



**NARSIMHA REDDY ENGINEERING COLLEGE  
(Autonomous)**

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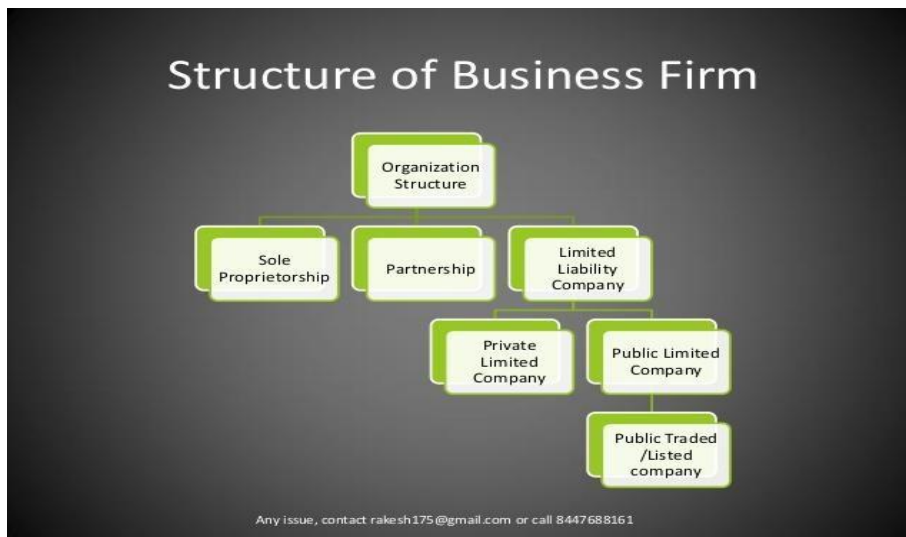
**Unit – I: Introduction to Business and Economics**

**Important Points / Definitions:**

**Business Firm:**

A commercial organization that operates on a for-profit basis and participates in selling goods or services to customers.

**Structure of Business Firm:**



**Theory of the firm**

The theory of the firm consists of a number of economic theories that explain and predict the nature of the firm, company, or corporation, including its existence, behaviour, structure, and relationship to the market.

The theory of the firm aims to answer these questions:

1. Existence. Why do firms emerge? Why are not all transactions in the economy mediated over the market?
2. Boundaries. Why is the boundary between firms and the market located exactly there with relation to size and output variety? Which transactions are performed internally and which are negotiated on the market?
3. Organization. Why are firms structured in such a specific way, for example as to hierarchy or decentralization? What is the interplay of formal and informal relationships?
4. Heterogeneity of firm actions/performances. What drives different actions and performances of firms?

#### **Types of theories:**

- Transaction Cost Theory
- Managerial Theories
- Behavioural Theories

#### **Types of Business Entities:**

- **Sole Proprietorship:** Sole Proprietorship form of business organisation refers to a business enterprise exclusively owned, managed and controlled by a single person with all authority, responsibility and risk.
- **Partnership Firm:** Partnership is an association of two or more persons who pool their financial and managerial resources and agree to carry on a business, and share its profit. The persons who form a partnership are individually known as partners and collectively a firm or partnership firm.
- **Joint Hindu Family Business:** The Joint Hindu Family (JHF) business is a form of business organisation run by Hindu Undivided Family (HUF), where the family members of three successive generations own the business jointly. The head of the family known as Karta manages the business. The other members are called coparceners and all of them have equal ownership right over the properties of the business.
- **Cooperative Society:** The Section 4 of the Indian Cooperative Societies Act 1912 defines Cooperative Society as “a society, which has its objectives for the promotion of economic interests of its members in accordance with cooperative principles.”

