Demand & Supply Analysis

Demand :=

Demand is an economical principle referring to a consumer's desire to purchase goods & services and willingness to pay a price for a specific goods and service.

Elasticity of demand

Elasticity of demand explain the relationship b/n a change in price and consequent change in amount demanded. "Marshall" introduced the concept of elasticity of demand.

* Elasticity of demand shows the extent of change in quantity demand to a change in price

* According to Alfred Marshall "elasticity of demand may be defined as the percentage change in quantity demanded to the percentage change in price"

* According to A.K. Cairncross "The elasticity of demand for a commodity is the rate at which quantity bought changes as the price changes.

⇒ Elastic demand (e>1)

A small change in price may lead to a great change in quantity demanded. In this case demand is elastic.

⇒ In- elastic demand (e<1)

If a big change in price is following by a small change in demanded then the demand "in elastic"

✳ Types of elasticity of demand

Theire are three types of elasticity and one is Adevertising.

(1) price elasticcity of demand
(2) Income elasticity of demand
(3) Crass elasticity of demand
(4) Adevertising elasticity of demand.

Price elasticity of demand :=(-ve relationship)

The price Elasticity of demand it is refers to the quantity demanded of a commodity in respons to a given change in price.

* Price elasticity is always negative

$P \uparrow \longrightarrow D \downarrow$

$P \downarrow \longrightarrow D \uparrow$

The relation b/n the price and the demand is inverse.

$\Rightarrow$ Price elasticity of demand = $\frac{\text{Proportinate change in the quantity demand for Product } x}{\text{proportionate change in the price of } x}$

where

P_1 = before chage the price

P_2 = after change the price

Q_1 = before change quanty

Q_2 = after change quanti

$$\epsilon dp = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

Example Problems

Elastic price demanded ($e > 1$) :=

Determine the price elasticity of demand given that the quantity demand for product M is 1000 at price RS 100 the price decline to Rs 90 and the quantity demands increase to 1500 units.

$$\epsilon dp = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

$Q_1 =$ 1000 units

$Q_2 =$ 1500

$P_1 =$ 100

$P_2 =$ 90

$$\frac{1500-1000/1000}{90-100/100} = -5$$

$-5 > 1 \Rightarrow e > 1 \quad \{\because 5 \times 10\% = 50\}$

$\therefore$ 10% change in the price, there a change in the demand by 50%.

The persentage increase in quantity demanded. is more then the perecentage decrese in price.

In elastic price of the demand ($e<1$) :=

Determine the price elasticity of demand given that the quantity demanded for product M is 1000 units at price of RS 100.

The price decline to RS 70 and the quantity demanded increase to 1100 units.

$$Edp = \frac{(Q_2-Q_1)/Q_1}{(P_2-P_1)/P_1}$$

Let us define these veriable here

$Q_1 =$ 1000 units (quantity befor change)

$Q_2 =$ 1100 units

$P_1 =$ Rs 100

$P_2 =$ Rs 70

$$\epsilon dp = \frac{(1100-1000)/1000}{(70-100)/100}$$

$$= 0.33$$

$$\Rightarrow 0.33 < 1$$

Unity of price elasticity ($e=1$) :-

Determination the price elasticity of demand given that the quantity demanded for product M 1000 units

Price Rs 100.

the price decline to Rs 50 and the quantity demand increase to 1500 units.

$$\epsilon dp = \frac{(Q_2-Q_1)/Q_1}{(P_2-P_1)/P_1}$$

Let us declair these variabules here

$Q_1 =$ 1000 units

$Q_2 =$ 1500 units

$P_1 =$ Rs 100

$P_2 =$ Rs 50

$$\epsilon dp = \frac{(1500-1000)/1000}{(50-100)/100}$$

$$= 1.0$$

$$1 = 1$$

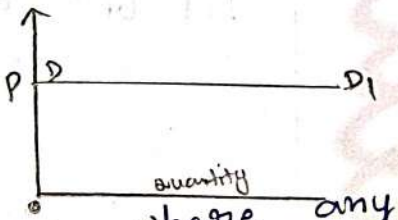
* Measurements of elasticity of demand

The types of elasticity demand 5 types are their

① Perfect elasticity of demand
② Perfect In elasticity of demand
③ Relevent elastisity of demand
④ Relevent In elasticity of demand
⑤ unit of elasticity of demand.

