THEORY OF DEMAND

'Demand' refers to the quantity of a good or service that buyers are willing and able to purchase at various prices during a given period of time. The effective demand for a thing depends on

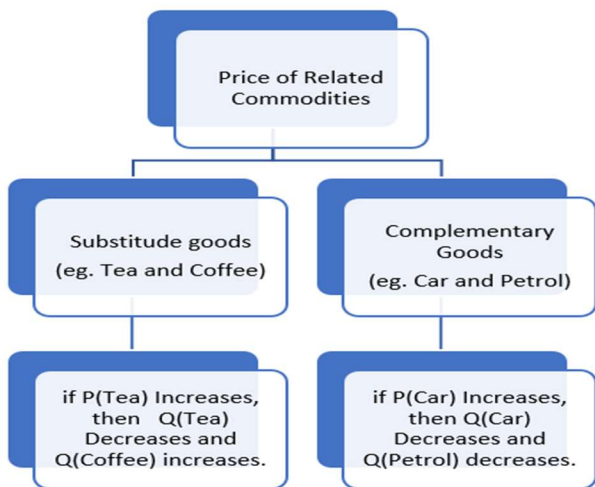> Demand = (Desire + Willingness + Ability) for (Any Product or service)

Factors that determine demand are given below:

(i)   **Price of the commodity**

Inverse Relation between Price and Demand

> When Price ⬇ , Quantity ⬆
> When Price ⬆ , Quantity ⬇

(ii)   **Price of related commodities**

```
Price of Related
Commodities
├── Substitude goods
│   (eg. Tea and Coffee)
│   └── if P(Tea) Increases,
│       then Q(Tea)
│       Decreases and
│       Q(Coffee) increases.
└── Complementary
    Goods
    (eg. Car and Petrol)
    └── if P(Car) Increases,
        then Q(Car)
        Decreases and
        Q(Petrol) decreases.
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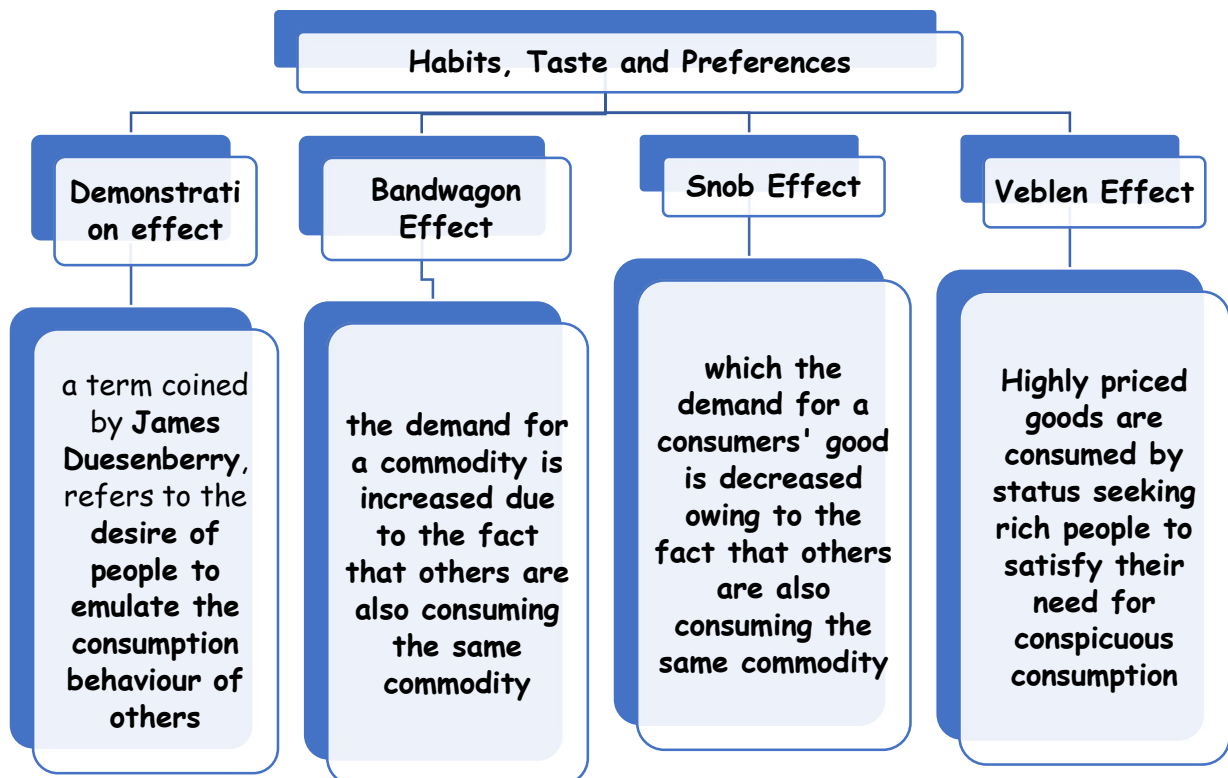
(iii)   Disposable **Income** of the consumer (Direct Relationship b/w Income and Demand)
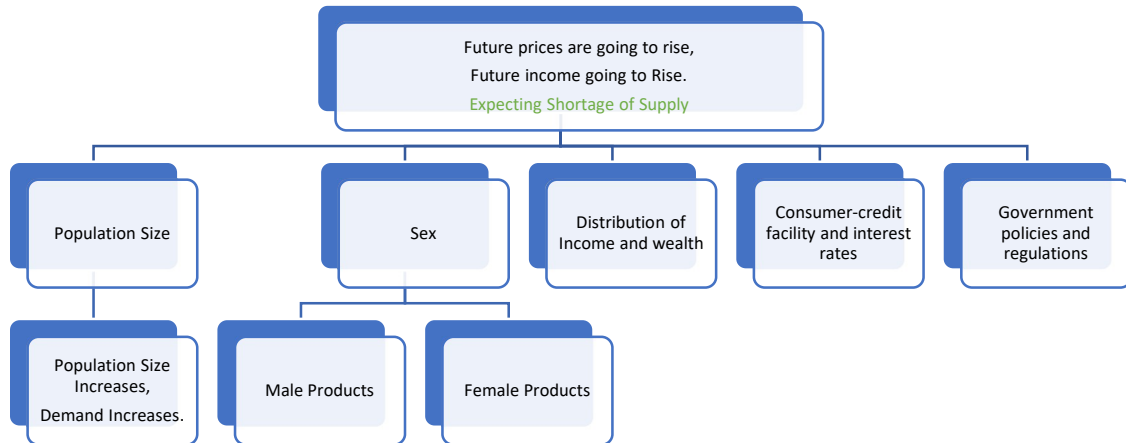
Exceptions: a. Necessities   b. Inferior Goods

> When Income ⬇, Demand ⬇
> When Income ⬆, Demand ⬆

(iii)   **Tastes and preferences of buyers** *(Bolo Zubaan Kesari)*

Habits, Taste and Preferences

Demonstration effect

a term coined by **James Duesenberry**, refers to the **desire of people to emulate the consumption behaviour of others**

Bandwagon Effect

the demand for a commodity is increased due to the fact that others are also consuming the same commodity

Snob Effect

which the demand for a consumers' good is decreased owing to the fact that others are also consuming the same commodity