#### **Sources of Finance**

1. **Long term finance:** Long term finance available for a long period say five years and above. The long term methods outlined below are used to purchase fixed assets such as land and buildings, plant and so on.
  - a) **Own capital :** Money invested by the owners, partners or promoters is permanent and will stay with the business throughout the life of business.
  - b) **Share capital :** Normally in the case of a company, the capital is raised by issue of shares. The capital so raised is called share capital. The share capital can be of two types, preference share capital and equity share capital.
  - c) **Debentures:** Debentures are the loans taken by the company. It is a certificate or letter by the company under its common seal acknowledging the receipt of loan. A

debenture holder is the creditor of the company. A debenture holder is entitled to a fixed rate of interest on the debenture amount.

- d) **Government grants and loans:** Government may provide long term finance directly to the business houses or by indirectly subscribing to the shares of the companies.

### **Medium term finance**

- a. **Bank loans:** Bank loans are extended at a fixed rate of interest. Repayment of the loan and interest are scheduled at the beginning and are usually directly debited to the current account of the borrower. These are secured loans.
- b. **Hire purchase:** It is a facility to buy a fixed asset while paying the price over a long period of time. In other words , the possession of the asset can be taken by making a down payment of a part of the price and the balance will be repaid with a fixed rate of interest in agreed number of instalments.
- c. **Leasing or renting:** where there is a need for fixed assets, the asset need not be purchased. It can be taken on lease or rent for specified number of years. **Venture capital:** this form of finance is available only for limited companies. Venture capital is normally provided in such projects where there is relatively a higher degree of risk.

### **Short Term Finance**

- a. **Commercial paper:** It is new money market instrument introduced in India in recent times. Cps are issued in large denominations by the leading, nationally reputed, highly rated and credit worthy, large manufacturing and finance companies in the public and private sector.
- b. **Bank overdraft:** This is special arrangement with the banker where the customer can draw more than what he has in his saving/ current account subject to a maximum limit. interest is charged on a day to day basis on the actual amount overdrawn .
- c. **Trade credit:** This is short term credit facility extended by the creditors to the debtors, normally, it is common for the traders to buy the materials and other supplies from the suppliers on credit basis.

### **Business Economics:**

Business Economics, also called Managerial Economics, is the application of economic theory and methodology to business.

### **Significance of Business Economics:**

1. Business economic is concerned with those aspects of traditional economics which are relevant for business decision making in real life..
2. It also incorporates useful ideas from other disciplines such as psychology, sociology, etc. If they are found relevant to decision making.
3. Business economics helps in reaching a variety of business decisions in a complicated environment. Certain examples are : (i) What products and services should be produced? (ii) What input and production technique should be used? (iii) How much output should be

produced and at what prices it should be sold? (iv) What are the best sizes and locations of new plants? (v) When should equipment be replaced? (vi) How should the available capital be allocated?

4. Business economics makes a manager a more competent model builder. It helps him appreciate the essential relationship Characterising a given situation.

5. At the level of the firm. Where its operations are conducted though known focus functional areas, such as finance, marketing, personnel and production, business economics serves as an integrating agent by coordinating the activities in these different areas.

6. Business economics takes cognizance of the interaction between the firm and society, and accomplishes the key role of an agent in achieving the its social and economic welfare goals.

### **Micro and Macro Economics:**

**Micro-economics** – The term ‘micro’ means small. Therefore, micro-economics deals with the economic actions of individuals and groups of individuals and firms. This can be stated in another way that microeconomics presents the economic microscopic view of the company.

**Macro-economics**– The term ‘macro’ means large. Macro-economics is concerned with the economic behaviour of the whole nation (or economy) in terms of allocation of productive resources, consumption pattern, distribution of income etc.

### **National Income:**

National income of a country means the sum total of incomes earned by the citizens of that country during a given period, say a year .It should be noted that national income is not the sum of all incomes earned by all citizens, but only those incomes which accrue due to participation in the production process.

### **Importance of National Income:**

- Economic Policy
- Economic Planning
- Inflationary and Deflationary Gaps
- Budgetary Policies
- National Expenditure
- Standard of Living Comparision
- Defence and Development
- Public Sector

### **Inflation:**

Inflation refers to General rise in Prices Measured against a Standard Level of Purchasing Power.

