

*Biyani's Think Tank*

**Concept based notes**

# **Business Economics**

*(B.Com. Part-I)*

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# **Preface**

I am glad to present this book, especially designed to serve the needs of the students. The book has been written keeping in mind the general weakness in understanding the fundamental concepts of the topics. The book is self-explanatory and adopts the “Teach Yourself” style. It is based on question-answer pattern. The language of book is quite easy and understandable based on scientific approach.

This book covers basic concepts related to the microbial understandings about diversity, structure, economic aspects, bacterial and viral reproduction etc.

Any further improvement in the contents of the book by making corrections, omission and inclusion is keen to be achieved based on suggestions from the readers for which the author shall be obliged.

I acknowledge special thanks to Mr. Rajeev Biyani, *Chairman* & Dr. Sanjay Biyani, *Director (Acad.)* Biyani Group of Colleges, who are the backbones and main concept provider and also have been constant source of motivation throughout this Endeavour. They played an active role in coordinating the various stages of this Endeavour and spearheaded the publishing work.

I look forward to receiving valuable suggestions from professors of various educational institutions, other faculty members and students for improvement of the quality of the book. The reader may feel free to send in their comments and suggestions to the under mentioned address.

**Author**

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# Chapter-1

## Introduction

---

**Q.1 Give an appropriate definition of Economics.**

**Ans.:** The term economics is derived from two Greek words "OIKOS" and "NEMEIN" meaning the role or law of the household.

Economics is the study of how people and society, choose to employ scarce resources with or without the use of money, that could have alternative uses in order to produce various commodities and to distribute them for consumption, now or in the future among various persons and groups in society.

**Q.2 How Economics is a Science and Arts?**

**Ans.:** The term science has been defined as the systematized body of knowledge, which traces the relationship between cause & effect. Applying this definition to economics we find that economics is that branch of knowledge where the various facts relevant to it have been systematically collected, classified and analyzed.

An art is a system of rules for the attainment of a given end. An art is application of knowledge and practical application. Economics has all these features of being an art.

**Q.3 How Economics is as a Normative and Positive Science?**

**Ans.:** It deals with things as they "ought to be". It has no objection to discussing the moral rightness or wrongness of things. Economics is not only explaining facts as they are but also justifies them.

Positive Science deals with things as they are means "What is". It explains their causes and effects but it remains strictly neutral as regards ends, it refuses to pass moral judgments.

Both can be distinguished as follows :

Basis	Positive	Normative
1. Expresses	What is	What ought to be
2. Based on	Cause & effect of facts	& Ethics
3. Deal with	Actual or realistic situation	Idealistic situation
4. Value judgment	Are not given	Are given

#### Q.4 What is Micro and Macro Economic?

**Ans.:** The term Micro derived from greek word "Mikros" which means small. It is concern with the study of individual decision units.

The term macro has been derived from greek word "Makros" which means large. It is that branch of economics analysis which studies the behaviour of not one particular unit, but of all units combined together.

Both can be distinguish as follows :

S.No.	Basis	Micro	Macro
1.	Study	Individual	Economy as a whole
2.	Deal With	Individual Units	Aggregate Units
3.	Tools	Demand & Supply of a Particular Commodities	Aggregate Demand and Aggregate Supply of Economy as a whole
4.	Central Problem	Price Determination of Commod-ities or Factors of Production	Determine Level of Inco-me & Employment
5.	Prices	Relative Prices Decide	Absolute Price Decide
6.	Type of Analysis	Particle Equi Analysis	General Equi Analysis
7.	Scope	Narrow	Wider
8.	Understanding	Easier	Complex

#### Q.5 What is Economic Law?

**Ans.:** Economic laws are intellectual experiments carried out with the help of certain assumptions. It is a statement about the cause and effect relationship between two economic phenomenons which can be measured by money price.

#### Q.6 What is Business Economics?

**Ans.:** It is that branch of knowledge in which theories of economics analysis are used for solving business management problem and determination of business policies.

Characteristics of business Economic as follows :

- (i) Micro economic in nature
- (ii) Theory of firm or economics of firm
- (iii) Importance of macro economics too

- (iv) Pragmatic & applied approach
- (v) Perspective nature
- (vi) Decision making at managerial level
- (vii) Coordinating nature
- (viii) Both science and arts
- (ix) More refined subject
- (x) Facilitate plug.

**Q.7 Point out the importance or significance of Business Economics?**

- Ans.:**
- (i) Helpful in organizing
  - (ii) Helpful in planning
  - (iii) Helpful in decision making
  - (iv) Helpful in coordination
  - (v) Helpful in foreword plug
  - (vi) Helpful in cost control
  - (vii) Helpful in demand forecasting
  - (viii) Minimizing uncertainties
  - (ix) Helpful in chalking out business policies
  - (x) Helpful understanding external environment

**Q.8 What are the scope of Business Economics?**

- Ans.:**
- (i) Demand analysis and forecasting
  - (ii) Political planning and management
  - (iii) Cost analysis
  - (iv) Pricing policies and practices
  - (v) Profit management
  - (vi) Capital management
  - (vii) Decision theory under uncertainty
  - (viii) Sales promotion & strategy

**Q.9 Identify the responsibility of Business Economist.**

- Ans.:** (i) Maintain reasonable profit  
(ii) Successful forecasting  
(iii) Awareness and co-ordination  
(iv) **SWOT** Analysis  
(v) Establish himself in strategic position  
(vi) Contact with sources and specialists of information.

**Q.10 What is Deductive Methodology of Economics?**

**Ans.:** It is also known as abstract, axiomatic, a priori analytical. The economist begins from the principle which are accepted as self evident or proved proposition and then draws conclusion as consequences of these principles through the process of valid reasoning moves from “General to Particular”.

Deductive logic passes through following stages.

- (A) Perception and selection of premises from which the conclusions are to be derived. Assumptions are made.
- (B) Inferences are drawn from the premises originally selected.
- (C) It consists of a return to the real world by means of an interpretation that yields conclusion in term of concrete sensible world of physical reality.

Merits	Demerits
<ul style="list-style-type: none"><li>• Simple</li><li>• Economical</li><li>• Accurate &amp; reliable</li></ul>	<ul style="list-style-type: none"><li>• Unrealistic assumption</li><li>• Require more competence</li><li>• It is based on false premises, then false conclusion.</li><li>• Static analysis</li><li>• Not applicable uniformly</li></ul>

**Q.11 What is Inductive Methodology of Economics?**

**Ans.:** It involve generalization of particular observation. It is also called experimental, statistical, historical and posterior method. In this, we move from “particular to General”. The hypotheses set in an inductive logic are also subject to future enquiry and tests. If not found empirically correct, it can be changed or modified or dropped altogether.

Method is composed of two process - (A) Experimentation (B) Statistical Enquiries

Merits	Demerits
<ul style="list-style-type: none"> <li>• Based on realistic foundation</li> <li>• Bridges the gap between theory &amp; practice</li> <li>• More rational &amp; practical</li> </ul>	<ul style="list-style-type: none"> <li>• Bias of investigator</li> <li>• Time consuming</li> <li>• Expensive</li> <li>• Deduction is also needed</li> </ul>

**Q.12 What is the meaning of Economic Problem and what are the reasons for its Emergence?**

**Ans.:** Human wants are unlimited and the resources to satisfy them are scarce and are of alternative uses; therefore human behavior takes the form of choosing. This give rise to the problem of how it use scarce resources of alternative uses to attain maximum satisfaction. This is generally termed as economic problem.

**Reason Responsible for Arising :**

- (i) Unlimited ends or wants      (ii) Scarce resources.  
 (iii) Alternative uses of resources      (iv) Difference in intensity of ends.

**Q.13 What do you mean by Business Policy?**

**Ans.:** Business policy denote the various type of decision taken by the business firms with regard to production, pricing, sales, finance, personnel, marketing, etc. It effects the various business operations.

□ □ □

## Chapter-2

# Theory of Demand

---

### Q.1. What is Demand?

**Ans.: Meaning :** The demand for any commodity at a given price is the quantity of it which will be bought per unit of time at that price.

**Elements of Demand :** According to the definition of demand here are three elements of demand for a commodity :-

- (i) There should be a desire for a commodity.
- (ii) The consumer should have money to fulfill that desire.
- (iii) The consumer should be ready to spend money on that commodity.

Thus we can define demand as the desire to buy a commodity which is backed by sufficient purchasing power and a willingness to spend.

### Q.2 What are the Determinants of Demand?

**Ans.:** There are many economic, social and political factors which greatly influence the demand for a commodity. Some of these factors are discussed below :

- (1) **Price of the Commodity**
- (2) **Price of Related Goods**
  - (i) Complementary Goods
  - (ii) Substitute Goods
- (3) **Level of Income and Wealth of the Consumer**
  - (i) Necessaries
  - (ii) Inferior goods
  - (iii) Luxuries
- (4) **Tastes and Preference**
- (5) **Government Policy**
- (6) **Other Factors :**
  - (i) Size and Composition of Population
  - (ii) Distribution of Income and Wealth
  - (iii) Economic Fluctuations

**Q.3 What is the Law of Demand?**

**Ans.:** The law of demand states that, other things being equal, the demand for a good increases with a decrease in price and decreases in demand with a increase in price.

The term other things being equal implies the prices of related goods, income of the consumers, their tastes and preferences etc. remain constant.

**Q.4 What is a Demand Schedule?**

**Ans.:** **Meaning :** A Demand schedule is a list of the different quantities of a commodity which consumes purchase at different period of time. It expresses the relation between different quantities of the commodity demanded at different prices.

(i) **Individual Demand Schedule :** It is defined as the different quantities of a given commodity which a consumer will buy at all possible prices:-

Price (Rs.)	Quantity Demanded
1	5
2	4
3	3
4	2

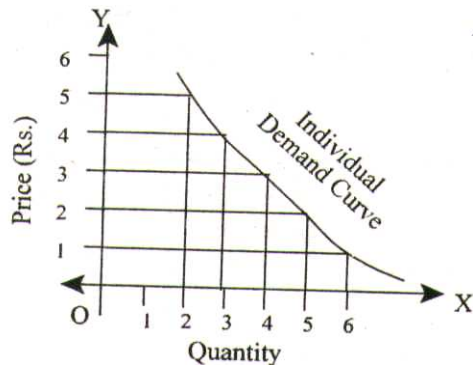
(ii) **Market Demand Schedule:** Market demand schedule is defined as the quantities of a given commodity which all consumer will buy at all possible prices at a given moment of time:-

Price (Rs.)	A's Demand (1)	B's Demand (2)	Market Demand Schedule (1+2)
1	4	5	4+5=9
2	3	4	3+4=7
3	2	3	2+3=5
4	1	2	1+2=3

**Q.5 What is a Demand Curve?**

**Ans.:** **Meaning :** Demand Curve is simply a graphic representation of demand schedule. It expresses the relationship between different quantities demanded at different possible prices of the given commodity.

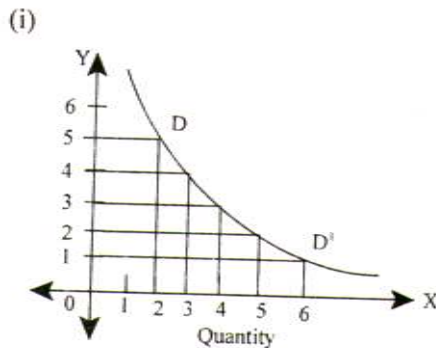
(i) **Individual Demand Curve :** The graphic representation of Individual Demand is known is Individual Demand Curve.



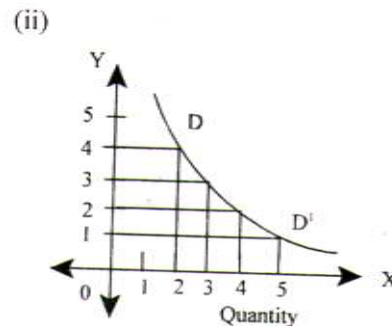
Thus individual demand curve is the one that represent different quantities of a commodity demanded by a consumer at different prices.

- (ii) **Market Demand Curve** : The graphic representation of market demand schedule is known as Market Demand Curve.

Thus market demand curve is the one that represents total quantities of a commodity demanded by all the consumers in the market at different prices. It is the horizontal summation of the individual demand curves.