Veblen Effect

Highly priced goods are consumed by status seeking rich people to satisfy their need for conspicuous consumption

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(iv)   Consumers' Expectations

Future prices are going to rise,
Future income going to Rise.
Expecting Shortage of Supply

| Population Size | Sex | Distribution of Income and wealth | Consumer-credit facility and interest rates | Government policies and regulations |

| Population Size Increases, Demand Increases. | Male Products | Female Products |

(v)   Fluctuations in the Economy : Boom – Increase in Demand

Recession – Decrease in Demand

THE DEMAND FUNCTION

$$Q_x = f\,(P_X,\ Y,\ P_{r,})$$

where, Qx = is the quantity demanded of product Px = is the price of the commodity

Y = is the money income of the consumer   Pr = Price of related goods

---

THE LAW OF DEMAND

Other things being equal, when the price of a good rises the quantity demanded of the good will fall. There is an inverse relationship between price and quantity demanded, ceteris paribus.

When Price ⬇ , Quantity ⬆

When Price ⬆ , Quantity ⬇

Prof. Alfred Marshall defined the Law: "The greater the amount to be sold, the smaller must be the price at which it is offered."

The Demand Schedule

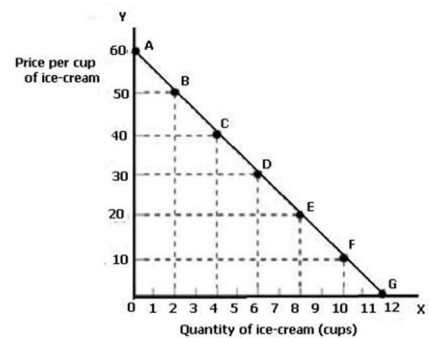|	Price Ice cream	Quantity ice-cream
A	60	0
B	50	2
C	40	4
D	30	6
E	20	8
F	10	10
G	0	12

Fig. 1: Demand Curve for Ice-cream

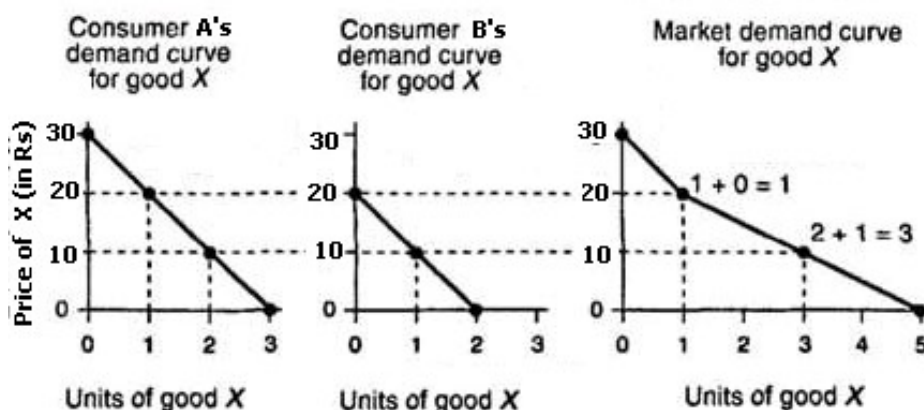the demand schedule obeys the law of demand: As the price of ice-cream increases, ceteris paribus, the quantity demanded falls.