### **Money Supply and Inflation:**

The money supply measures the total amount of money in the economy at a particular time. It includes actual notes and coins and also any deposits which can be quickly converted into cash.

Monetarists believe there is a strong link between the money supply and inflation. If the money supply increases faster than real output, then prices will increase causing inflation. This is known as the quantity theory of money ( $MV=PT$ )

However, other economists believe this link between the money supply and inflation is more complicated.

### **Business Cycles:**

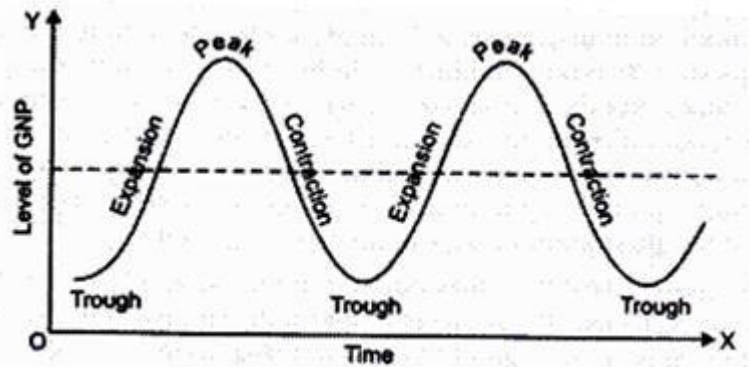
The alternating periods of expansion and contraction in economic activity has been called business cycles. They are also known as trade cycles. J.M. Keynes writes, "A trade cycle is composed of periods of good trade characterized by rising prices and low unemployment percentages with periods of bad trade characterized by falling prices and high unemployment percentages."

### **Features of Business Cycles:**

- Business cycles occur periodically
- Business cycles are synchronic
- Thirdly, it has been observed that fluctuations occur not only in level of production but also simultaneously in other variables such as employment, investment, consumption, rate of interest and price level.
- Another important feature of business cycles is that investment and consumption of durable consumer goods such as cars, houses, refrigerators are affected most by the cyclical fluctuations.
- Another important feature of business cycles is that profits fluctuate more than any other type of income.

### **Phases of Business Cycles:**

- Expansion (Boom, Upswing or Prosperity)
- Peak (upper turning point)
- Contraction (Downswing, Recession or Depression)
- Trough (lower turning point)



**Fig. 13.1. Four Phases of Business Cycles without Growth Trend**

### **Nature of Business Economics:**

Traditional economic theory has developed along two lines; viz., normative and positive. Normative focuses on prescriptive statements, and help establish rules aimed at attaining the specified goals of business. Positive, on the other hand, focuses on description it aims at describing the manner in which the economic system operates without staffing how they should operate. The emphasis in business economics is on normative theory. Business economic seeks to establish rules which help business firms attain their goals, which indeed is also the essence of the word normative. However, if the firms are to establish valid decision rules, they must thoroughly understand their environment. This requires the study of positive or descriptive theory. Thus, Business economics combines the essentials of the normative and positive economic theory, the emphasis being more on the former than the latter.

### **Scope of Business Economics :**

As regards the scope of business economics, no uniformity of views exists among various authors. However, the following aspects are said to generally fall under business economics.

1. Demand Analysis and Forecasting
2. Cost and production Analysis.
3. Pricing Decisions, policies and practices.
4. Profit Management.
5. Capital Management.

### **Role and Responsibilities of Business Economists**

The role of Business Economist becomes increasingly important in view of the different objectives of the firm. He has a significant role to play in assisting the management of the firm in decision-making and forward planning by using specialized skills and techniques. In advanced countries, large companies employ Business Economist or Managerial Economist to assist the management.

- **Business Economists should study the Environment**

It is the primary duty of Business Economists to make extensive study of the business environment and the external factors affecting the firm's interest, viz., general prices, national income and output, volume of trade, etc.

- **Business Economists should make decisions regarding Business Operations**

The Business Economist can help the management in making decisions regarding the internal business operations by studying and analyzing the following:

1. What should be the production schedule and inventory policies for the coming year?
2. What should be the appropriate price and wage policies?
3. How much cash will be available in the coming months and how should it be invested?