A's Demand Curve



B's Demand Curve

Fig.(i) shows A's Demand Curve, fig.(ii) shows B's Demand Curve and fig. (iii) shows the Market Demand Curve. Thus by adding the different points on individual demand curves one get the market Demand Curve.

### Q.6 Why do Demand Curve slopes downwards?

Ans.: Reasons are :-

- (i) **Law of Diminishing Marginal Utility** : The law of demand is based on the law of diminishing marginal utility which states that as the consumer purchases more and more units of a commodity, the satisfaction derived by him from each successive unit goes on decreasing. Hence at a lesser

price, he would purchase more. Being a rational human beings the consumer always tries to maximize his satisfaction and does so equalizing the marginal utility of a commodity with its price i.e.  $Mu_x = p_x$ .

It means that now the consumer will buy additional units only when the price falls.

- (ii) **New Consumers** : When the price of a commodity falls many consumers who could not begin to purchase the commodity e.g. suppose when price of a certain good 'x' was Rs. 50 market demand was 60 units now when the price falls to Rs. 40, new consumers enter the market and the overall market demand rises to 80 units.
- (iii) **Severel Use of Commodity** : There are many commodities which can be put to several uses e.g. coal, electricity etc. When the prices of such commodities go up, they will be used for important purpose only and their demand will be limited. On the other hand, when their price fall they are used for varied purpose and as a result their demand extends. Such inverse relation between demand and price makes the demand curve slope downwards.
- (iv) **Income Effect** : When price of a commodity changes, the real income of a consumer also undergoes a changes. Hence real income means the consumer's purchasing power. As the price of a commodity falls the real income of a consumer goes up and he purchases more units of a commodity eg. Suppose a consumer buys units wheat at a price Rs. 40/kg now, when the price falls to Rs. 30/kg. his purchasing power or the real income increase which induces him to buy more units of wheat.
- (v) **Substitution Effect** : As the price of a commodity falls the consumer wants to substitute this good for those good which now have become relatively expensive e.g. among the two substitute goods tea and coffee, price of tea falls then consumer substitutes tea for coffee. This is caused the 'Substitution effect' which makes the demand curve sloped downwards.

In a nutshell, with a fall in price more units are demanded partly due to income effect and partly due to substitution effect. Both of these are jointly known as the 'price effect'. Due to this negative price effect the demand curve slopes downwards.

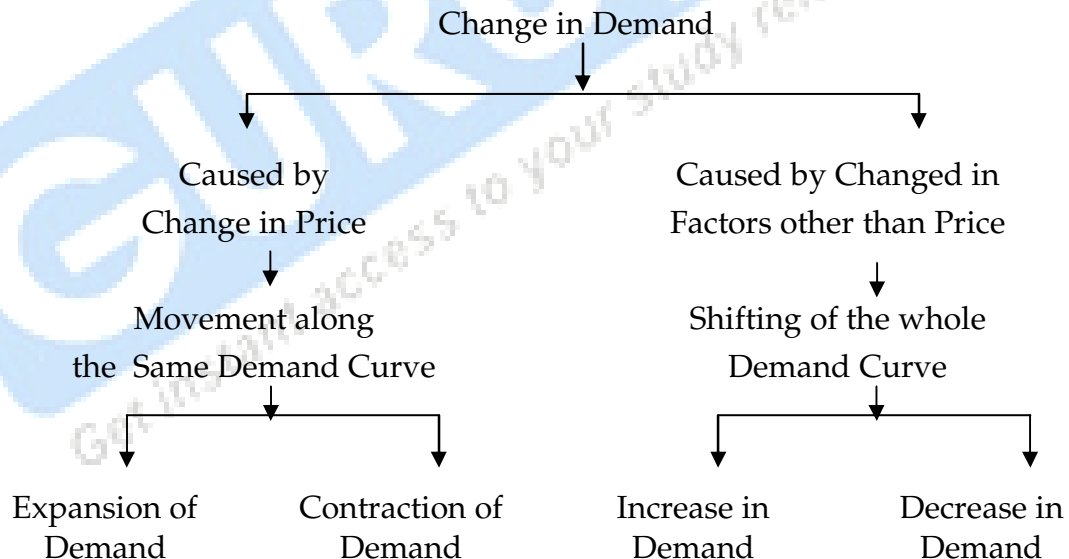
#### Q.7 What are the exceptions to the Law of Demand?

**Ans.:** Exceptions to the law of demand refers to such cases where the law of demand does not operate, i.e., a positive relationship is established between price and quantity demanded.

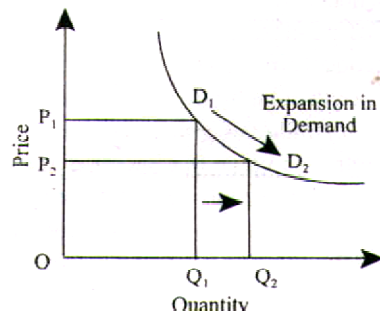
- (i) **Giffen Goods** : Sir Giffen made an interesting observation in 1845 during famine in Ireland. When price of potatoes went up, poor people purchased more quantity of potatoes instead of less quantity as expected from the law of demand. The reason was that between two items of food consumption meat and potatoes- potatoes were still cheaper, with the result that the poor families purchased more of potatoes and less of meat. This is known as Giffen effect which is seen in cheap necessary foodstuffs. Again, the word 'Giffen' is not synonymous with 'inferior'. It simply refers to those goods which have a positive relationship with price.
- (ii) **Conspicuous Goods or Goods of Ostentation**
- (iii) **Conspicuous Necessities**
- (iv) **Future Expectations About Prices**
- (v) **Change in Fashion**
- (vi) **Ignorance**
- (vii) **Emergency**

**Q.8 What is meant by Change in Demand?**

**Ans.:**

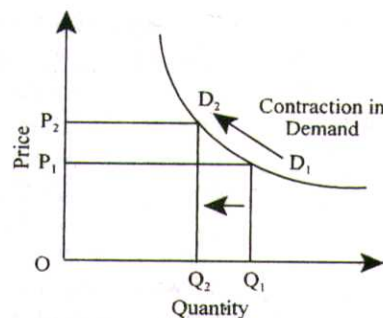


- (1) **Movement along the Same Demand Curve** : When due to change in price alone demand changes, it is expressed by different points on the same demand curve.
  - (i) **Expansion of Demand** : When with a fall in price, demand for a commodity rises (other things being equal it is called expansion of demand. It is represented through the downward movement along the demand curve.



In this figure,  $D_1$   $D_2$  is the demand curve of apples. Other things being equal, at price  $P_1$ ,  $Q_1$  quantity of apple is purchased. As the price of the apple goes down say  $P_2$  more quantity  $Q_2$  of apples is purchased. This change in demand  $D_1$  to  $D_2$  along the demand curve shows Expansion of demand.

- (ii) **Contraction of Demand :** When with an increase in price, demand for a commodity falls (other things being equal) It is called contraction of demand. It is represented by upward movement along the demand curve.



In this figure,  $D_1$   $D_2$  is the demand curve of apples. Other things being equal at price  $P_1$ ,  $Q_1$ , quantity of apples are purchased. As the price rises to  $P_2$  only  $Q_2$  quantity of apples are purchased.

This change in demand from  $K_1$  to  $K_2$  along the demand curve shows contraction in demand.

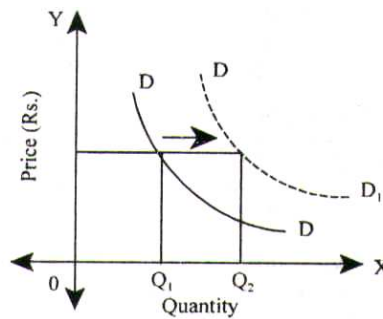
- (2) **Shifting of Whole Demand Curve:-** When due to change in factors other than price of the same commodity like change in taste, income etc. the demand changes, the entire demand curve shifts either upwards or downwards.

- (i) **Increase in demand:-** When due to favorable change in factors other than the price the demand of the commodity rises it is called

increase in demand. It is represented by a right ward shift in the demand curve.

Increase in demand takes place in two ways :-

- (a) When more purchase takes place at same price.
- (b) When same purchase takes place at more price.

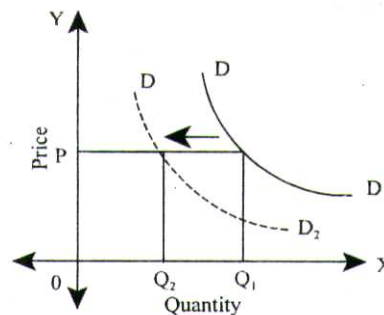


Here DD is the original demand curve where Q<sub>1</sub> quantity is bought a P price. Due to the change in factors the quantity purchased increases to Q<sub>2</sub> at the same price P. this causes the demand curve to shift upward or to the right. This shift in demand curve is called increase of demand.

- (ii) **Decrease in Demand :** When due to change in factors other than the price the demand of the commodity falls, it is called decrease in demand. Its is represented by a left ward shift in the demand curve.

Decrease in demand takes place in two ways :-

- (a) When less purchase takes place a same price.
- (b) When same purchase takes place at less price.



Here DD is the original demand curve where Q<sub>1</sub> quantity is bought at P price. Due to the change in other factors the quantity purchased decreases to Q<sub>2</sub> at same price P. This cause the demand

curve to shift downward or leftward. This shift in demand curve is called decrease in demand.

**Q.9 What is Elasticity of Demand?**

**Ans.: Meaning :** The elasticity of demand measures the responsiveness of the quantity demanded of a good to change in its quantitative determinant. Types Elasticity of demand are as follows :-

- (i) Price Elasticity of Demand
- (ii) Income Elasticity of Demand
- (iii) Cross Elasticity of Demand

**Q.10 What is Price Elasticity of Demand?**

**Ans.:** The Degree of responsiveness of the quantity demanded of a good to a change in its prices of goods.

Methods to measures the elasticity of demand.

- (1) % or Proportionate Method
- (2) Total Outlay or Total Expenditure Method
- (3) Point Elasticity or Geometric Method
- (4) Arc Elasticity Method

**(1) % or Proportionate Method :**

$$E_p = \frac{\% \text{Change in Quantity}}{\% \text{Change in Price}}$$

$$E_p = \frac{\frac{\text{Change in Quantity}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in Price}}{\text{Original Price}} \times 100}$$

$$E_p = \frac{\text{Change in Quantity}}{\text{Original Quantity}} \times \frac{\text{Original Price}}{\text{Change in Price}}$$

Symbolically;

$$E_p = \frac{\frac{\Delta q}{q} \times 100}{\frac{\Delta p}{p} \times 100}$$

$E_p \Rightarrow$  Price Elasticity

$q \Rightarrow$  Quantity

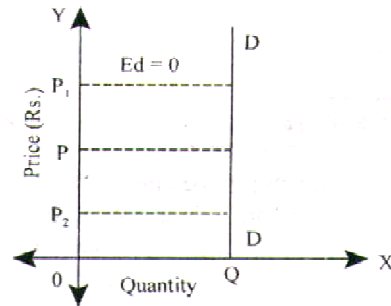
$p \Rightarrow$  Price

$\Delta \Rightarrow$  A very small change

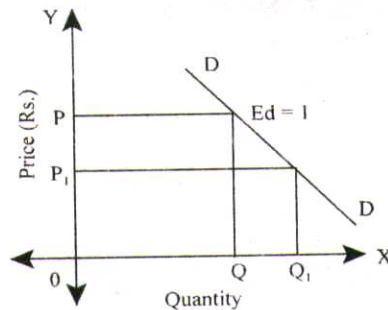
$$E_p = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

There are five degrees of Price Elasticity of Demand :-

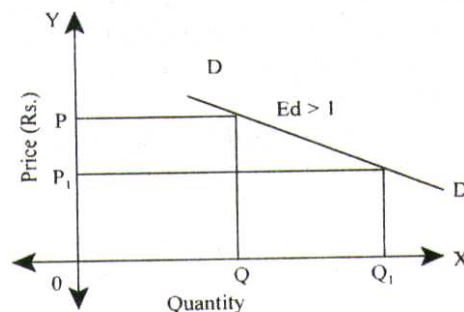
- (i) **Perfectly Elastic Demand** : A Perfectly elastic demand is one in which demand is infinite at the prevailing price. It is a situation where the slightest rise in price causes the quantity demanded of the commodity to fall to zero.