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The Demand Curve: Graphical presentation of the demand schedule

Market Demand Schedule

Price of Good X in (Rs)	Quantity demanded by		
	A	B	Total Market Demand
0	3	2	5
10	2	1	3
20	1	0	1
30	0	0	0

The Market Demand Curve

The demand equation relates the price of the good, denoted by P, to the quantity of the good demanded, denoted by Q.

$$Q = a - bP$$

Where 'a' is the vertical intercept and 'b' is the slope.

Exceptions to the Law of Demand

1. **Conspicuous goods:** Articles of prestige value or snob appeal or articles of conspicuous consumption are used by the rich people as status symbol for enhancing their social prestige or /and for displaying wealth.
2. **Giffen Goods:** Generally, those goods which are inferior, with no close substitutes available and which occupy a substantial place in consumers' budget are called 'Giffen goods. E.g., bajra, low quality rice and wheat.
3. **Conspicuous Necessities:** Goods, which due to their constant usage become necessities of life are conspicuous Necessities. E.g., TV, Refrigerator.
4. **Future Expectations about prices:** when the prices are rising, households, expecting that the prices in the future will be even higher, tend to buy larger quantities of such commodities.
5. **Incomplete information and irrational behavior:** Sometimes, consumers tend to be irrational and make impulsive purchases without any rational calculations about the price and usefulness of the product and in such contexts the law of demand fails.
6. **Speculative Goods:** In the speculative market, particularly in the market for stocks and shares, more will be demanded when the prices are rising and less will be demanded when prices decline.

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EXPANSION AND CONTRACTION OF DEMAND CURVE (Because of Change in Price)
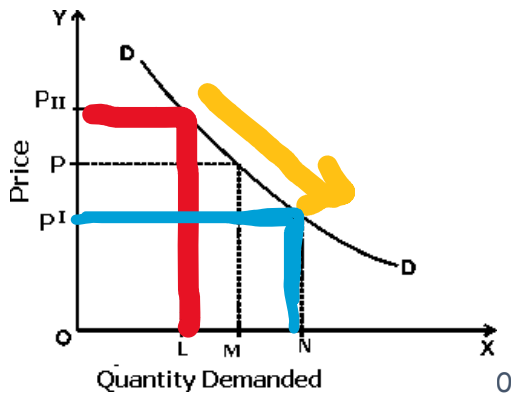
Expansion of Demand Curve: When the Price falls from PII to PI, Quantity demanded is increased from L to N forming a downward movement of DC.
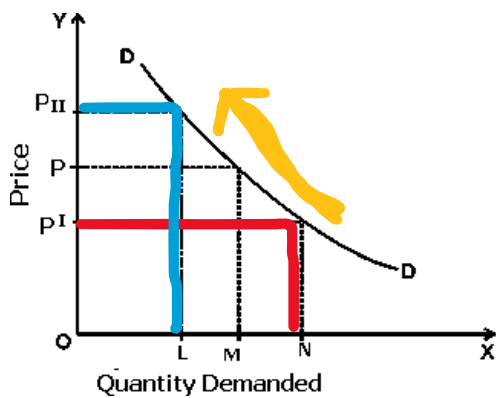
Contraction of Demand Curve: When the Price rises from PI to PII, Quantity demanded is decreased from N to L forming a upward movement of DC.

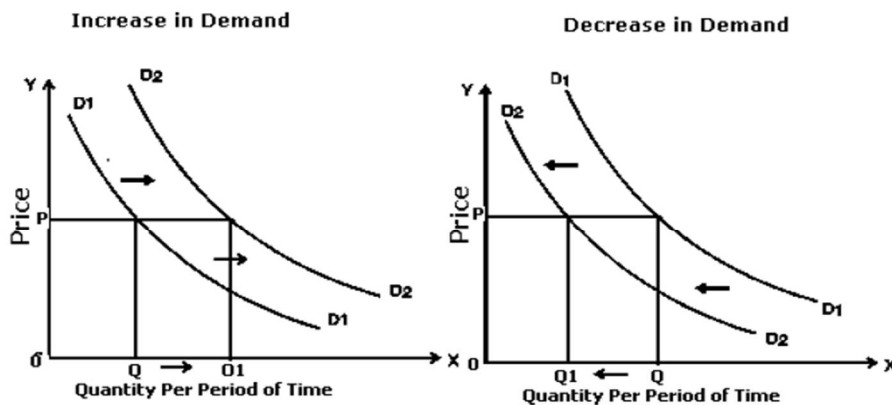# Increase and Decrease in DEMAND CURVE (Because of Change Other than in Price)

Fig. 5(a): Rightward shift in the demand Curve

Fig. 5(b): Leftward shift in the demand Curve

Increase in demand (Rightward shift)	Decrease in Demand (Leftward shift)
Rise in income/ Wealth for normal goods	A fall in income/ wealth in case of normal goods, and a rise in income in case of inferior goods
Rise in the price of a substitute good	Fall in the price of a substitute good
Fall in the price of a complement	Rise in the price of a complement
An increase in the number of buyers	A decrease in the number of buyers
A change in tastes in favor of the commodity	A change in tastes against the commodity

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A redistribution of income to groups of people who favor the commodity	Redistribution of income away from groups of people who favor the commodity.