Perfect elasticity of demand

Perfectly elastic demand is when the demand for the product is entirely dependent on the price of the product. This means that if any producer increases his price by even a minimal amount his demand will disappear.

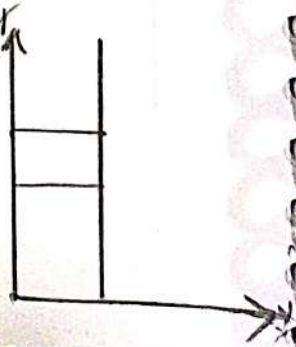


Perfect in elasticity of demand

Perfectly elastic demand is a demand where any price increase would cause the quantity demanded to fall to zero and reducing the price of a good or service will not increase sales - ~~was this~~

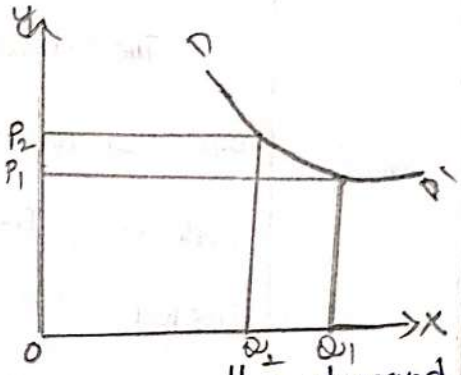
* hear the demand is fixed
* If the price increased levels of the demanded remained by constent.

(Ex:- cooking oil monthly)



* Relatively elasticity of demand (D>P) (e>1)

Relatively change in the demand more then change in the price



P↓ — D↑

P↑ — D↓

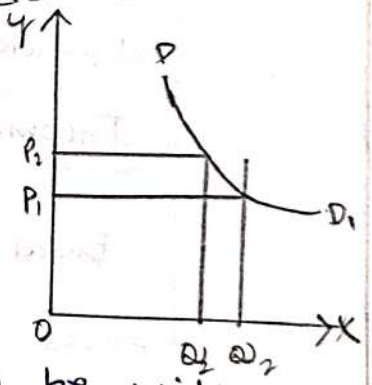
Product = 15RS
Demand = 30Qum
Price = 10 RS
Demand = 40

The above reactions If price small change . the demand is double change

* Relatively In elasticity of demand

Relatively in elasticity of demand changeing in demand less then the price.

A small change of price and demand Quantity small change of price

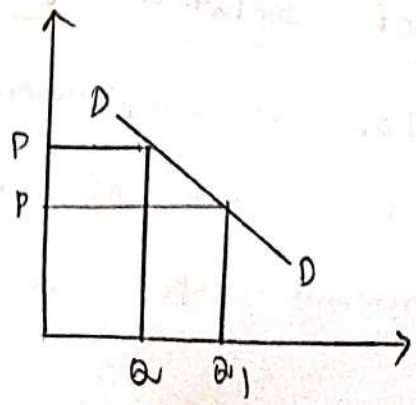


* Unit elasticity of demand

The elasticity of demand is said to be unity when the change in price - demand also follows the price.

Price = demand

price small change = demand also small change.



* Determination of Demand (factors affecting elasticity of Demand)

The income of buyers. The prices of related goods or services. either complementory and purchased along with a particular item, or substitutes and bought insted of a product.

Price of the product :=

→ Demand for is inversely related to its price

→ In other words, if price rises. the demand falls and vice versa.

→ This price demand functions showing the price effect demanded.

Income of the consumer :=

Based on the costemer Income. when the Income rises. the number of goods demanded also. incress

Likewise If the Income decreases the demand also decreses.

Ex:- Income highly — demand also high depends up on the income based (AC, colers, etc..)

Cost of related goods and services

For a complimentory product an increase in the cost of one Comodity will decrease the demand for a Complimentory product.

Ex:- Bread and jam or butter.

demand for a substitute product to increase.

Ex:- Increase the cost of tea will raise the demand for coffe. decrease the demand for tea.

Tastes and Preference

The based of the consummer opinian in the tast and Preference of price and demand. then there is Change in the product demanded also. Most companies keep changing their products and services.

* Elasticity of Demand decision making

Price elasticity of demand is used to measure the relationship b/n price and demand, and how changes to one will affect the other. All products will have different responses in consumer demand to price changes. Therefore critical to understand those differences when making important pricing decision.