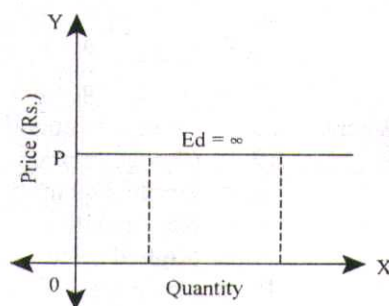
- (ii) **Perfectly Inelastic Demand** : Perfectly inelastic demand is one in which a change in quantity demanded. It is a situation where even substantial changes in price leave the demand unaffected.



- (iii) **Unitary Elastic Demand** : unitary elastic demand is one in which the quantity demanded changes by exactly the same percentage as the price. It is a situation when change in quantity demanded in response to change in price of the commodity is such that total expenditure of the commodity, remains same.

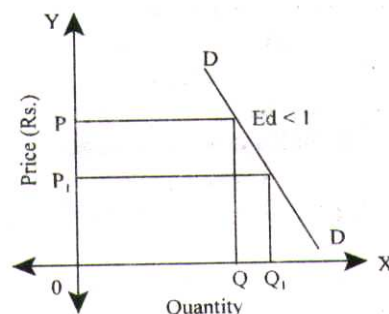


- (iv) **Greater than Unitary Elastic Demand or Elastic Demand :** A elastic demand is one in which the quantity demanded changes by a larger percentage than the price. It is a situation when change in quantity demanded in response to change in price of the commodity is such that the total expenditure on the commodity increase when prices decreases and total expenditure decreases when price increases.



- (v) **Less than Unitary Elastic Demand or Inelastic Demand :** Inelastic Demand is one in which quantity demanded changes by a smaller percentage than the change in price.

It is a situation when change in quantity demanded in response to change in price of the commodity is such that total expenditure on the commodity decreases when price falls and total expenditure increases when price rises.



- (2) **Total Outlay Method :** Under this the elasticity of demand can be measured by considering the changes in price and the subsequent change in the total quantity of goods purchased and the total amount of money spent on it. This method gives only the nature of elasticity and not the exact numerical value.

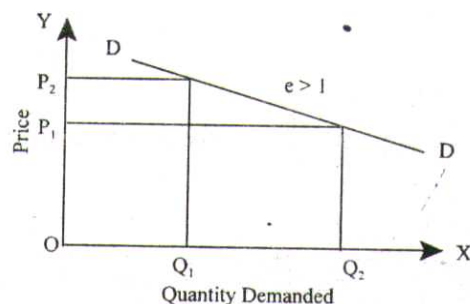
Degree of prices elasticity of demand according to this method as follows :

- (i) **Elastic Demand** : The demand for a commodity is elastic when the total expenditure on it increases with a fall in price. eg.

Price (p)	Quantity (q)	Total Expenditure (p x q)
Rs. 10/kg	2kg	Rs.20
Rs. 5/kg	5kg	Rs.25

In other words elasticity of demand in this case is greater than unity.

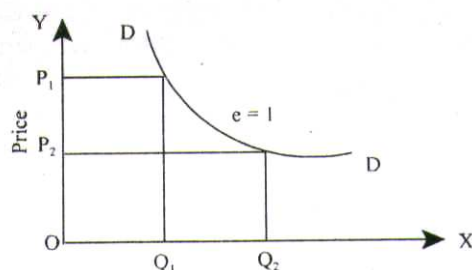
Diagrammatically :-



- (ii) **Unitary Elastic Demand** : here, with a fall in price the total outlay of the consumers on that commodity remains the same, though he purchase more in terms of units. Elasticity in this case equals to one.

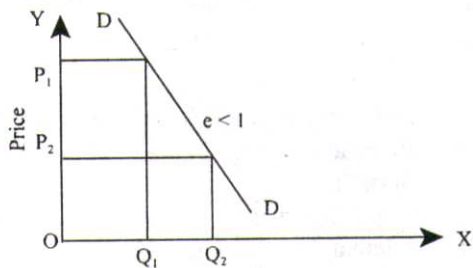
Price (p)	Quantity (q)	Total Expenditure (p x q)
Rs. 10/kg	2kg	Rs.20
Rs. 5/kg	4kg	Rs. 20

Graphically :-



- (iii) **Inelastic demand** : A commodity will have inelastic demand when with a fall in its price the total expenditure on it also falls. Here, the elasticity is less than unity. e.g.

Price (p)	Quantity (q)	Total Expenditure (p x q)
Rs. 10/kg	3kg	Rs.30
Rs. 4/kg	5kg	Rs.20



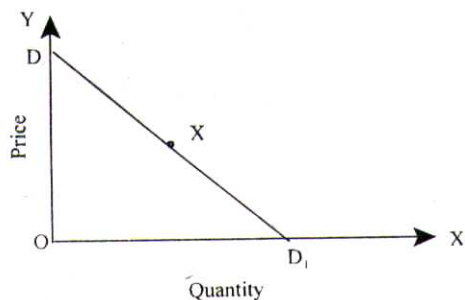
- (3) **Point Elasticity Method** : In this method we measure elasticity at a given point on the demand curve. Here we make use of derivatives rather than finite changes in price and quantity. Point elasticity can also be calculated as :-

Lower segment on the demand curve

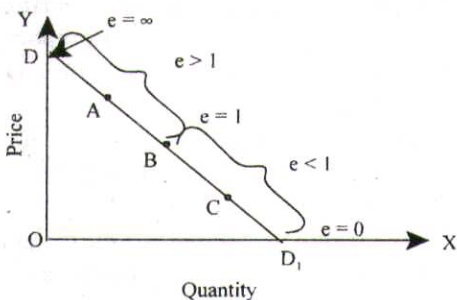
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Upper Segment on the demand curve

The elasticity of demand at point x on the demand curve DD1 is  $\frac{XD^1}{XD}$ .



Again, elasticity of demand is different at various points on the demand curve. This may be graphically shown as :-



Thus we can see that as we move from point D1 to D2 the elasticity goes on increasing. At the mid-point it is equal to one at D it is infinity and at D1. it is zero.

- (4) **Arc Elasticity** : It is a measure of the average responsiveness to price change exhibited by a demand curve over some finite stretch of the curve.

$$E_d = \frac{\frac{\text{Change in Quantity Demand}}{\text{Original Quantity plus Quantity after Change}}}{\frac{\text{Change in Price Demand}}{\text{Original Price plus Price after Change}}}$$

In notation form it can be expressed

as :-

$$E_d = \frac{\frac{\Delta q}{q_1 + q_2}}{\frac{\Delta p}{p_1 + p_2}} = \frac{\Delta q}{\Delta p} \times \frac{p_1 + p_2}{q_1 + q_2}$$

$\Delta q \Rightarrow$  Change in quantity

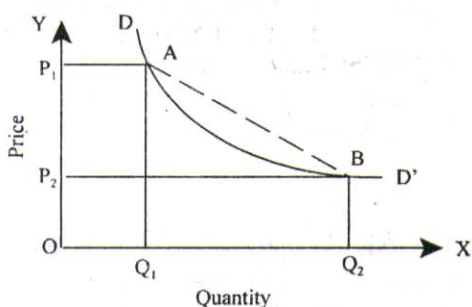
$\Delta p \Rightarrow$  Change in price

$q_1 \Rightarrow$  Original quantity

$q_2 \Rightarrow$  New quantity

$p_1 \Rightarrow$  Original price

$p_2 \Rightarrow$  New price



### Q.11 What are the Determinants of Price Elasticity of Demand?

- Ans.:**
- (i) Nature of Commodity
  - (ii) Substitute Goods
  - (iii) Position of a Commodity in a Consumer's Budget
  - (iv) Number of Uses
  - (v) Time Period
  - (vi) Consumer Habit
  - (vii) Joint or Tied Demand
  - (viii) Price Expectation

### Q.12 What is Income Elasticity of Demand?

**Ans.:** Income elasticity of demand is the ratio of change in demand to the change in income.

$$E_i = \frac{\% \text{ Change in Quantity Demanded}}{\% \text{ Change in Income}}$$

$$E_i = \frac{\frac{\text{Change in Quantity}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in Income}}{\text{Original Income}} \times 100}$$

$$E_i = \frac{\text{Change in Quantity}}{\text{Original Quantity}} \times \frac{\text{Original Income}}{\text{Change in Income}}$$

Symbolically;

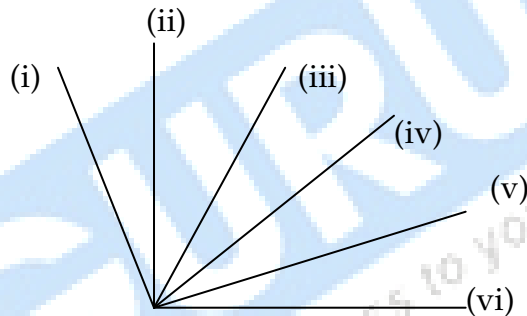
$$E_i = \frac{\frac{\Delta q}{q} \times 100}{\frac{\Delta y}{y} \times 100}$$

Where,  $E_i \Rightarrow$  Income Elasticity  
 $q \Rightarrow$  Quantity  
 $y \Rightarrow$  Income  
 $\Delta \Rightarrow$  A very small change

$$E_i = \frac{\Delta q}{q} \times \frac{y}{\Delta y} = \frac{\Delta q}{\Delta y} \times \frac{y}{q}$$

**Q.13 What are the Degrees of Income Elasticity of Demand?**

**Ans.:**



(i) **Negative Income Elasticity of Demand** : Negative Income Elasticity of Demand is one in which demand for a commodity falls as the income rises.

This holds good for inferior goods.

(ii) **Zero Income Elasticity of Demand** : Zero income elasticity of demand is one in which demand of a commodity does not change as the income changes.

This holds good for essential goods.

(iii) **Greater than Zero but less than One Income Elasticity of Demand** : Greater than zero but less than one income elasticity of demand is one in which demand for a commodity rises less than in proportion to a rise in income.

- (iv) **Unitary Income Elasticity of Demand** : Unitary income elasticity of demand is one in which the demand for a commodity rises in the same proportion as the rise in income.
- (v) **Greater than Unitary Income Elasticity of Demand** : Greater than unitary income elasticity of Demand is one in which the demand for commodity rises more than in proportion to rise in income.

**Q.14 What is Cross Elasticity of Demand?**

**Ans.:** The cross elasticity of demand is the responsiveness of demand for commodity X to change in price of commodity Y and is represented as follows :-

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

Symbolically:

$$E_c = \frac{\Delta qX}{\Delta pY} \cdot \frac{pY}{X}$$

The relationship between X and Y commodities may be substitute as in case of tea and coffee or complementary as in the case of ball pens and refills.

- (i) Cross elasticity = Infinity where Commodity X is nearly a perfect substitute for Commodity Y
- (ix) Cross Elasticity = Zero where Commodities X and Y are not related
- (x) Cross Elasticity = Negative where Commodities X and Y are complementary

Thus, if  $E_c$  approaches infinity, means that commodity X is nearly a perfect substitute for commodity Y. On the other hand, if  $E_c$  approaches Zero it would mean that the two commodities in question are not related at all.  $E_c$  shall be negative when commodity Y is complementary to commodity X.

**Q.15 What are the factor affecting Elasticity of Demand?**

**Ans.:** (i) **Nature of Commodity** : Ordinarily, necessities like salt, Kerosene, oil, match boxes, textbooks, seasonal vegetables, etc. have less than unitary elastic demand. Luxuries like air conditioner, costly furniture, fashionable garments etc. have greater than unitary elastic demand. The reason being that change in their price has a great effect on their demand. Comforts like milk, transistor cooer, fans etc have neither very elastic nor very inelastic demand. **Jointly Demanded Goods** like car & petrol, pen & ink, camera &

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films etc. have ordinarily in elastic demand for example rise in price of petrol will not reduce its demand if the demand for cars has not decreased.