An expectation that price will rise in the future	An expectation that price will fall in the future
Government policies encouraging consumption of the good . Grant of consumer subsidies	Government regulations discouraging consumption e.g., ban on cigarette smoking/ ban on consumption.

RATIONALE OF LAW OF DEMAND (Why demand curve slopes downwards).

1. **Substitution Effect**

Price of Original Goods [Tea] ⬆
People Switch to Substitute [Coffee] ⬆
Demand for original Goods [Tea] ⬇

Price of Original Goods [Tea] ⬇
People Switch to Substitute [Coffee] ⬇ (Original product comparatively cheaper)
Demand for original Goods [Tea] ⬆

   The substitution effect will be stronger when:
   (a)   the goods are closer substitutes.
   (b)   there is lower cost of switching to the substitute good
   (c)   there is lower inconvenience while switching to the substitute good.

2. **Income effect:** Increase in demand due to increase in Real Income

Price ⬇ ⟶ Real Income ⬆ ⟶ Quantity Demanded ⬆
Price ⬆   Real Income ⬇   Quantity Demanded ⬇

3. **Utility maximizing behavior of customer**
   According to Marshall,

Each Additional Unit of Goods ⟶ Marginal Utility (Satisfaction) Decreases

   This means, that customer will never pay more price for extra unit. If one wants to sell extra, Price needs to be reduced.

4. **Arrival of new customers**

Price ⬇ ⟶ More customers ⬆ ⟶ Quantity Demanded ⬆

5. **Different uses**

Price of Electricity ⬇ ⟶ Additional uses starts ⬆ ⟶ Quantity Demanded ⬆

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Elasticity of Demand

Responsiveness of Quantity Demanded of a good to changes in one of the variables on which demand depends.

$$\text{Price Elasticity} = Ep = \frac{\% \text{ change in quantity demaned}}{\% \text{ change in Price}}$$

$$Ep = \frac{\dfrac{\text{Change in quantity}}{\text{Original Quantity}} \times 100}{\dfrac{\text{Change in Price}}{\text{Original Price}} \times 100}$$

$$\text{OR } Ep = \frac{\text{Change in quantity}}{\text{Original Quantity}} \times \frac{\text{Original Price}}{\text{Change in price}}$$

Or In Symbolic terms

$$Ep = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$
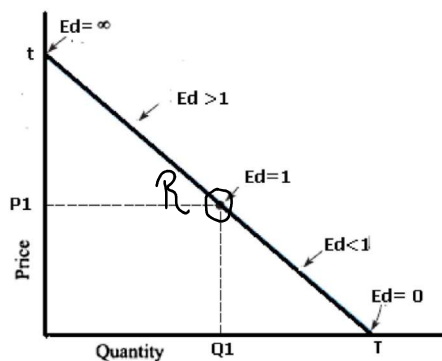
Where, Ep stands for price elasticity

q stands for original quantity

p stands for original price

Δ stands for a change.

Point Elasticity

The point elasticity of demand is the price elasticity of demand at a particular point on the demand curve. The concept of point elasticity is used for measuring price elasticity where the change in price is infinitesimal.


$$\frac{RT}{Rt} = \frac{\text{lower segment}}{\text{upper segment}}$$

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Ed	Explanation	Terminology	Graph	Example
Zero, Ed = 0	QD does not changes as P changes	Perfectly Inelastic	*Parallel to Y axis*	Salt, Lifesaving drugs
Ed < 1, Greater than zero but less than 1	QD changes by smaller % than does P	Relatively Inelastic	*Closer to Y Axis Steeper*	Necessities
Ed = 1	% Δ in QD = % Δ in P	Unit Elasticity	*Flatter*	Comfort goods
Ed > 1	% Δ in QD > % Δ in P	Relatively elastic	*Away from Y axis*	Luxury Goods
Ed = ∞	Purchases are prepared to buy all the quantity at a given price and nothing on slight increase.	Perfectly Elastic	*Parallel to X axis*	Perfect Competitive Market

Arc-Elasticity

When price elasticity is to be found between two prices (or two points on the demand curve say, A and B in figure 8) the question arises as to which price and quantity should be taken as base. Therefore, in order to avoid confusion, rather than choose the initial or the final price and quantity, the mid-point method is used i.e., the averages of the two prices and quantities are taken as (i.e., original and new) base.
