticity of supply is equal to zero. This situation is imaginary as there is no as such product whose Supply is perfectly inelastic. Therefore, this situation does not have any practical implication.