Demand functions

demand functions is a mathematical expression of relation b/n the quantity demanded and it's determination. it can expressed as follows.

$$Qd = F\{P, I, Psc, T, A\}$$

Where

Psc = price of substution or compleme
Qd = quantity demand.
F = functional relational b/n input.
P = price of the product.
I = in come of the consumer
T = taste & preference.
A = advertisment.

Law of demand

The Law of demand states the relationship b/n price and quantity demanded. As per the law when price is increase demand will be decrease, and similarly whe price is decreased demand will increase. this law assumed that other things remaining constant. The law of demand is inverse the law of demand may be explan with help of demand schedule.

Price of Apple (in Rs)	Quantity demand
10	1
8	2
6	3
4	4
2	5

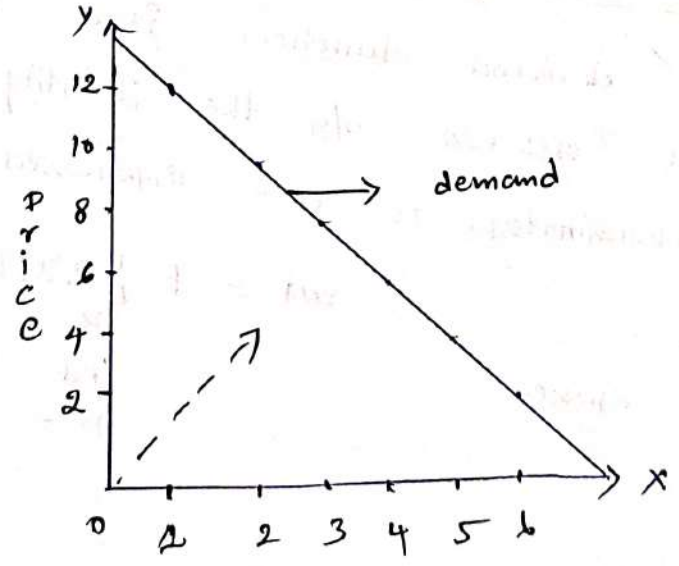


fig: Law of demand

⇒ Assumed the Law of demand

① Consumer in comodity unchenged.

② Consumer taste & preferencess unchanged.

③ No change in the fashions & Latest trends.

④ No expectors in future price

⑤ The climate & whether

⑥ No change the goverenament polacies and fisical polacies.

Exception of the Law of demand

* Where there is a shortage of necessities feared.
* If the customer few then there could be shortage of necessities.
* They may tend to buy more than what they require imedicatly. even if the price of the product increases.

where the product is such that it confers distinction :=

Ex :— Product such as jewels and dimands so. on... confer distiction on the Part of the user. In such a case, the consumer tends. to buy even though there is increase in its price.

Giffen Paradox :=

People whose income are low purches more of a comodity such as broken rice. bread etc--, when its price rises. conversely when its price falls. instead of buying more. (not compramising the forenears food items). (bread, meet etc....)

In case of ighorance of price changes :=

At times the costomer may not keep track of changes in price. In such a case - he tends to buy even if there is increase in price.

Demand forecasting

Demand forecasting refers to an estimate of future demand for the product. Demand forecasting has can important influence on product planing