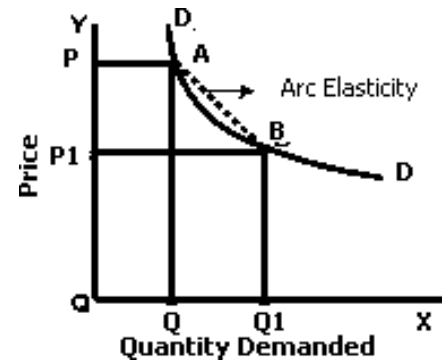
P_1 = Rs.500 Q_1 = 100

P_2 = Rs. 400 Q_2 = 150

We will use the formula

$$Ep = \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$

Or

$$Ep = \frac{50}{250} \times \frac{900}{100}$$

or

$$Ep = 1.8$$

Total Outlay Method of Calculating Price Elasticity

Price elasticity of demand is greater than unity:

When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good fall or
when as a result of decrease in price, the total expenditure made on the good or total revenue received from those good increases, we say that price elasticity of demand is greater than unity.

Price ⬇ , Total Expenditure ⬆

Price ⬆ , Total Expenditure ⬇

Ex. Mohit Patidar went to market for purchasing apple

Price	Qty	Total Expenditure / Revenue	
Rs 10 / Kg	2 Kg	Rs 20 (10*2)	Total expenditure increased when price reduced (i.e., moved in opposite direction) and vice versa .
When price reduced to Rs 5 / Kg	I purchase more E.g. . 5 Kgs	Rs 25 (5*5)	

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Price elasticity of demand is less than unity:

When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from those good increases or when as a result of decrease in its price, the total expenditure made on the good or the total revenue received from that good fall, we say that the price elasticity of demand is less than unity.

Price ⬇, Total Expenditure ⬇
Price ⬆ , Total Expenditure ⬆

Price	Qty	Total Expenditure / Revenue	
Rs 10 / Kg	3 Kg	Rs 30 (10*3)	Total expenditure decreased when price reduced (ie moved in opposite direction) and vice versa .
When price reduced to Rs 4 / Kg	I purchase more but less proportion to decrease in price Eg . 5 Kgs	Rs 20 (4*5)	

Price Elasticity of demand equals one or Unity

When, as a result of the change in price of a good, the total expenditure or the total revenue received from that good remains the same . This is because the total expenditure made on the good can remain the same only if the proportional change in quantity demanded is equal to the proportional change in price.

Price ⬇, Total Expenditure - SAME
Price ⬆ , Total Expenditure - SAME

Price	Qty	Total Expenditure / Revenue	
Rs 10 / Kg	2 Kg	Rs 20 (10*2)	Total expenditure remains same when price reduced or increased .
When price reduced to Rs 5 / Kg	I purchase more but in equal proportion to decrease in price Eg 4 Kgs	Rs 20 (4*5)	

Determinants of Price Elasticity of Demand

Availability of substitutes : If More substitutes available (Cold Drinks etc) : Es More Vs Less Substitutes (Salt)

Position of a commodity in the consumer's budget: Greater proportion of income spent on goods like rental apartments and clothing) : Es – More VS goods where fraction of their income is spend (salt, matches, buttons)

Nature of the need that a commodity satisfies: In general, luxury goods (home theatre) are price elastic because one can easily live without them or postpone it . In contrast, necessities are price inelastic.

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Number of uses to which a commodity can be put: More the possible uses of a commodity (Milk) : Es More .
If price increased of Milk , it will only be used in important ways (Feeding milk) rather than making sweets , ghee .

Time period: Longer Period (People find substitutes e.g. : If petrol price increase , people might buy electric vehicle in longer period) – Es : More but in shorter period people adjust with high price of petrol .

Consumer habits: Habitual consumer of a commodity, no matter how much its price change, the demand for the commodity will be inelastic.

Tied demand: The demand for those goods which are tied to others is normally inelastic as against those whose demand is of autonomous nature. For example, printers and ink cartridges.

Price range : Goods which are in very high price range or in very low-price range have inelastic demand, but those in the middle range have elastic demand.

Minor complementary items: The demand for cheap, complementary items to be used together with a costlier product will tend to have an inelastic demand.

Income Elasticity of Demand

Income elasticity of demand is the degree of responsiveness of the quantity demanded of a good to changes in the income of consumers. In symbolic form,

$$E_i = \frac{\text{Percentge change in demand}}{\text{Percentge change in income}} \qquad E_i = \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}$$

Negative (Less than Zero)	QD falls as Y increases	Negative Y elasticity Sales are countercyclical	Inferior Goods (bajra) Sales move in opposite direction
Zero	No change in QD as Y increases	Perfectly Inelastic	Ultimate Necessity (Covid Drug)
More than zero , less than one	OD rise but, in less proportion, to rise in Y	Inelastic	Necessities such as food and medicines
One	OD Rise = Y rise	Unitary Elastic	Clothes
Greater than 1	QD rise is more than Y rise	Elastic : sales are highly cyclical	Luxury

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A car dealer sells new as well as used cars. Sales during the previous year were as follows;

Car type	Price	Quantity (Nos)
New	6 .5 lakhs	400
Used	60,000	4000

During the previous year, other things remaining the same, the real incomes of the customers rose on average by 10%. During the last year sales of new cars increased to 500, but sales of used cars declined to 3,850.