### Questions

1. Define Business? State the factors governing choice of form of business organization.
2. Write short notes on Theory of Firm?
3. What do you mean by sole proprietorship? Explain its meant and limitations.
4. Define partnership form of business. Explain its salient features
5. Define a joint stock company & explain its basic features, advantages & disadvantages
6. Write short notes on
  - (a) Commercial Papers
  - (b) Hire Purchase.
7. Define Business Cycle? Explain various Phases of Business Cycle?
8. Discuss the relationship of Money Supply with Inflation?
9. Discuss the nature & Scope of Business economics?
10. Evaluate the Multidisciplinary nature of Business Economics?
11. Explain the role and responsibilities of a Business Economist?

### Objective Questions

1. Which subject studies the behaviour of the firm in theory and practice? ( )
  - (a) Micro Economics
  - (b) Macro Economics
  - (c) Managerial Economics
  - (d) Welfare Economics
2. Business Economics is close to \_\_\_\_\_ Economics ( )
  - (a) National
  - (b) Business
  - (c) Micro
  - (d) Industrial
3. The theory of firm also called as \_\_\_\_\_. ( )
  - (a) Welfare Economics
  - (b) Industrial Economics
  - (c) Micro Economics
  - (d) None
4. "Any activity aimed at earning or spending money is called \_\_\_\_ activity". ( )
  - (a) Service activity
  - (b) Accounting activity
  - (c) Economic activity
  - (d) None
5. "One man one vote" Principle is adopted in \_\_\_\_\_. ( )
  - (a) Partnership firms
  - (b) Company
  - (c) Co-operative enterprises
  - (d) Hindu family business
6. The management of 'Joint Hindu Family' business vests in the eldest member of the family, called \_\_\_\_\_. ( )
  - (a) Director
  - (b) Grand father
  - (c) Kartha
  - (d) Manager
7. Minimum Two and maximum \_\_\_\_\_ members are permitted in Private limited company. ( )
  - (a) Un-limited
  - (b) 20
  - (c) 50
  - (d) 10
8. Minimum \_\_\_\_\_ and maximum \_\_\_\_\_ members are permitted in Public limited company. ( )
  - (a) 50 ; Un-limited
  - (b) 20 ; 50
  - (c) 7 ; Un-limited
  - (d) 7 ; 50
9. Liability of sole proprietor is \_\_\_\_\_. ( )
  - (a) Limited
  - (b) Minimum
  - (c) Un-limited
  - (d) None
10. Liability of Shareholder \_\_\_\_\_. ( )
  - (a) Un-limited
  - (b) Maximum
  - (c) Limited to the share capital
  - (d) None
11. Certificate of commencement of business should be obtained by \_\_\_\_\_ company to start its functions. ( )

(a) Private (b) Statutory (c) Public (d) Chartered

12. Company operates in more than one Country is called as \_\_\_\_\_. ( )

(a) Private company (b) Government company (c) Multinational company (d) Indian company

## Unit – II: Demand and Supply Analysis

### Elasticity of Demand:

Elasticity of demand explains the relationship between a change in price and consequent change in amount demanded. “Marshall” introduced the concept of elasticity of demand. Elasticity of demand shows the extent of change in quantity demanded to a change in price.

In the words of “Marshall”, “The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in the price and diminishes much or little for a given rise in Price”

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

**In-elastic demand:** If a big change in price is followed by a small change in demanded then the demand in “inelastic”.

### Types of Elasticity of Demand:

There are three types of elasticity of demand:

1. Price elasticity of demand
2. Income elasticity of demand
3. Cross elasticity of demand
4. Advertising elasticity of demand

### Price elasticity of demand:

Elasticity of demand in general refers to price elasticity of demand. In other words, it refers to the quantity demanded of a commodity in response to a given change in price. Price elasticity is always negative which indicates that the customer tends to buy more with every fall in the price, the relationship between the price and the demand is inverse.