- (ii) **Availability of Substitutes** : Demand for those goods which have substitute are relatively more elastic. The reason being that when the price of commodity falls in relation to its substitute, the consumer will go in for it and so its demand will increase. Commodities have no substitute like cigarettes, liquor etc. have inelastic demand.
- (iii) **Different Uses of Commodity** : Commodities that can be put to a variety of uses have elastic demand, for instance, electricity has multiple uses. It is used for lighting, room-heating, air-conditioning, cooking etc. If the tariffs of electricity increase, its use will be restricted to important purpose like lighting. It will be with drawn from important uses. On the other hand, if a commodity such as paper has only & a few uses, its demand is likely to be inelastic.
- (iv) **Postponement of the Use** : Demand will be elastic for those commodities whose consumption can be postponed for instance demand for constructing a house can be postponed. As a result demand for bricks, cement, sand etc. will be elastic. Conversely goods whose demand can not be postponed, their demand will be inelastic.
- (v) **Income of Consumer** : People whose incomes are very high or very low, their demand will ordinarily be inelastic. Because rise or fall in price will have little effect on their demand. Conversely middle income groups will have elastic demand.
- (vi) **Habit of Consumer** : Goods to which a person becomes accustomed or habitual will have in elastic demand like cigarette, coffee tobacco. Etc. It is so because a person cannot do without them.
- (vii) **Proportion of Income Spent on a Commodity** : Goods on which a consumer spends a very small proportion of his income, e.g. toothpaste, needles etc. will have an inelastic demand. On the other hand goods on which the consumer spends a large proportion of his income e.g. cloth etc. their demand will be elastic.
- (viii) **Price Level** : Elasticity of demand also depends upon the level of price of the concerned commodity. Elasticity of demand will be high at higher level of the price of the commodity and low at the lower level of the price.
- (ix) **Time Period** : Demand is inelastic in short period but elastic in long period. It is so because in the long run, a consumer can change his habits more conveniently in the short period.

**Q.16 What is the importance or significance of Elasticity of Demand?**

- Ans.:**
- (i) Helpful in Price Determination :** The concept of elasticity helps a monopolist in fixing prices for his product. He will fix a higher price in those markets where there is inelastic demand for his product. Conversely, he will fix a lower price for the same product in some other segments of the market where there is elastic demand for that particular product. In this way he can discriminate the price to maximize his profit.
  - (ii) Useful for Government :** Government fixes a higher tax rates in case of goods having inelastic demand and a lower tax rate for good having elastic demand.
  - (iii) useful in International Trade :** It helps to calculate the terms of trade and the consequent gain from foreign trade. If the demand for home product is inelastic, terms of trade will be profitable to the home country.
  - (iv) Helpful in Forecasting Demand :** It is possible to forecast the demand for a particular commodity by analyzing its states of elasticity.
  - (v) Elasticity of Demand :** Elasticity of demand also helps in taking decision regarding devaluing or revaluing a country in terms of foreign currency.

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## Chapter-3

# Demand Forecasting

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### Q.1 What is Demand Forecasting?

**Ans.:** A forecast is tomorrow's expectation based on yesterday's achievement and today's plans.

**Phillip Kotler :** "The company forecast is the expected level of sales based on chosen market plan and assumed marketing environment."

#### Characteristics :

- (i) Explain potential demand for the commodities for specified future period of time.
- (ii) It is near expectation.
- (iii) It may in physical or monetary.
- (iv) At firm or industry level. At short period or long period.
- (v) Based on past achievement.
- (vi) Statistical tool are used.
- (vii) Based on today's plan for future.
- (viii) Based on experience.

#### Objectives :

- (1) **Short Period :** Micro level means firm or industry level for short time.
  - (i) **Production Planning :** Over production may leads price of commodity goes down & vice versa, which can be avoided.
  - (ii) **Input Planning :** Uninterrupted supply of raw material & labour & other factor of production.
  - (iii) **Pricing Policy :** Manage in way so the price are not low in a boom & vice versa.
  - (iv) **Sales Targeting :** Decide region-wise sales representative of firm.
    - Appraise and decide their performance.
    - Watch firm competitive in market.
  - (v) **Financial Planning :** Working capital require for short period or one cycle.

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- (vi) Optimum Capacity Utilization
- (2) **Long Period :**
  - (i) **Expansion Planning :** Depends on future potential demand.
  - (ii) **Long Term Input Planning :** Gradual and regular supply of inputs.
  - (iii) **Cost Consciousness :** Demand forecast make scale of operation who generate economies of diseconomies.

**Q.2 What are the determinate of Demand Forecasting?**

**Ans.:** Determinate of Demand Forecast are as follows :-

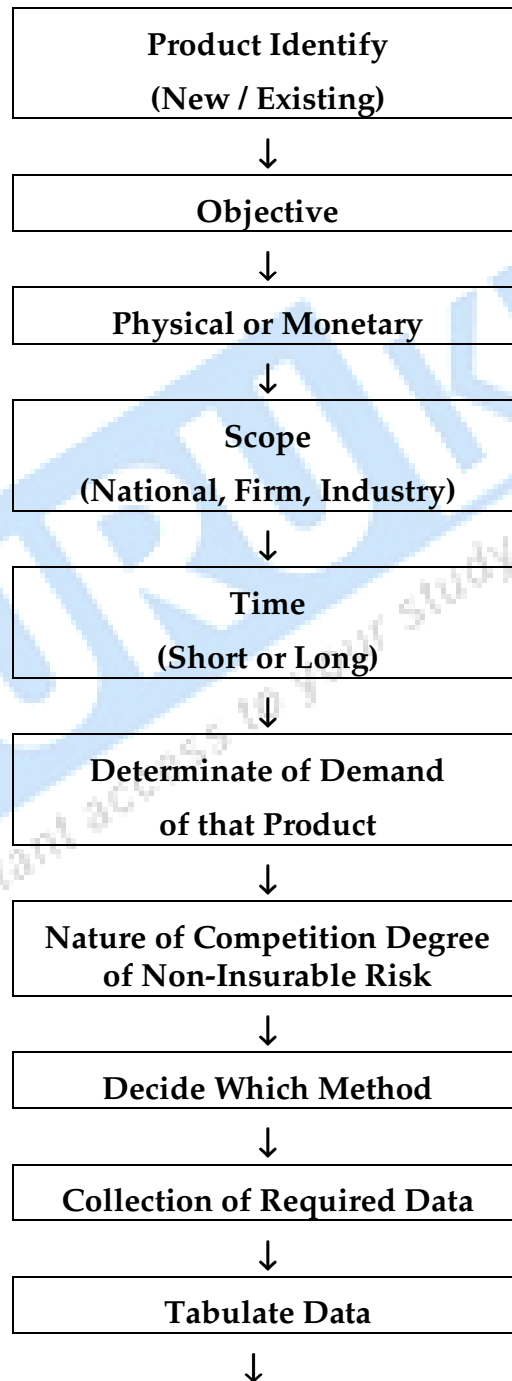
- (i) **Time Dimension :** According to objective of short operation or long planning period.
- (ii) **Level of Forecasting :** At national level, at firm level and at industry level.
  - At national level, we need federation or association whose use secondary sources.
  - At firm level, managerial decision.
- (iii) (a) **General Demand Forecast :** Done at whole firm level.  
 (b) **Specific Demand Forecast :** Done at commodity-wise, region-wise, sector-wise etc.
- (iv) **Classification of Goods :** According to nature of commodity -
  - Durable, Nondurable,
  - Capital, Consumable,
  - Defense Time,
  - Piece Time,
  - Single Use,
  - Multiple Use,
  - Export-Import Good etc.
- (v) **Commodity Position in the Market :** Demand forecasting of existing product is easy rather than new one.
- (vi) **Others :**
  - (a) Type of risk involved
  - (b) Nature of competition
  - (c) Uncertainties
  - (d) Relating to market

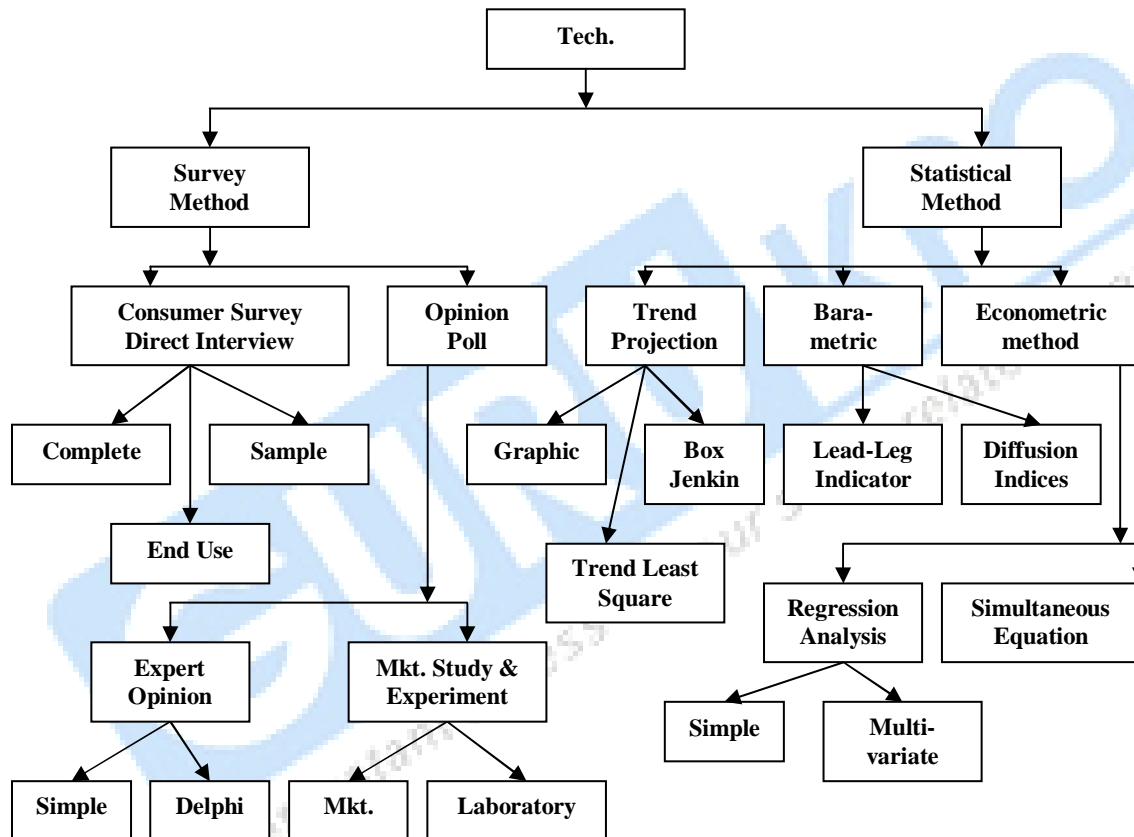
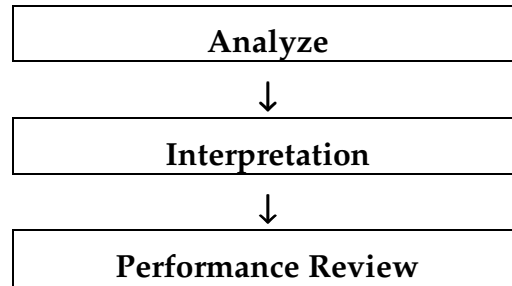
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- (e) Govt. policies
- (f) Society environment
- (g) Eco-political environment

**Q.3 Give the different phases of Demand Forecasting.**

**Ans.: Phases of Demand Forecasting (Process) :**





**Q.4 Explain some important method of Demand Forecasting.**

**Ans.: Methods of Demand Forecasting :**

- (1) **Survey Method :** Survey methods are generally used where the purpose is to make short run forecast of demand. Under this method consumer surveys are conducted to collect information about their intentions and future purchase plans.

This method includes :-

- (i) Survey of potential consumers to elicit information on their intentions and plan.
- (ii) Opinion pole of experts i.e., opinion survey of market experts and sales representatives and through market studies and experiments.
  - (a) According to consumer's survey method, the experts on a particular product approach the buyers to know about the particular product under study. In this method, the burden of forecasting goes to the buyers.
  - (b) Opinion survey method is also known as sales force opinion method. Salesmen are considered to be the nearest persons to the consumers.

Thus it is assumed that salesman have the most accurate information regarding the choice of the consumers. The firm collects information from all its salesman and then forecast is made.