What is the income elasticity of demand for the new as well as used cars? What inference do you draw from these measures of income elasticity?

SOLUTION

Income Elasticity of demand for new cars - Percentage change in income = 10%, given

Percentage change in quantity of new cars demanded = $(\Delta Q/Q) \times 100 = (100/400) \times 100 = 25\%$ Income elasticity of demand = 25%/ 10% = + 2.5

New car is therefore income elastic. Since income elasticity is positive, new car is a normal good.

Income Elasticity of demand for used cars
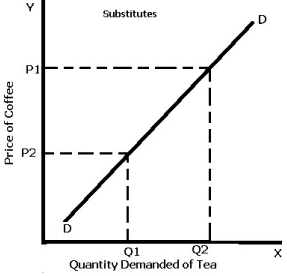
Percentage change in income = 10%, given

% change in quantity of used cars demanded = $(\Delta Q/Q) \times 100 = (-150/4000) \times 100 = -3.75\%$ Income elasticity of demand = – 3.75/ 10= –.375 Since income elasticity is negative, used car is an inferior good.

CROSS - PRICE ELASTICITY OF DEMAND

$$Ec = \frac{\text{Percentage change in quantity demanded of good X}}{\text{Percentage chagne in price of good Y}}$$

$$\frac{\text{Change in Quantity of X}}{\text{Change in Price of Y}} \times \frac{\text{Old Price of Y}}{\text{Old Qty of X}}$$

Cross demand refers to the quantities of a commodity or service which will be purchased with reference to changes in price, not of that particular commodity, but of other inter-related commodities .

Substitute Goods	Direct Rel. b/w price of one good and demand for other good. E.g., Tea & Coffee	Cross Elasticity is Positive	

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Complementary Goods	Inverse Rel. b/w price of one good and demand for other good. Egg Car & Petrol	Cross Elasticity is Negative	

IF Two Goods are :	Cross elasticity
Perfect substitutes for each other	infinite.
Close substitutes	positive and large.
Not Close substitutes	positive and small.
Totally unrelated	zero.
Strong Complements	Negative and High
Week Complements	Negative and Low

ADVERTISEMENT ELASTICITY

Advertisement elasticity of sales or promotional elasticity of demand is the responsiveness of a good's demand to changes in the firm's spending on advertising.

$$Ea = \frac{\% \text{ Change in quantity demanded}}{\% \text{ change in spending on advertising}}$$

Elasticity	Interpretation
Ea. = 0	Demand does not respond at all to increase in advertisement expenditure
Ea >0 but < 1	Increase in demand is less than proportionate to the increase in ad. Exp.
Ea = 1	Demand increases in the same proportion in which ad. Exp. increase
Ea> 1	Demand increases at a higher rate than increase in ad. Exp.

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DEMAND FORECASTING

Forecasting of demand is the art and science of predicting the probable demand for a product or a service at some future date on the basis of certain past behavior patterns of some related events .

This helps in planning and decision-making.

Demand forecasting can be at the national or international level .It can also be confined to a given product or service supplied by a small firm in a local area.

Types of Forecasts

Macro-level forecasting deals with the general economic environment prevailing in the economy as measured by the Index of Industrial Production (IIP), national income and general level of employment etc.

Industry- level forecasting is concerned with the demand for the industry's products as a whole.

For example, demand for cement in India.

Firm- level forecasting : forecasting the demand for a particular firm's product, say, the demand for ACC cement

Based on time period, demand forecasts may be short term(6 Month to 1 year) demand forecasting and long term demand forecasting (2 to 5 yrs)

Demand for Durable goods and non-durable goods

Non-durable goods are those which cannot be consumed more than once. Raw materials, fuel and power, packing items bread, milk etc. are examples of non-durable consumer goods. These will meet only the current demand.

Factors Affecting Demand for Non-Durable Consumer Goods

1. Disposable income: (Income - taxes) 2. Price   3. Demography: characteristics of the population

Durable goods do not quickly wear out, can be consumed more than once and yield utility over a period of time. E.g. cars, refrigerators and mobile phones. Building, plant and machinery, office furniture etc. are durable producer goods. The demand for durable goods is likely to be derived demand.

Factors Affecting the Demand for Durable-Consumer Goods

1. Social status, prestige, level of money income .
2. These goods require special facilities for their use e.g., roads for automobiles, and electricity for refrigerators
3. As consumer durables are used by more than one person, the decision to purchase may be influenced by family characteristics like income of the family, size, age distribution and sex composition.