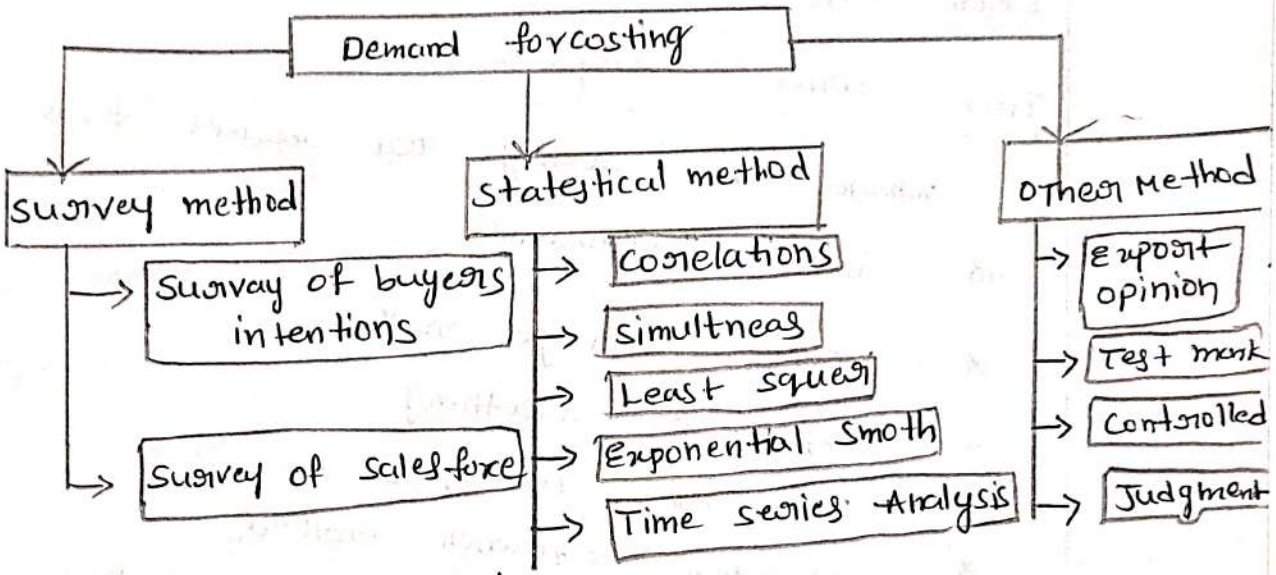
Methods of demand forecasting

Their are 6 types of forecasting

1. survey methods
2. statestical method
3. expect opinion method
4. Test marketing
5. controlled expri
6. Judgmental approach.

* Statestical Methods

Statestical method is used for long run forecasting. In this methods statestical and mathemetical techniques are used to fore cast demand. This realies on past data.



Trend Projection Method

these are generally based on analysis of past sales patterns. There are five main techniques of mechanical Extrapolation.

Trend line by observation

This method of forecasting trend is elementary easy quick. It involves merely the plotting of actual sales data on a chart and them estimanting just by observation where the trend line lies.

Least squares methods :=

this techniques sxses statistical formula to find the trend. line which best fits the available data. The trend line is the estimating equation which can be wed for forecasting.

Time series analysis :=

where the surveys or market tests are costly and time consuming.

* moving avarage method
* Exponential smoothing
* Barometric Techniques
* simulation equation method
* correlation and regration methods.
* The above methods are using the seervay methods of statestical caliculation.

Expert opinion methods

well inform person are called Experts. Experts constitute yet another source of information. These person are generally the outside Experts and they do not have any vested interest in the results of A particular survey

This methods opinion taken by the Product or service at a given level of technology Experts.

Test Marketing

It is likely that opinions given by buyers salesman or other experts may be, at times. misleading.

Controlled experiments :=

Controlled experiment refer to such exercise where some of the major determinats of demand are manipulated to suit to the customers with different tastes of the preferences.

* in come groups and such others.

Judgment approach :—

When name of the above methods are directly related to the given product or services the management has no alternative other then using its own judgment.

Factors Governing demand forecasting :=

a) functional nature of demand :=

demand function shows the relationship b/n quantity demand for a particular products or services is not a single number but it is a function of a number of factors.

b) Types of forecasting :=

Based on the period under forecast the demand forecast can be of two types

① short-run forecasting

② Long-run forecasting.

* The above short-run forecasting cover a period of time.

* long-run forecasting cover a one year - 20 years.

c) forecasting level :=

The forecasting used 4 levels ① Industry ② firm ③ national level ④ Global level.

d) degree of orientation :=

can be worked out based on total sales (or) product or services wise sales for a given time period.

e) New product :=

It is relatively easy to forecast demand for established product (or) products which are currently in use. This method is

Particularly useful if the new product is a variation on esting one involving - for example. a different colour, size or flavor.

(f) Nature of good :-

The goods are clasified in to producer goods consumer goods, consumer durables and services.

(g) Degree of competition :- there may be a single trader or a few traders depending upon the nature of goods and servises.

⇒ Significance of Elasticity of demand

The concept of elasticity is very useful to the product and policy-makers alike. It is a very valuable tool to decide the extent of increase or decrease in price for a desired change in the quantity demanded for the product and services in the firm. of the economy.

Their are 5 types.

1) price of factors of production

The factors of production are land, labour capital organization and technology - These haveq cost we have to pay rent, wages, interest Profit and price for these factors of production..