**Advantages :**

- It does not require mathematical calculations.
- It is based on the first hand knowledge.
- It is also useful for estimating demand of new products.

**Demerits :**

- It is a subjective method.
- It is only suitable for short term forecasting.
- Salesman may lack vision.

- (2) **Delphi Method :** Delphi method of demand forecasting is an extension of the expert opinion method. This method is used to consolidate the divergent expert opinions and to arrive at a compromise estimate of future demand.

In this method, the experts are provided information estimates of forecasts of other experts along with the underlying assumptions. The experts may revise their own estimates in the light of the forecasts of other experts.

- (3) **Market Studies and Experiments :** An alternative method of collecting necessary information regarding demand is to carry out market studies and experiments on consumer's behaviour under actual, though controlled, market conditions. Market experiments can be replaced by consumer clinics or controlled laboratory experiments.

**Demerits :**

- They are very expensive.
- Experiments can be conducted on a small scale.
- It is short term and conducted in controlled condition.

(4) **Trend Projection Method** : It is also called as secular or long-term trend. It is the basic tendency of the output and sales of a firm to grow or decline over a period of time. Trend projection method is a classical method of business forecasting. This method is essentially concerned with the study of movements of variable through time. The use of this method requires a long and reliable time series data. Several methods can be used to measure the trend. Some of them are :

(i) **Graphical Method** : According to this method, all the values of output and sale for different years are plotted on a graph and a smooth freehand curve is drawn passing through as many points as possible.

**Merits :**

- It is a simple method.
- It is a dynamic method.
- Comparison is easy.
- To understand, It requires no much knowledge.

**Demerits :**

- It is slightly subjective.
- Accuracy is not possible.
- It may give misleading result.

(ii) **Regression Method** : This method establishes the relation between quantity demand and more or more independent variable.

It can be expressed as :  $y = a + bx$

Where,  $x, y \Rightarrow$  Variables

$a, b \Rightarrow$  Constants

**Merits :**

- Helps to study dependence of one variable on the other.
- Used in policy formation.
- Highly useful method for research.

**Demerits :**

- Only applied in linear dependence.
- May not reveal accurate results.

(iii) **Least Square Method :** It is a mathematical procedure of fittings a curve. The equation for the line of the best fit is :

$$y = a + bx$$

Where,  $y \Rightarrow$  Sales

$a \ b \Rightarrow$  Values to be estimated

$x \Rightarrow$  Unit of time

In order to solve the equation, we have to make use of the following normal equations :

$$\sum y = na + b\sum x$$

$$\sum y = a\sum x + b\sum x^2$$

(5) **Leading Indicator Method :** There are three types of time series method i.e., leading series, coincident series and lagging series. The leading series are the data on variables that move up or down ahead of some other series. The coincident series moves along with some other series as bank rates. The rate at which private money tenders accepts deposits and lend to individuals are lagging series.

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## Chapter-4

# Theory of Consumer's Behavior

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### Q.1 What is Utility?

**Ans.:** Utility is the capacity of a commodity to satisfy human wants. It is defined as a "want satisfying power of a commodity". It is a subjective concept and has no material existence. It is not inherent in a commodity but depends upon the mental make up of the consumer. The same commodity may have different degrees of utility for different persons. Utility cannot be equated with usefulness. A commodity may not be useful, yet it may have utility for a particular person.

#### Features of Utility :

- (i) **Utility is subjective in nature**
- (ii) **Utility is relative and variable**
- (iii) **Utility is not measurable**
- (iv) **Utility, usefulness and pleasure**
- (v) **Utility is Abstract**

There are two approaches for **measurement of utility** :

- (i) Measurement of utility in terms of money is called **Cardinal Utility Approach**. The amount of money which a consumer is prepared to pay for a commodity in the indirect measurement of its utility.
- (ii) Measurement of utility in term of ordinal numbers like I, II, III and so on it is **Ordinal Approach**. In ordinal approach we may say that I is preferable to II etc.

**Types of Cardinal Utility** : Utility is of two types :-

- (i) **Total Utility** : It is the amount of utility derived from the consumption of all the units taken together at a time.
- (ii) **Marginal Utility** : It is the additional utility derived from additional unit of a commodity.

The total utility and marginal utility are closely related with each other. Their relationship can be illustrated as below:-

#### Relationship between Total Utility and Marginal Utility

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Number of Apples	Total Utility	Marginal Utility
1	30	30
2	55	25
3	75	20
4	90	15
5	100	10
6	105	5
7	105	0
8	100	-5
9	90	-10
10	75	-15

The above table reveals the following :-

- (a) The marginal utility, before the point of satiety, is always positive, but with the consumption of every additional unit of a commodity, it goes on diminishing.
- (b) The marginal utility accruing from the consumption of the various units of a commodity, no doubt, goes on diminishing, but the total utility accruing to the consumer goes on increasing at a diminishing rate.
- (c) The marginal utility falls to zero at the point of satiety, but the total utility remains constant and stops increasing further from this point onward. Thus, we can say that the total utility becomes maximum when the marginal utility falls to zero.
- (d) If the consumption of the commodity continues even beyond the point of satiety, then the marginal utility accruing from the various units becomes negative, and the total utility starts diminishing. Thus, we conclude that the total utility is maximum when the marginal utility falls to zero and when the marginal utility becomes negative, the total utility also starts diminishing.

## Q.2 What is Marginal Utility Analysis?

**Ans.:** This theory was propounded by Prof. Alfred Marshall, Through this theory he explained how a consumer spends his income on different commodities so as to

attain maximum satisfaction. The theory is based on certain assumptions which are as follows :-

- (1) The Cardinal Measurability of Utility
- (2) Constancy of the Marginal Utility of Money
- (3) The Hypothesis of Independent Utility
- (4) Rationality

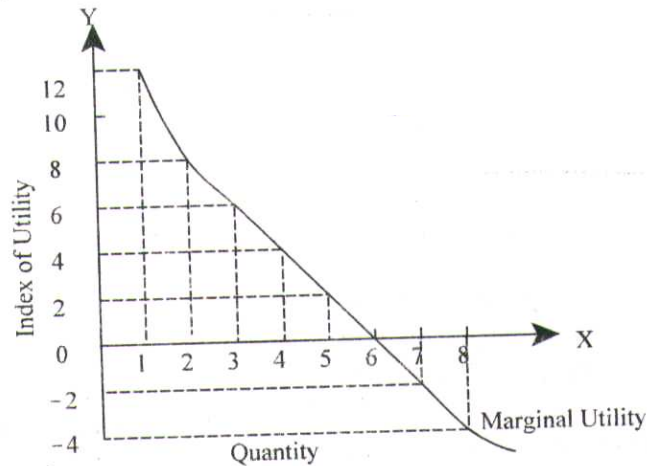
**Q.3 What is the Law of Diminishing Marginal Utility?**

**Ans.:** The law is based on an important fact that although total wants are unlimited, each single want is individually satiable. It means that since each want is satiable, the intensity of want goes on diminishing as the consumer goes on increasing the units of consumption. This law is also known as ‘**Gossen’s First law.**’

To put it on Marshal’s Word, “The additional benefit which a person derives from a given increase of his stock of thing diminishes with every increase in the stock that he already has.”

Units	Total Utility	Marginal Utility
1	12	12
2	20	8
3	26	6
4	30	4
5	32	2
6	32	0
7	30	-2
8	26	-4

} Positive Utility (Units 2-5)  
 } Zero Utility (Unit 6)  
 } Negative Utility (Units 7-8)



The above table shows the total and marginal utilities derived by a consumer on consumption of a certain good. When the 1<sup>st</sup> unit is taken, total utility, is 12 units and marginal utility is also 12 units. Further, as he goes on 5<sup>th</sup> unit, the total utility increases, but at a diminishing rate, i.e. 20, 30, 32..... but marginal utility falls with every successive unit of consumption i.e. 8,6,4,2 when 6<sup>th</sup> unit is taken no addition is made to total utility and marginal utility falls to zero. Further, when units taken are increased to 7<sup>th</sup> and 8<sup>th</sup> units, total utility falls and marginal utility turns negative. This means that now at this stage the consumer may also derive dissatisfaction instead of satisfaction. Hence, the consumer would restrict his consumption to 6<sup>th</sup> unit.

It can be seen from the given figure that the marginal utility curve goes on declining continuously, the law of diminishing marginal utility applies almost to all commodities. However, few exceptions are there as pointed out by some economists.

#### Exception to the Law :

- (i) Rare Commodities
- (ii) Alcohol
- (iii) Music
- (iv) Miser Man
- (v) Complementary Goods

**Limitations of the law :** The law of diminishing marginal utility is applicable only if the following hold good :-

- (i) The different units consumed should be identical in all aspects.
- (ii) The law may not apply to articles like gold, cash etc.
- (iii) The presence or absence of complementary or substitutes may affect the utility.

- (iv) The commodity should be consumed in standard units e.g. if first unit of water is given to a thirsty person by spoon, the second unit should be also given in spoon.
- (v) There should be continues consumption i.e. there should be no time gap or interval between the consumption of one unit and the other unit.

**Q.4 Explain Law of Equi-Marginal Utility with its application and limitations.**

**Ans.:** The consumer will distribute his money income between the goods in such a way that the utility derived from the last rupee spent on each good is equal. Means consumer is in equilibrium position when marginal utility of money expenditure on each good is the same. The marginal utility of money expenditure on a good or the utility of the last rupee spent on the good is equal to the marginal utility of the good divided by the price of that good.

**Assumption of the Law :**

- (i) Measurability
- (ii) Rationality
- (iii) Constancy of marginal utility of money
- (iv) Law of Diminishing Marginal Utility goods
- (v) No change in taste, preference, income & fashion
- (vi) No change in price of substitute & complimentarily goods
- (vii) Divisibility of goods

$$MU_{Money} = \frac{MU_x}{P_x}$$

Consumer will be equilibrium in respect of the purchase of two goods x and y when,

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_{Money}$$

Thus with several goods to buy with a given money income the consumer will maximizing utility and be equilibrium when the following condition prevails.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \dots\dots\dots = \frac{MU_n}{P_n} = MU_{Money}$$

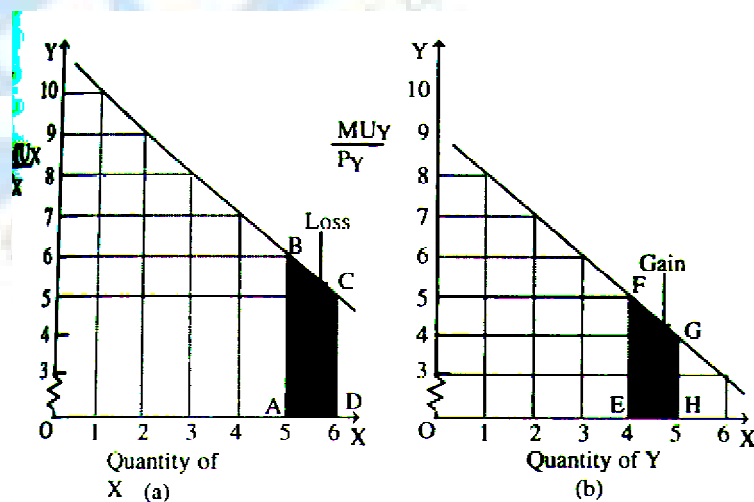
Units	$MU_x$	$\frac{MU_x}{P_x}$	$MU_y$	$\frac{MU_y}{P_y}$
1	20	10	24	8
2	18	9	21	7
3	16	8	18	6
4	14	7	15	5
5	12	6	12	4
6	10	5	9	3

If the price of goods x and y be Rs.2 and Rs.3 respectively and the consumer has Rs.24 to spend on the two goods. It is clear that weighted  $MU_x$  is equal to 5 units when the consumer purchases 6 units of goods x and weighted  $MU_y$  is equal to 5 units when the consumer purchases 4 units of goods y. Therefore, consumer will be in equilibrium when he is buying 6 units of goods x and 4 units of goods y. Thus in the equilibrium position where he maximizes his utility.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_{Money}$$

$$\frac{10}{2} = \frac{15}{3} = 5$$

Consumer equilibrium can be depicted graphically :-



When the consumer is buying OH of x and OK of y, then

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_{Money}$$

This law of equi-marginal principle is applicable to :-

- (i) **Organization of Production**
- (ii) **Optimum Distribution of Factor Rewards**
- (iii) **Apportionment of General Resources**

**Limitation :**

- (i) Utility is not measurable.
- (ii) Marginal utility of money is not constant.
- (iii) Indivisibility of goods restricts the applicability of the law of equi-marginal utility.
- (iv) The law of equi-marginal utility is concerned only with one budgeted period.
- (v) The actual behavior of the consumer is not guided by the law of equi-marginal utility.