4. Replacement demand is an important component of the total demand for durables. Greater the current holdings of durable goods, greater will be the replacement demand.

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Derived demand and Autonomous demand

The demand for a commodity that arises because of the demand for some other commodity called 'parent product', 'is called derived demand. For example, the demand for cement is derived demand, being directly related to building activity. In general, the demand for producer goods, industrial inputs, complementary goods are derived demand.
Autonomous demand : If the demand for a product is independent of the demand for other goods.

Demand for firm's product and industry demand

Industry demand is used to denote the total demand for the products of a particular industry, e.g., the total demand for steel in the country.
Demand for firm's product denotes the demand for the products of a particular firm .E.g., demand for steel produced by the Tata Iron and Steel Company.

Short - run demand and Long-run demand

Short run demand refers to demand with its immediate reaction to changes in product price and prices of related commodities, income fluctuations etc.
Long-run demand depends on long term income trends, availability of substitutes, credit facilities etc.

Producer's goods and Consumer's goods

Producer's goods are those which are used for the production of other goods- either consumer goods or producer goods themselves. Examples of such goods are machines, plant and equipment.
Consumer's goods are those which are used for final consumption. Examples of consumer's goods are readymade clothes, prepared food, residential houses, etc.

Factors Affecting the Demand for Producer Goods

Since producers' goods or capital goods help in further production, the demand for them is derived demand, derived from the demand of consumer goods they produce.

- growth prospects/ profitability of the user industries;
- norms of consumption of capital goods per unit of installed capacity.

1. An increase in the price of a substitutable factor of production, say labor
2. Higher the profit-making prospects, greater will be the inducement to demand capital goods.
3. If firms are optimistic about selling a higher output in future.
4. Advances in technology enabling higher efficiency at reduced cost on account of higher productivity of capital
5. Lower interest rates will have lower opportunity cost of investments and lower cost of borrowing.

Methods of Demand Forecasting

1.Survey of Buyers' Intentions: The most direct method of estimating demand in the short run is to ask customers what they are planning to buy during the forthcoming time period, usually a year. This method involves direct interview of potential customers.

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The survey may be conducted by any of the following methods:

- Complete enumeration method where all potential customers are interviewed about their future purchases.
- Sample survey method under which only a scientifically chosen sample of potential customers are interviewed
- End-use method, especially used in forecasting demand for inputs, involves identification of all final users, fixing suitable technical norms of consumption of the product under study, application of the norms to the desired or targeted levels of output and aggregation.

Thus, under this method the burden of forecasting is put on the customers. However, it would not be wise to depend wholly on the buyers' estimates and they should be used cautiously in the light of the seller's own judgement.
The customers may themselves misjudge their requirements.
This method is useful when bulk of sale is made to industrial producers who generally have definite future plans.
 In the case of household customers, this method may not prove very helpful for several reasons viz. irregularity in customers' buying intentions, their inability to foresee their choice when faced with multiple alternatives.

2. Collective opinion method / sales force opinion method or grass roots approach.
Salesmen are required to estimate expected sales in their respective territories as they are closest to the customers

Estimates are further examined in the light of factors like proposed changes in selling prices, product designs and advertisement programmers, expected changes in competition ,income distribution, employment, population, etc. The final sales forecast would emerge after these factors have been taken into account.

It is subjective as personal opinions can possibly influence the forecast. Moreover, salesmen may be unaware of the broader economic changes which may have profound impact on future demand. Therefore, forecasting could be useful in the short run, for long run analysis however, a better technique is to be applied.

3. Expert Opinion method: Professional market experts and consultants use their varied experience, enables them to provide reasonably reliable estimates of probable demand in future. Information is elicited from them through appropriately structured unbiased tools of data collection such as interview schedules and questionnaires.

The Delphi technique, developed by Olaf Helmer at the Rand Corporation of the USA, provides a useful way to obtain informed judgments from diverse experts by avoiding the disadvantages of conventional panel meetings. Under this method, instead of depending upon the opinions of buyers and salesmen, firms solicit the opinion of specialists or experts through a series of carefully designed questionnaires.
Experts are asked to provide forecasts and reasons for their forecasts. Experts are provided with information and opinion feedbacks of others at different rounds without revealing the identity of the opinion provider. These opinions are then exchanged among the various experts and the process goes on until convergence of opinions is arrived at.