Proportionate change in the quantity demand of commodity

Price elasticity = .....

Proportionate change in the price of commodity



$$E_{dp} = \frac{Q_2 - Q_1 / Q_1}{P_2 - P_1 / P_1}$$

Where:

Q1 = quantity demand price before change

Q2 = quantity demand price after change

P1 = price before change

P2 = price after change

**Income elasticity of demand:**

Income elasticity of demand refers to the quantity demand of a commodity in response to a given change in income of the consumer.

Proportionate change in the quantity demand of commodity

**Income Elasticity** = .....

Proportionate change in the income of the people

$$E_{dI} = \frac{Q_2 - Q_1 / Q_1}{I_2 - I_1 / I_1}$$

Where:

Q1 = quantity demand price before change

Q2 = quantity demand price after change

I1 = income before change

I2 = income after change

**Cross elasticity of demand:**

Cross elasticity of demand refers to the quantity demanded of a commodity in response to a change in the price of a related good, which may be substitute or complement.

Proportionate change in the quantity demand of commodity “X”

**Cross elasticity** = .....

Proportionate change in the price of commodity “Y”

$$\text{EdP} = \frac{Q2 - Q1 / Q1}{P2 - P1 / P1}$$

Where:

Q1 = quantity demand price before change

Q2 = quantity demand price after change

P1 = price before change

P2 = price after change

**Advertising elasticity of demand:**

It refers to increase in the sales revenue because of change in the advertising expenditure. In other words, there is a direct relationship between the amount of money spent on advertising and its impact on sales. Advertising elasticity is always positive.

$$\text{Advertising elasticity} = \frac{\text{Proportionate change in the quantity demand of product “X”}}{\text{Proportionate change in advertisement costs.}}$$

$$\text{EdP} = \frac{Q2 - Q1 / Q1}{A2 - A1 / A1}$$

Where:

Q1 = quantity demand price before change

Q2 = quantity demand price after change

A1 = advertising before change

A2 = advertising after change

**Demand:**

Demand in common parlance means the desire for an object. But in economics demand is something more than this. According to Stonier and Hague, "Demand in economics means demand backed up by enough money to pay for the goods demanded". This means that the demand becomes effective only if it is backed by the purchasing power in addition to this there must be willingness to buy a commodity.

Every want supported by the willingness and ability to buy constitutes demand for a particular product or services. In other words, if I want a car and I cannot pay for it, there is no demand for the car from my side

A product or services is said to have demand when three conditions are satisfied:

- Desire on the part of the buyer to buy
- Willingness to pay for it
- Ability to pay the specified price for it.

### **Demand Determinants**

#### **1. Price of the product:**

Demand for a product is inversely related to its price. In other words, if price rises, the demand falls and vice versa. This is the price demand function showing the price effect on demand.

#### **2. Income of the consumer:**

As the income of the consumer or the household increases, there is a tendency to buy more and more up to a particular limit. The demand for product x is directly related to the income of the consumer.

#### **3. Prices of substitutes or complementary :**

The demand for product x is determined by the price of its related products: substitutes or complementary. If there is an increase in the price of a substitute, the demand for product x will go up and vice versa. Similarly, if the price of complementary goods (to product x) goes up, the demand for product x will fall.

#### **4. Tastes and preferences:**

If the tastes and preferences of the consumers change, then there is a change in the product demanded also. Most of the companies keep changing their products and services, as and when the customer's tastes and preferences change. In some cases the companies take advantage of technological changes and upgrade their products and services.