#### Q.5 What is Consumer's Surplus?

**Ans.: Concept :** Very often the price which a consumer pays for a commodity is less than what he is willing to pay for it, so that the satisfaction which he derives is more than the price paid for it. This extra satisfaction is termed as Consumer Surplus.

**Definition :** According to **Alfred Marshall**, "The excess price which a person would be willing to pay rather than go without the thing, over that which he actually does pay is the economic measure of this surplus of satisfaction. It may be called Consumer's Surplus".

Thus, Consumer's surplus is the excess of utility obtained by the consumer over foregone or disutility suffered. It is measured by the difference between the maximum price which the consumer is willing to pay for a commodity and that which he actually does pay.

Symbolically

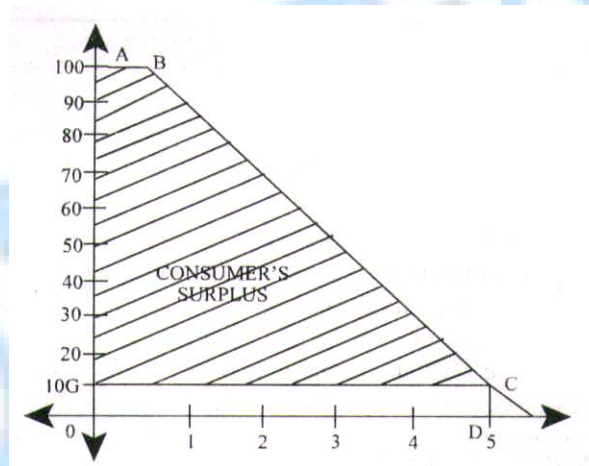
Consumer Surplus = (What a consumer is ready to pay) – (What is actually pays)

- Value in use – Value in exchange
- $\sum MU_x - (\text{Price} \times \text{No. of units})$
- $\sum MU_x(TU) - \sum P_x Q_x$

Marshall makes use of the demand curve to illustrate the concept of consumers surplus.

Unit of a Commodity	Marginal utility to the consumer	Price of the product	Consumer's surplus
1	100	10	100-10=90
2	80	10	80-10=70
3	55	10	55-10=45
4	35	10	25-10=25
5	10	10	10-10=0
	<b>280</b>	<b>50</b>	<b>280-50=230</b>

Thus from the above table it is clear that the consumer was willing to pay Rs. 280 for 5 units of a commodity. But he had to pay only 50. Thus the consumer's surplus is Rs. 280-50= Rs. 230.



In the given diagram ODCBA represents the total utility and OGCD represents the amount of utility made. Thus GCBA represents the consumer's surplus.

The concept of consumer surplus is based on the law of diminishing marginal utility. This law states that with every successive increase in the quantity of a commodity consumed its marginal utility falls. This means that a rational consumer would restrict his consumption where marginal utility is equal to price. It means that the consumer will be in equilibrium when he purchases as many number of units of a good at which marginal utility is equal to price. Since the price is fixed for all the units of the good he gets extra utility for his purchases except for the last one at margin. This extra utility or surplus for the consumer is called 'Consumer's Surplus.'

**Assumption :**

- (i) Utility is measurable
- (ii) The marginal utility of money is assumed to be same.
- (iii) The utility of a commodity is dependent on its supply.
- (iv) The commodity in question has no close substitute.
- (v)  $MU_m = \text{Constant}$
- (vi) Price of commodity given

**Usefulness/Advantage :**

- (i) It helps to make economic comparisons about the people's welfare between two places or countries.
- (ii) The concept is useful in understanding the pricing policies of a discriminating monopolist.
- (iii) It helps in evaluating the economic effect of a tax or bounty on a commodity.
- (iv) It helps to measure the benefits from international trade.

**Limitations :**

- (i) The assumption that utility and satisfaction bear definite relationship is not correct.
- (ii) The assumption that marginal utility of money is constant is most unrealistic.
- (iii) It is quite impossible to say that a commodity will have no close substitute.
- (iv) Consumer surplus cannot be measured in case of luxuries and bare necessities of life.
- (v) The assumption that in measuring the consumers surplus all determinants of demand except the price remains constants does not hold true.

**Q.6 What is the concept of Indifference Curve Analysis?**

**Ans.:** Every consumer has a scale of preference between two or more goods. A scale of preference consists of a number of alternative combinations of two or more things which gives the consumer the same amount of satisfaction. He also assumes the consumer to be rational and aware of his preference for any two or more goods. Since all the alternative combinations of the two goods give the

consumer the same satisfaction. If he chooses one combination he is indifferent about the other combinations.

Combination	Commodity X	Commodity Y	Satisfaction
1	2	20	2000 calories
2	3	16	2000 calories
3	4	15	2000 calories
4	5	12	2000 calories
5	6	9	2000 calories

All the five combinations of commodity X and Commodity Y yield the same satisfaction to the consumer. It is a matter of indifference which of the five combinations the consumer prefers. The total satisfaction of all the combination is same.

**Assumption :**

- (i) **Rational Being**
- (ii) **Utility is Ordinal**
- (iii) **Diminishing Marginal Rate of Substitution** : Marginal rate of substitution (MRS) is the rate at which one commodity is substituted by the other, provided the utility derived is constant. In other words, it is the rate at which the consumer is prepared to exchange goods x and goods y. It can be better understood with the help of the following schedule:

Combinations	Commodity X	Commodity Y	Diminishing Marginal Rate of Substitution (DMRS)
A	1	10	4
B	2	6	3
C	3	3	2
D	4	1	-

The above table explains the Marginal Rate of Substitution (MRS). Initially, at combination A, the consumer origins up 4 units of y to get an additional unit of x, while both combinations give the same satisfaction.

Hence, here the MRS is 4. Similarly, at combination C, the consumer is willing to spare 3 units of y and similarly, at combination C, the consumer is willing to spare 3 units of y and at combination D he is willing to agree to spare 2 units of y. Thus, MRS goes on diminishing.

**Reason for Declining MRS :**

- (a) As the consumer goes on increasing consumption of good x, the intensity of desire for it falls. Thus sacrifices less and less quantity of Y for every increase in the commodity X.

The goods are imperfect substitutes of each other. Had they been perfect substitutes, the increase and decrease would affect each other and MRS would remain same.

**Preference are Consistent and Transitive**

**Q.7 What is an Indifference Curve?**

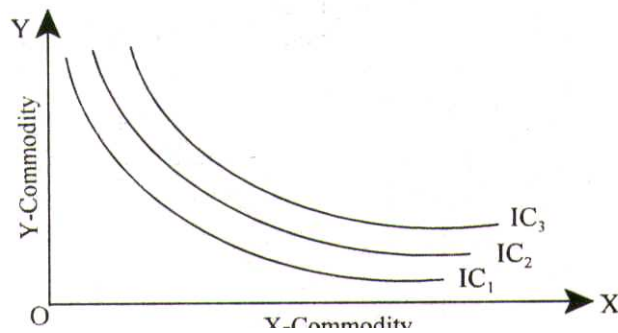
**Ans.:** The curve on which locus of various combination of two goods giving the same level of satisfaction are depicted, at which consumer is indifferent means he can either choose one point and other as all points given him same satisfaction because of this indifference or neutral state of consumer these curve are called Indifference Curve (by J. R. Hicks and R. G. D. Allen).

**Properties of Indifference Curve :**

- (i) **An Indifference Curve has Negative Slope :** It means that it slopes downwards from left to right which denotes that if the quantity of one commodity (y) decrease, the quantity of the other (x) must increase, if the consumer is to stay on the same level of satisfaction. The level of equal satisfaction is possible only on the negatively sloped curve.

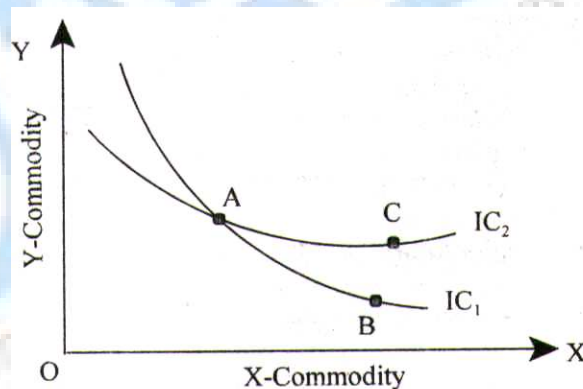
If it is assumed that indifference curve is horizontal to x-axis, it would mean that either of the two (y in the above case) shall remain constant in terms of quantity and more units of x shall be consumed. But this is not possible as utility is quantitative. Similarly, Indifference curve cannot be parallel to y-axis for the same reason.

Again, if it is assumed that the indifference curve is positively sloped, it would mean that more units of both the commodities are consumed at all combinations. As the number of unit increase the level of satisfaction also rises. Hence this case is also not possible as utility is a cardinal concept.



- (ii) **Indifference Curves do not Intersect :** If they did at the point of intersection it would imply two different level of satisfaction, which is impossible. This can be made clear from the given figure.

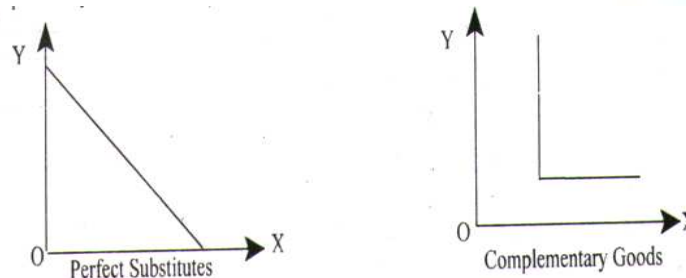
In the figure, there are two indifference curves  $IC_1$  and  $IC_2$  which intersect at point A. Since, A and B lie on the same IC, the level of satisfaction is same. Same is the case with A and C. But it should be noticed that point A shows two different levels of satisfaction as it lies both on the higher and lower indifference curves. Such a situation is not possible. Hence, indifference curves can never intersect.



- (iii) **Indifference Curves are always Convex to the Origin :** This implies that the slope of an indifference curve decreases (in absolute terms). As we move along the curve from the left downwards to the right the marginal rate of substitution of the commodities is diminishing.

It has been observed that as more units of commodity (say  $x$ ) is substituted for another commodity (Say  $y$ ) the consumer is unwilling to part with less and less of the commodity ( $x$ ) which is substitutes with  $Y$ . This is called diminishing marginal rate of substitution (MRS). Hence, indifference curve are convex to the origin.

- (a) The indifference curve can never be concave to the origin as this shape will show increasing MRS.
- (b) It can not be a straight line with negative slope as it will show perfect substitutes and would name that the consumers over spends all income on one commodity. In actual practice, this does not happen.
- (c) It cannot be in the shapes of a right angle as it would mean that the two commodities are complementary. In this case the indifference curve analysis breaks down as there is no possibility of substitution between the commodities.



- (iv) **A Higher Indifference Curve represents a Higher Level of Satisfaction than the Lower Indifference Curve :** It means that the further away from the origin an indifference curve lies, the higher the level of utility it denotes: bundles of goods on a higher indifference curve are pertained by the rational consumer.
- (v) **Indifference Curve need not be Parallel :**
  - (a) MRS is not equal at every time.
  - (b) IC based not on cardinal measurability
- (vi) **IC never touches any of two Axis (X and Y) :** When it happens means consumer purchase only one commodity which against the combination of two goods.

### Q.8 What is a Budget Line?

**Ans.:** A budget line which is also known as Consumption Possibility Curve represents the different possibilities of the two goods which the consumer can afford with his given income. On the one hand it shows the **money income** of the consumer and on the other hand it shows the relative **price ratio**.