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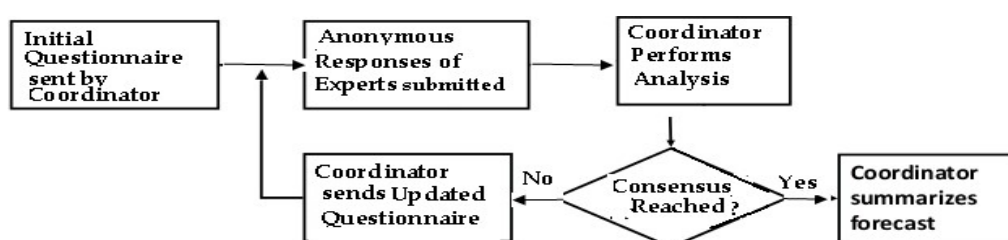
The Delphi method is best suited in circumstances where intractable changes are occurring and the relevant knowledge is distributed among experts spread over different geographical locations. For example, the method may be used for forecasting national energy demand 50 years from now, long term transportation needs, environmental issues and long-term human resource forecasting . Delphi technique is widely accepted due to its broader applicability, absence of group pressure, capability to tap collective human expertise and intelligence and ability to address complex questions. It also has the advantages of speed and cheapness.

4. Statistical methods: Considered as superior methods because they are more scientific, reliable and free from subjectivity. The important statistical methods of demand forecasting are:

a. Trend Projection method / Classical method, is considered as a 'naive' approach to demand forecasting. A firm which has been in existence for a reasonably long time would have accumulated considerable data on sales pertaining to different time periods. Such data, when arranged chronologically, yield a 'time series. The time series relating to sales represent the past pattern of effective demand for a particular product. Such data can be used to project the trend of the time series.

The popular techniques of trend projection based on time series data are; graphical method and fitting trend equation or least square method.

- Graphical Method / free hand projection method' is the simplest and least expensive. This involves plotting of the time series data on a graph paper and fitting a free-hand curve to it passing through as many points as possible. The direction of the curve shows the trend. The main draw-back of this method is projections made through this method are not very reliable.

- Fitting trend equation / Least Square Method: It is a mathematical procedure for fitting a line to a set of observed data points in such a manner that the sum of the squared differences between the calculated and observed value is minimized. This technique is used to find a trend line which best fit the available data. This trend is then used to project the dependent variable in the future. This method is very popular because it is simple and in-expensive. Moreover, the trend method provides fairly reliable estimates of future demand.

The least square method is based on the assumption that the past rate of change of the variable under study will continue in the future. The major limitation of this method is that it cannot be used where trend is cyclical with sharp turning points of troughs and peaks. Also, this method cannot be used for short term forecasts.

b. Regression analysis: relationship is established between the quantity demanded (dependent variable) and the independent variables (explanatory variables) such as income, price of the good, prices of related goods etc. Once the relationship is established, we derive regression equation assuming the relationship to be linear. The equation will be of the form $Y = a + bX$. There could also be a curvilinear relationship between the dependent and independent variables. Once the regression equation is derived, the value of Y i.e. quantity demanded can be estimated for any given value of X.

CA Mohit Patidar

5. Controlled Experiments/ Market Experiment Method : Future demand is estimated by conducting market studies and experiments on consumer behaviour under actual, though controlled, market conditions. An effort is made to vary separately certain determinants of demand which can be manipulated, for example, price, advertising, etc., and conduct the experiments assuming that the other factors would remain constant. Thus, the effect of demand determinants like price, advertisement, packaging, etc., on sales can be assessed by either varying them over different markets or by varying them over different time periods in the same market. The responses of demand to such changes over a period of time are recorded and are used for assessing the future demand for the product. For example, different prices would be associated with different sales and on that basis the price-quantity relationship is estimated in the form of regression equation and used for forecasting purposes. It should be noted however, that the market divisions here must be homogeneous with regard to income, tastes, etc.

The method of controlled experiments is used relatively less because this method of demand forecasting is expensive as well as time consuming. Moreover, controlled experiments are risky too because they may lead to unfavourable reactions from dealers, consumers and competitors. It is also difficult to determine what conditions should be taken as constant and what factors should be regarded as variable so as to segregate and measure their influence on demand. Besides, it is practically difficult to satisfy the condition of homogeneity of markets.

Market experiments can also be replaced by 'controlled laboratory experiments' or 'consumer clinics' under which consumers are given a specified sum of money and asked to spend in a store on goods with varying prices , packages, displays etc.

6.Barometric method of forecasting: The various methods suggested till now are related with the product concerned. These methods are based on past experience and try to project the past into the future. Such projection is not effective where there are economic ups and downs. As mentioned above, the projection of trend cannot indicate the turning point from slump to recovery or from boom to recession. Therefore, in order to find out these turning points, it is necessary to find out the general behaviour of the economy.

The economists use economic indicators to forecast trends in business activities such as

The leading indicators move up or down ahead of some other series. For example, the heavy advance orders for capital goods give an advance indication of economic prosperity.

Increase in the number of construction permits for new houses will be reflected in corresponding increase in the number of sheets of glass ordered several months later.

The coincidental indicators, however, move up and down simultaneously and are witnessed at around the same time the changes they signal occur. Since these happen almost in real time, they do not offer much predictive insight, but provide a fair reading of the current scenario. For example, Figures on retail sales, rate of unemployment and Index of Industrial Production (IIP).

The lagging indicators follow a change after some time lag. The heavy household electrical connections confirm the fact that heavy construction work was undertaken during the past with a lag of some time.

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