### **Demand function**

Demand function is a mathematical expression of the relation between the quantity demanded and its determinants. It can be expressed as follows

$$QD = F( P, I, Psc, T, A)$$

Where

Qd = quantity demand

F = functional relational between input

P = price of the product

I = income of the consumer

Psc= price of substituted or complementary

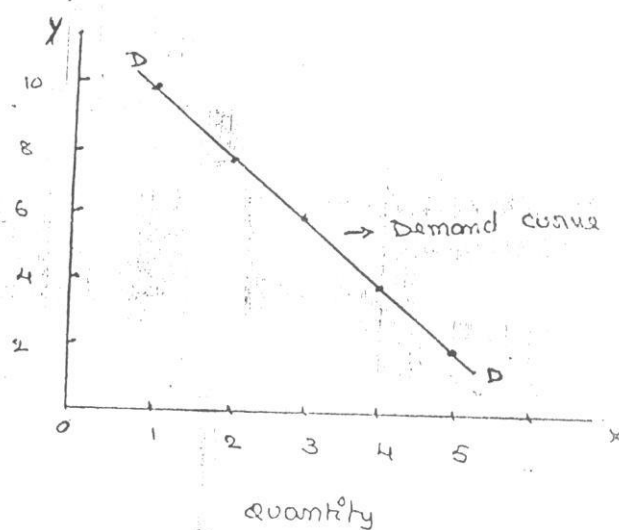
T = taste and preference

A = advertisement

### Law of Demand

Law of demand states the relationship between price and quantity demanded. As per the law when price is increased demand will decrease, and similarly, when price is decrease demand will increase, this law assumed that, other things remaining constant, the change in price will inversely affect demand, thus the relationship between price and demand is inverse, the law of demand may be explained with the help of demand schedule,

Price of Appel (In. Rs.)	Quantity Demanded
10	1
8	2
6	3
4	4
2	5



## Exceptions of the law of demand.

### 1. Where there is a shortage of necessities feared:

If the customer fear then there could be shortage of necessities, then this law does not hold good. They may tend to buy more than what they require immediately, even if the price of the product increases.

### 2. Where the product is such that it confers distinction:

Products such as jewels, diamonds and so on, confer distinction on the part of the user. In such a case, the consumer tends to buy even though there is increase in its price. Such products are called Veblen good.

### 3. Giffen paradox:

People whose incomes are low purchase more of a commodity such as broken rice, bread etc, when its price rises, conversely when its price falls, instead of buying more, they buy less of this commodity and use the savings for the purchase of better goods such as meat, this phenomenon is called giffen paradox and such goods are good inferior or giffen goods.

### 4. In case of ignorance of price changes:

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

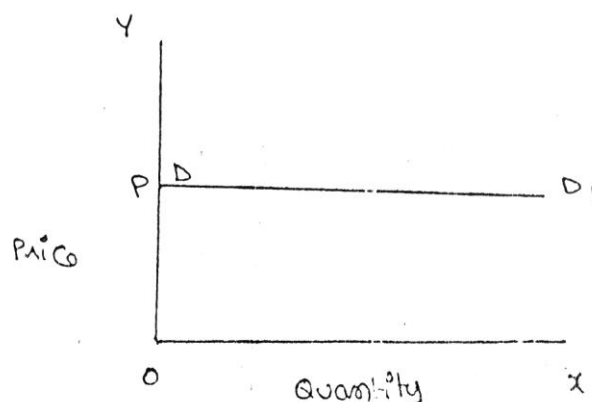
## Measurement and Significance of Elasticity of Demand

1. Perfectly elasticity of demand
2. Perfectly inelasticity of demand
3. Relatively elasticity of demand
4. Relatively inelasticity of demand
5. Unity elasticity of demand

### Perfectly elasticity of demand:

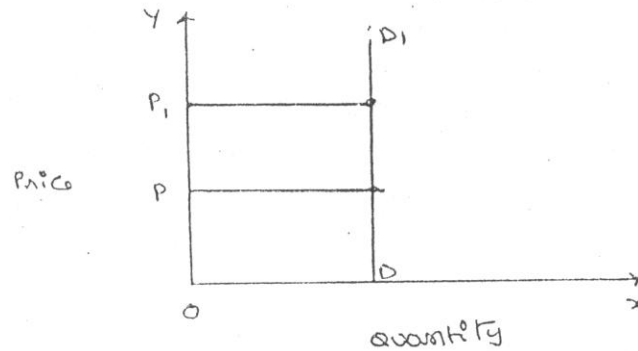
When any quantity can be sold at a given price, and when there is no need to reduce price, the demand is said to be perfectly elastic. In such cases, even a small increase in price will lead to complete fall in demand.