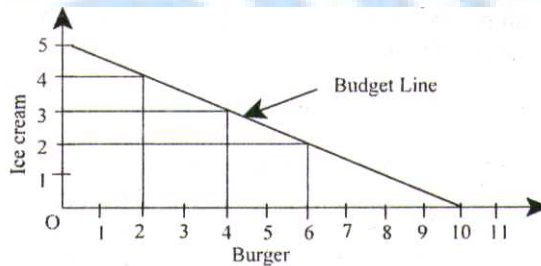
**For Example :** Let us suppose that a consumer has Rs. 100 to spend on ice cream and burgers which cost Rs. 10 and Rs. 20 respectively. He has 3 alternative possibilities before him :-

- (i) He may decide to buy burgers only in which case he can buy 5 burgers (100/20).
- (ii) He may decide to buy ice creams only in which case he can buy 10 ice creams(100/10).
- (iii) He may also decide to buy both ice creams and burgers which can be as follows:

(iv)

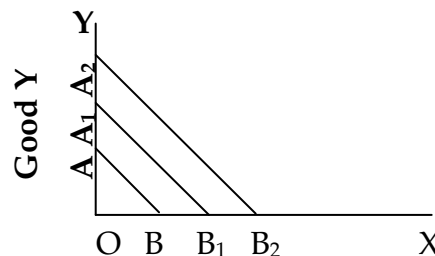
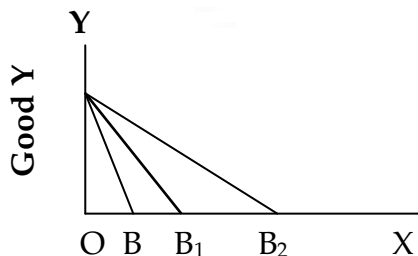
<b>Burger</b>	4	3	2	1
<b>Icecream</b>	2	4	6	8

These different possibilities when represented on a graph is known as budget line.



**Shifting in Budget line :** When total income in consumer changes budget line shifts. Upward when money income increase and vice-versa.

**Rotation of Budget line :** When price of commodity change the budget line rotate. Budget line rotate inward when price increases and vice-versa.



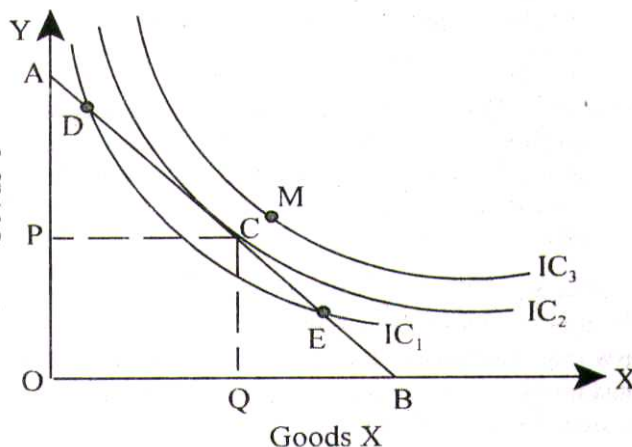
### Q.9 What is Consumers Equilibrium?

**Ans.: Consumers Equilibrium :** A consumer is said to be in equilibrium when he is deriving maximum possible satisfaction from the given commodities and is not in a position to rearrange his purchases of goods, say x and y.

#### Assumptions in Consumers Equilibrium :

- (i) The consumer has an indifference map, which depicts his scale or order of preference for various combinations of two goods, say x and y.
- (ii) He has fixed income to spend on x and y completely.
- (iii) Prices of goods x and y are given and do not change.

Consumers equilibrium is illustrated in the figure given below :-



In order to determine consumer's point of equilibrium we make use of indifference map and budget line together.

In the given figure :-

- (a) AB is the budget line of the consumer.
- (b) IC1, IC2 and IC3 are different indifference curves, showing different levels of satisfaction.

In case he spends all his income on commodity x, he can buy OB quantity and similarly, if he spends his entire income on Y he can purchase OA quantity of it. However, if he wants to consume both the goods together he will try to reach a situation of equilibrium where sacrifice made by him equals the satisfaction derived.

Again, a rational consumer will try to reach the highest possible indifference curve while staying in his budget line or affording capacity.

As shown is the figure, the consumer has at his options combinations D, C and E, but he would option for combination at C because it will provide higher satisfaction in comparison to point. D and E since both these points are lying on the lower indifference curve i.e. IC1, further, points D and E are part of IC, the lower indifference curve and as known higher the IC, higher is the level of satisfaction.

It can also be seen the point M is another level on the further higher. But it is beyond the buying capacity of the consumer as can be seen. Hence, the consumers points of equilibrium is determined at point C where he will consume OQ units of goods x and of units of goods Y. At point C,

$$\text{Slope of Indifference Curve} = \text{Slope of Budget Line}$$

i.e. 
$$\frac{M_x}{M_y} = \frac{P_x}{P_y}$$

For every act of consumer there will be a separate equilibrium position of the consumer. The condition that must be fulfilled by a consumer to be in equilibrium are :-

- (i)  $MRS_{xy} = \frac{P_x}{P_y}$  and (ii) Diminishing MRS

Hence, conclusively it can be said that given the indifference map and his budget line, the equilibrium is defined by the point of tangency of the budget line with the highest possible indifferent curve.

**Q.10 What are the use of I.C. Analysis? Explain with criticism.**

**Ans.:**

<b>Importance :</b>	<b>Criticism :</b>
(i) Use in consumer equilibrium	(i) Convexity
(ii) Use in production function	(ii) Irrationality
(iii) Use in international trade	(iii) Short run preference or ordering
(iv) Use in taxation	(iv) D.M.R.S.
(v) Use in consumer equilibrium	(v) Selling cost is not
(vi) Use in consumer surplus	

(vii) Use in public finance	considered
(viii) Use in deciding rationing & subsidies	(vi) Speculation demand consideration
(ix) Use in portfolio investment decision	(vii) Ecogeous environmental change those creates change in behavior
(x) Use in index numbers	

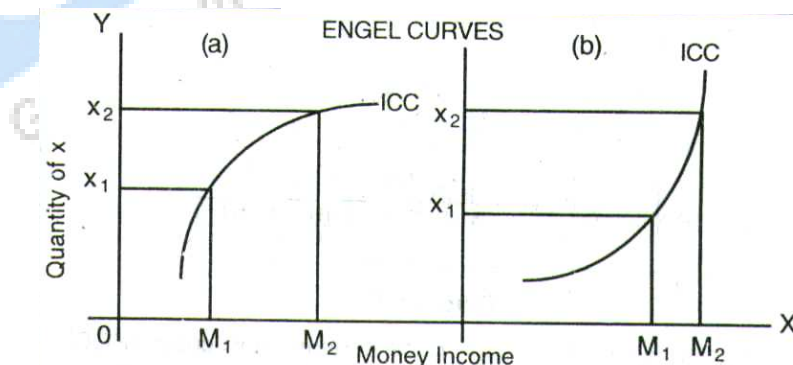
**Q.11 What is change in Consumer Equilibrium.**

**Ans. :** There is change in consumer equilibrium points due to change in Income of the consume & relative price ratio of commodity than it is called change in equilibrium.

- (i) **Price Consumption curve (PCC) :** PCC is locus of various combination points of consumer at various level of relative price ratio keeping money income constant.
- (ii) **Income consumption curve (ICC) :** ICC is the locus of various equilibrium points of the consumer at various level of money income, keeping relative price ratio constant.
- (iii) **Substitution effect :** When income, taste preference remain constant & price of both-commodity are changed & consumer rearrange purchase in manner that the consumer is neither better off nor worse off.

**Q.12 What is Engel Curve?**

**Ans. :** An Engel Curve shows the relationship between equilibrium quantity of one commodity purchased by the consumer and the level of his money income.



**Q.13 Point out Application, uses, scope, Importance of IC Analysis?**

**Ans. :** Important uses of IC Analysis as follows :

1. Use in production analysis

Fore more detail:- <http://www.gurukpo.com>

2. Use in exchange
3. Use in International Trade
4. Use in Taxation
5. Use in Consumer Equilibrium
6. Use in consumer surplus
7. Use in public finance
8. Use in deciding Rationing & subsidies
9. Use in portfolio Investment



## Chapter-5

# Supply Analysis

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### Q.1 What is Supply and Its Determinants?

**Ans.: Meaning :** “The supply of good is the quantity offered for sale in a given market at a given time at various prices”.

Thus, the important features of supply may be concluded as:-

- (i) It is the quantity of commodity offered for sale in the market at various prices.
- (ii) It is flow and is always measured in terms of time.

**Determinants of Supply are follows :**

- (i) Price of the Good
- (ii) Price of Related
- (iii) Price of Factors of Production
- (iv) State of Technology
- (v) Government Policy
- (vi) **Other Factor :** Includes various individual policies, exchange policies, trade policy etc. Time is another important factor influencing supply e.g. it is quite difficult to adjust the supply to the changing conditions in the short period. But such adjustments in supply become easy if the time period is long. Again, transparent and infrastructural facilities positively effect the supply of a good.

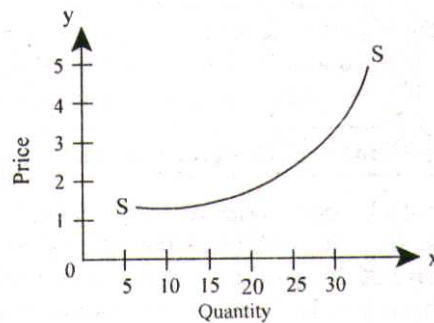
### Q.2 What is the Law of Supply?

**Ans.:** In the Words of Dooley, “The law of supply states that other things remaining the same, higher the prices the greater the quantity supplied and lower the prices the smaller the quantity supplied”.

Supply Schedule	
Price	Quantity Supplied
Rs. 1/kg.	5 kg.
Rs. 2/kg.	10 kg.

Fore more detail:- <http://www.gurukpo.com>

Rs. 3/kg.	15 kg.
Rs. 4/kg.	20 kg.
Rs. 5/kg	25 kg.



#### Assumption of the Law :

- (iv) It is assumed that incomes of buyers and sellers remain constant.
- (v) It is assumed that the tastes and preferences of buyers and sellers remain constant.
- (vi) Cost of all the factors of production is also assumed to be constant.
- (vii) It is also assumed that the level of technology remains constant.
- (viii) It is also assumed that the commodity is divisible.
- (ix) Law of supply states only a static situation.

#### Criticisms of Law of Supply :

- (i) It Explains Only the Static Situation
- (ii) Expectation of Change in the Prices in
- (iii) It does not Apply on Agricultural Products
- (iv) It does not Apply on Artistic
- (v) It does not Apply on the Goods of Auction

#### Q.3 Why Supply Curve upward sloping?

**Ans.:** The following reason are responsible through which supply increase with increase in price & vice-versa :-

- (i) Seller become ready to offer more goods from their old stocks.
- (ii) Producer increase their production in view of high profit possibilities.
- (iii) New firms enter the market visualizing higher profit which in turn, increase supply & vice-versa.