2) Price fixation :=

The producer or manufacture can decide the amount of price that can be fixed for his product based on the concept of elasticity.

* If there is no competition
* in other words. in the case of a monopoly.
* The manufacture is free to fix his price as a long as it does not attract the attention of the government.

3) Exceptions of the law of demand :=

where there is a shortage. of necessities feared. If the customer few then there could be shortage of necessities. They may tend to buy more than what they require imediatly - even if the price of the product increase

4) where the product is such that it confers distinction;—

Ex:= product such as jewels and dimands so on--- confer distiction on the part of the user. In such a case, the consumer tends. to buy even through there is increase in its price.

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3) Government Policies

Their are three types

① Tax policies ② Raising bank deposits ③ public Utilities

- Tax policies := Government extensively depends on this concept to finalize its polices relating to taxes and revenues.

Ex:= increase the price such as petrol, diesel gasek-

- Raising bank deposits :=

If the government wants to mobilize largers deposits from the consumer it propose to raise the rates the rates of fixed deposits marginally.

- Public Utilities :=

Government uses the concept of elasticity in fixing charge for the public utilities such as elasticity traffs.

Ex:= water changes, ticket fare in case of road or rail transport etc.....

Public utilities :=

Government uses the concept of elasticity in fixing charge for the public utilities such as elasticity.

forecasting demand :=

Income elasticity is used to forecast demand for a particular product or services. is based on the income level. the trader can estimat the quantity of goods to be sold at different income levels to realize the targeted revenue.

planing the levels of out put and price :=

It is useful producers. Changing the price will bring in adequate revenue or not. In general for items whose demand is elastic.

price may be helpful to him to get huge profits without losing sales.

Supply Analysis

Law of supply

The law of supply shows a direct relationship b/n price and supply of a comodity

Law of supply states that other factors remaing constant. price and quantity supplied of a good are directly related to each other in of words when the paid by buyers for

a good rises then suppliers increase the supply of that good in the market. This curve can be drawn by preparing supply schedule, which is a tabular statment that gives different price commodity.

Where price increased then supply also increased price dicreased supply also decreased supply following the price.

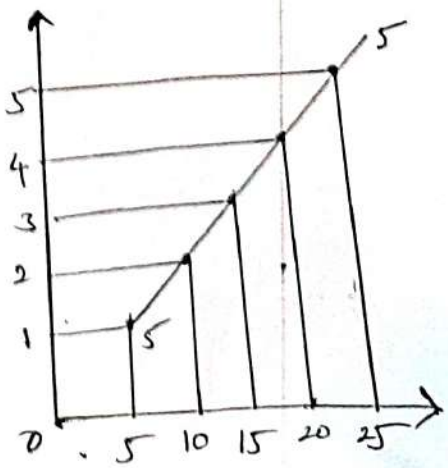
supply schedule

Price (RS)	Quantity (units)
1	5
2	10
3	15
4	20
5	25

Supply curve based on this imaginary data is shown belows.

This curve is draw on the assuption all other factors other than price of the comodity

P↑ – S↑ ⇔ P↓ → S↓



Supply function

Suppy function is the mathemetical expression of law of supply. In other words - supply function quantifies the relation ship b/n quantity supplied of a product.

The supply function can be expressed as

$$Sx = f(P(x))$$

where

Sx = quantity supplied for product x

P_x = Price of product x

f = constand representing changes produced in Sx with one unit change in P_x.

Determinants of supply

Supply can be influenced by a number of factors are termed as determinats of supply Generally, the supply of price and cost of production; some of the factors that influence the supply of a product are described as follows;

① Price:- Price is the main factor that influences the supply of a product to a greater extent.

② Cost of production:- Implies that the supply of a product would decrease with increase in the cost of production and ~~services~~ and vice versa.

③ Natural conditions:-

Impliments of climatic condition directly effect the supply of certain products. for example:- the supply of agricultural products increase when monsoon comes on time. however. the supply of these products decrease at the time of drought.

④ Technology:- Refers to one of the important determinant of supply. A better and advanced technology increases the production of a product. wich result in the increase in the supply of the product.

⑤ Transport conditions:- Transport is always a constraint to the supply of products. as the product are not available on time due to poor transport facilities.

⑥ factor prices and their Availability.

⑦ Government's policies.

⑧ Prices of Related cost:- The prices of substitutes and complementary goods also affect the supply of a produ cts.