Perfectly inelasticity



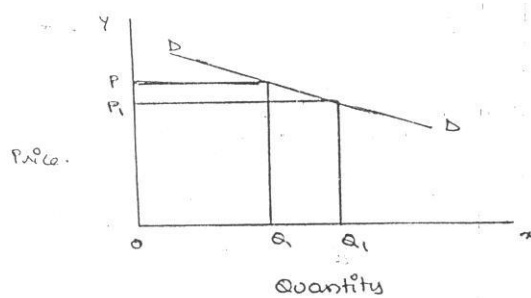
of demand:

When a significant degree of change in price leads little or no change in the quantity demanded, then the elasticity is said to be perfectly inelasticity. In other words, the demand is said to be perfectly inelasticity when there is no change in the quantity demanded even though there is a big change in the price.



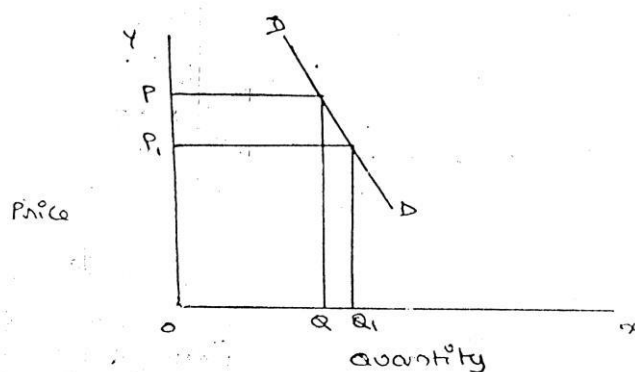
### Relatively elasticity of demand

The demand is said to be relatively elasticity when the change in demand is more then the change in the price.



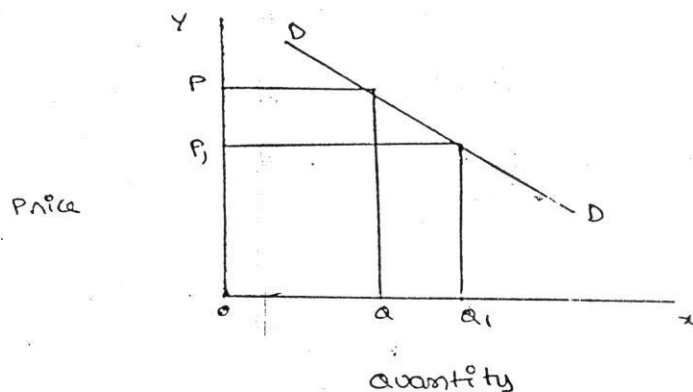
### Relatively inelasticity of demand:

The demand is said to be relatively inelasticity when the change in demand is less than the change in the price.



### Unit elasticity:

The elasticity in demand is said to be unity when the change in demand is equal to the change in price.



### Significance of Elasticity of Demand

- a. **Price of factors of production:** The factors of production are land, labour, capital, organizations and technology. These have a cost; we have to pay rent, wages, interest, profits and price for these factors of production.

- b. **Price fixation:**

The manufacturer can decide the amount of price that can be fixed for his product based on the concept of elasticity, if there is no competition, in other words in the case of a monopoly, the manufacture is free to fix his price as long as it does not attract the attention of the government, when there are close substitutes, the product is such that its consumption can be postponed, it cannot be put to alternative uses and so on, then the price of the product cannot be fixed very highly.

- c. **Government policies**

1. **Tax policies:** government extensively depends on this concept to finalize its policies relating to taxes and revenues. Where the product is such that the people cannot postpone its consumptions, the government tends to increase its price, such as petrol and diesel, cigarettes, and so on.
2. **Raising bank deposits :** if the government wants to mobilize larger deposits from the consumer it propose to raise the rates of fixed deposits marginally and vice versa.
3. **Public utilities:** government uses the concept of elasticity in fixing charges for the public utilities such as elasticity tariff, water charges, ticket fare in case of road or rail transport .