#### Exception of the law of supply :

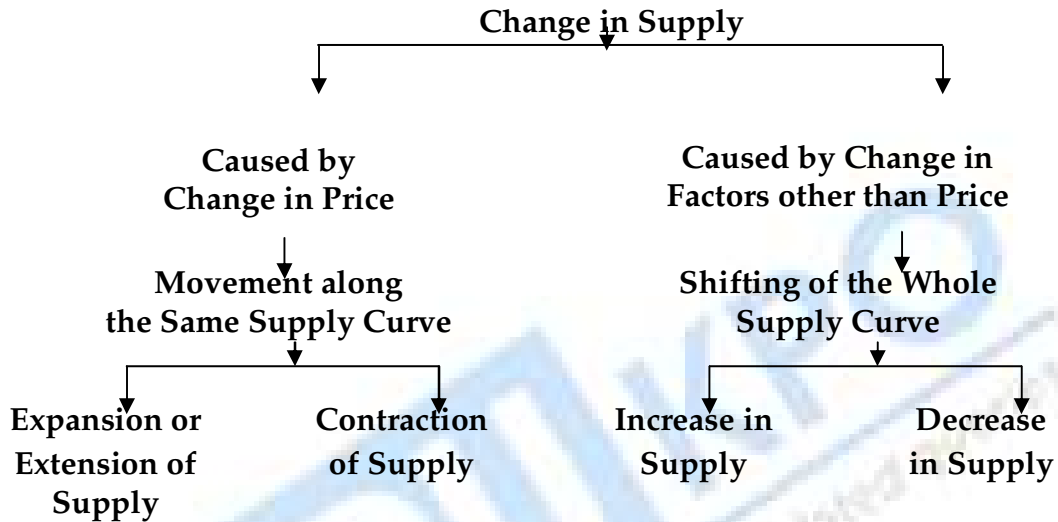
- (1) Social distinction goods

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- (2) Antique goods
- (3) Labour supply curve
- (4) Agriculture commodity
- (5) Perishable commodity

**Q.4 What is meant by Change in Supply?**

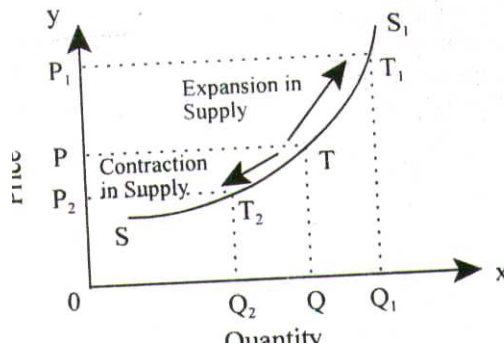
**Ans.:**



(1) **Movement along the Same Supply Curve :** When due to change in price alone, the supply changes it is expressed by different points on the same supply curve.

- (i) **Expansion of Supply :** When supply of a commodity increases on an increase in its price, it is called expansion. It is shown by upward movement of supply curve.
- (ii) **Contraction of Supply :** when supply of a commodity decrease on a falls in its price, it is called contraction of supply, It is shown by downward movement of supply curve.

Both expansion and contraction of supply is shown as under :-

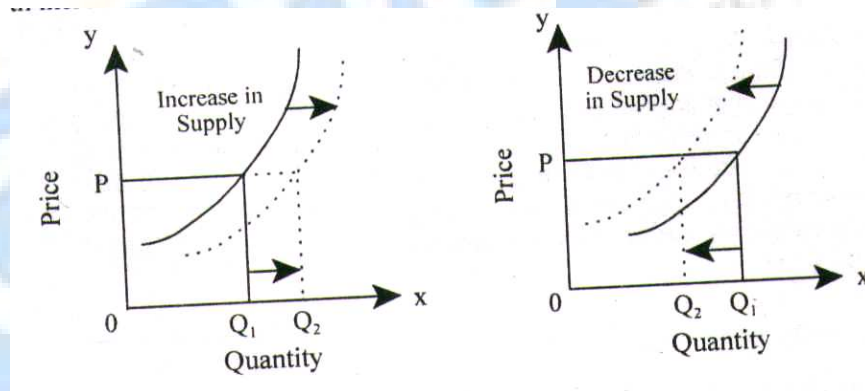


Original supply of commodity is OQ, at price OP.

When the price increases to OP<sub>1</sub>, the supply increase to OQ<sub>1</sub> i.e. T<sub>1</sub> on supply curve. This is expansion of supply. When the price falls to OP<sub>2</sub> supply decreases to OQ<sub>2</sub> i.e. T<sub>2</sub> on supply curve. This is contraction of supply:

- (2) **Shifting of the Whole Supply Curve :** When due to change in factors other than price of the same commodity like change in income, change in taste etc, the supply changes it makes the supply curve shift either leftward or rightward of the original supply curve. This is called shifting of the supply curve.
- (i) **Increase in Supply :** When supply of a commodity increases due to change in any factor other than price it is called increase in supply. It is shown by rightward shift of supply curve.
- (ii) **Decrease in Supply :** When the supply of a commodity decreases due to a change in any factor other than price, it is called decrease in supply. It is shown by leftward shift of the supply curve.

Both increase and decrease in supply is shown as under :-



### Q.5 What is Elasticity of Supply?

**Ans.:** According to Samuelson, 'Elasticity of Supply is the degree of responsiveness of supply of a commodity to a change in its price.'

It is measured by dividing the percentage change in the quantity supplied of a commodity by the percentage change in its price. It can be expressed as follows :-

$$E_s = \frac{\% \text{ Change in Quantity Supplied}}{\% \text{ Change in Price}}$$

$$E_s = \frac{\frac{\text{Change in Quantity Supplied}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in Price}}{\text{Original Price}} \times 100}$$

$$E_s = \frac{\text{Change in Quantity Supplied}}{\text{Change in Price}} \times \frac{\text{Original Price}}{\text{Original Quantity}}$$

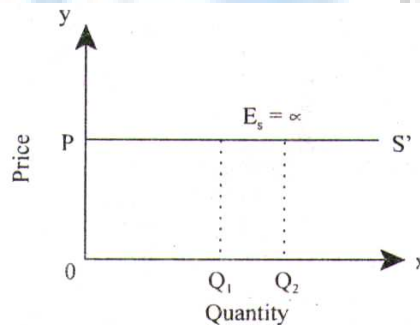
Symbolically,

$$E_s = \frac{\Delta q}{q} \div \frac{\Delta p}{p} = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

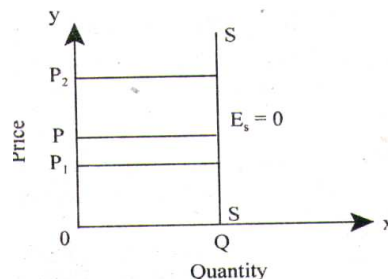
Where q => Quantity  
P => Price  
Δq => Change in quantity supplied  
Δp => Change in price

**Q.6 What are the various degrees of Supply Elasticity?**

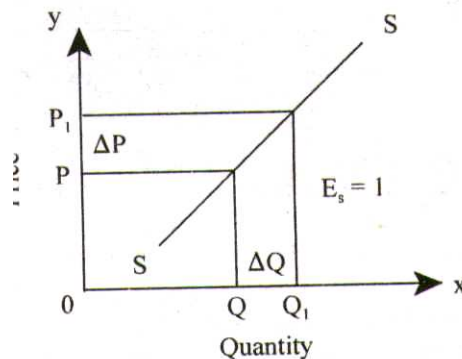
**Ans.:** (i) **Perfectly Elastic Supply :** Under this, supply tends to be infinitely elastic. It happens when nothing is supplied at a lower price but a small increase in price causes the quantity supplied to increase to an infinite extent indicating that the producers are ready to supply any quantity at that price. Here, the supply curve becomes parallel to x axis, i.e.  $E_s = \infty$



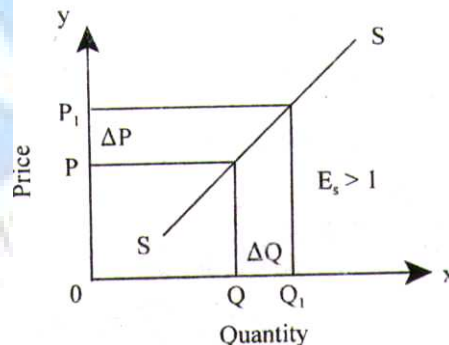
(iii) **Perfectly Inelastic Supply :** At times, the supply of a commodity may not change at all to any change in price. Such a commodity is said to have zero elasticity of supply or perfectly inelastic supply. Graphically, the supply curve drawn is parallel to Y axis.



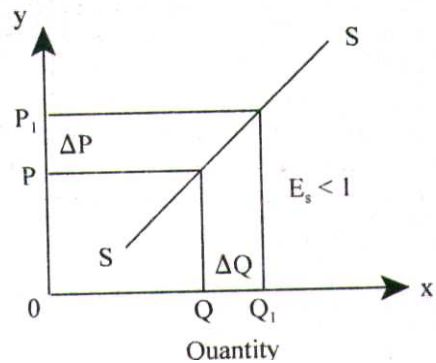
- (iii) **Unit Elastic** : When the proportionate change in the quantity supplied is equal to the proportionate change in price, the supply of the commodity is said to be of unit elasticity. Here, the coefficient of elasticity of supply is equal to one, i.e.  $E_s = 1$ . As given in the figure, relative change in the quantity supplied ( $\Delta q$ ) is equal to the relative change in the price ( $\Delta p$ ).



- (iv) **More than Unit Elastic Supply or Relatively greater Elastic Supply** : Elasticity of supply is said to be more than unity when a small change in price leads to a substantial change in commodity supplied. It means that relative change in commodity supplied is more than the relative change in price.



- (v) **Less than Unit Elastic Supply or Relatively less Elastic Supply** : In this case a substantial change in price leads to a very small change in quantity supplied. It means that the quantity supplied is lesser in proportion than the change in price of the commodity. Thus,  $E_s < 1$ .



### Q.7 How is Elasticity of Supply measured?

Ans.: (i) **Percentage Method :**

It is depicted of follows :

$$E_s = \frac{\text{Proportionate Change in Quantity Supplied}}{\text{Proportionate Change in Price}}$$

$$E_s = \frac{\frac{\text{Change in Quantity}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in Price}}{\text{Original Price}} \times 100}$$

$$E_s = \frac{\text{Change in Quantity}}{\text{Change in Price}} \times \frac{\text{Price}}{\text{Quantity}}$$

$$E_s = \frac{\Delta q}{q} \div \frac{\Delta p}{p} = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Where q  $\Rightarrow$  Original quantity supplied

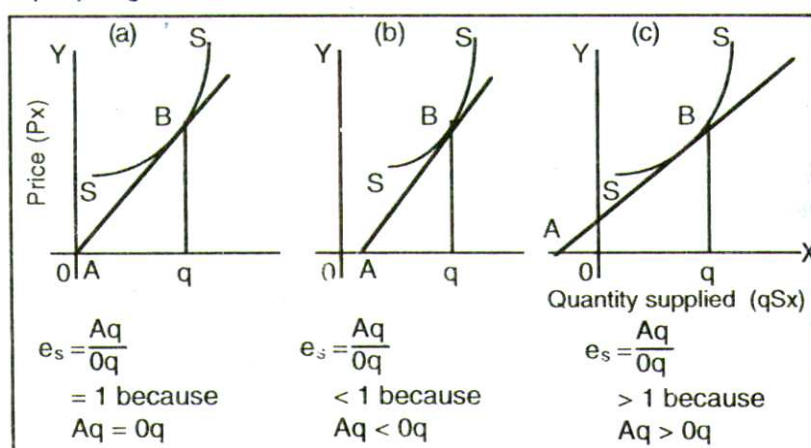
P  $\Rightarrow$  Original price

$\Delta q$   $\Rightarrow$  Change in quantity supplied

$\Delta p$   $\Rightarrow$  Change in price

(ii) **Geometric Method (Point Method) :**

Measuring the elasticity at a particular point of the supply curve is known as point elasticity of supply.



(iii) **Arc Method** : It is a measure of the average responsiveness to price change exhibited by a supply curve over some finite stretch of the curve.

$$E_s = \frac{\frac{\text{Change in Quantity Supply}}{\text{Original Quantity plus Quantity after Change}}}{\frac{\text{Change in Price Supply}}{\text{Original Price plus Price after Change}}}$$

In notation form it can be expressed as :-

$$E_s = \frac{\frac{\Delta q}{q_1 + q_2}}{\frac{\Delta p}{p_1 + p_2}}$$

$$= \frac{\Delta q}{\Delta p} \times \frac{p_1 + p_2}{q_1 + q_2}$$

$\Delta q \Rightarrow$  Change in quantity supply  
 $\Delta p \Rightarrow$  Change in price  
 $q_1 \Rightarrow$  Original quantity supply  
 $q_2 \Rightarrow$  New quantity supply  
 $p_1 \Rightarrow$  Original price  
 $p_2 \Rightarrow$  New price

### Q.8 What are the factors affecting the Elasticity of Supply?

Ans.: (i) **Nature of the Commodity**

- (i) For perishable goods, its supply will not respond in an effective manner to the change in price. So it have an inelastic supply.
- (ii) For durable goods, its supply will respond effectively and it will have an elasticity of supply.

(ii) **Production Time**

(iii) **Techniques of Production**

(iv) **Estimates of Future Price**

□ □ □