- d. **Forecasting demand:**

Income elasticity is used to forecast demand for a particular product or services. The demand for the products can be forecast at a give income level. The

trader can estimate the quantity of goods to be sold at different income levels to realize the targeted revenue.

e. **Planning the levels of output and price:**

The knowledge of price elasticity is very useful to producers. The producer can evaluate whether a change in price will bring in adequate revenue or not. In general, for items whose demand is elastic, it would benefit him to charge relatively low price. On the other hand, if the demand for the product is inelastic, a little higher price may be helpful to him to get huge profits without losing sales.

### **Demand Forecasting**

Demand forecasting refers to an estimate of future demand for the product. It is an objective assessment of the future course of demand, in recent times, forecasting plays an important role in business decision – making. The survival and prosperity of a business firm depend on its ability to meet the consumer’s needs efficiently and adequately. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time.

It is also essential to distinguish between forecasting of demand and forecast of sales, sales forecasts are important for estimating revenue, cash requirements and expenses whereas, demand forecasting relate to production, inventory control, timing, reliability of forecast etc. however, there is not much difference between these terms.

#### **Methods of Demand Forecasting**

1. Survey methods
2. Statistical methods
3. Expert opinion methods
4. Test marketing
5. Controlled experiments
6. Judgmental approach

#### **Statistical Methods**

Statistical method is used for long run forecasting. In this method, statistical and mathematical techniques are used to forecast demand. This relies on past data.

1. **Trend projection method:** these are generally based on analysis of past sales patterns.

These methods dispense with the need for costly market research because the necessary information is often already available in company files. This method is used in case the sales data of the firm under consideration relate to different time periods, i.e., it is a time – series data. There are five main techniques of mechanical extrapolation.

- a. **Trend line by observation:** this method of forecasting trend is elementary, easy and quick. It involves merely the plotting of actual sales data on a chart and then estimating just by observation where the trend line lies. The line can be extended towards a future period and corresponding sales forecast is read from the graph.



- b. **Least squares methods:** this technique uses statistical formulae to find the trend line which best fits the available data. The trend line is the estimating equation, which can be used for forecasting demand by extrapolating the line for future and reading the corresponding values of sales on the graph.
- c. **Time series analysis:** where the surveys or market tests are costly and time – consuming, statistical and mathematical analysis of past sales data offers another methods to prepare the forecasts, that is, time series analysis.
- d. **Moving average method:** this method considers that the average of past events determine the future events. In other words, this method provides consistent results when the past events are consistent and unaffected by wide changes.
- e. **Exponential smoothing:** this is a more popular technique used for short run forecasts. This method is an improvement over moving averages method, unlike in moving averages method, all time periods here are given varying weight, that is , value of the given variable in the recent times are given higher weight and the values of the given variable in the distant past are given relatively lower weights for further processing.
- f. **Barometric Technique:** Simple trend projections are not capable of forecasting turning points. Under Barometric method, present events are used to predict the directions of change in future.
- g. **Simultaneous equation method:** in this method, all variable are simultaneously considered, with the conviction that every variable influence the other variables in an economic environment.
- h. **Correlation and regression methods:** correlation and regression methods are statistical techniques. Correlation describes the degree of association between two variable such as sales and advertisement expenditure. When the two variable tend to change together, then they are said to be correlated.

#### **Expert opinion methods:**

Well informed persons are called experts; experts constitute yet another source of information. These persons are generally the outside experts and they do not have any vested interest in the results of a particular survey. As expert is good at forecasting and analysis the future trend in a give product or service at a given level of technology. The service of an expert could be advantageously used when a firm uses general economic forecasting or special industry fore casting prepared outside the firm.

#### **Test marketing:**

It is likely that opinions given by buyers, salesman or other experts may be, at times, misleading. This is the reason why most of the manufactures favour to test their product or service in a limited market as test – run before they launch their product nationwide.

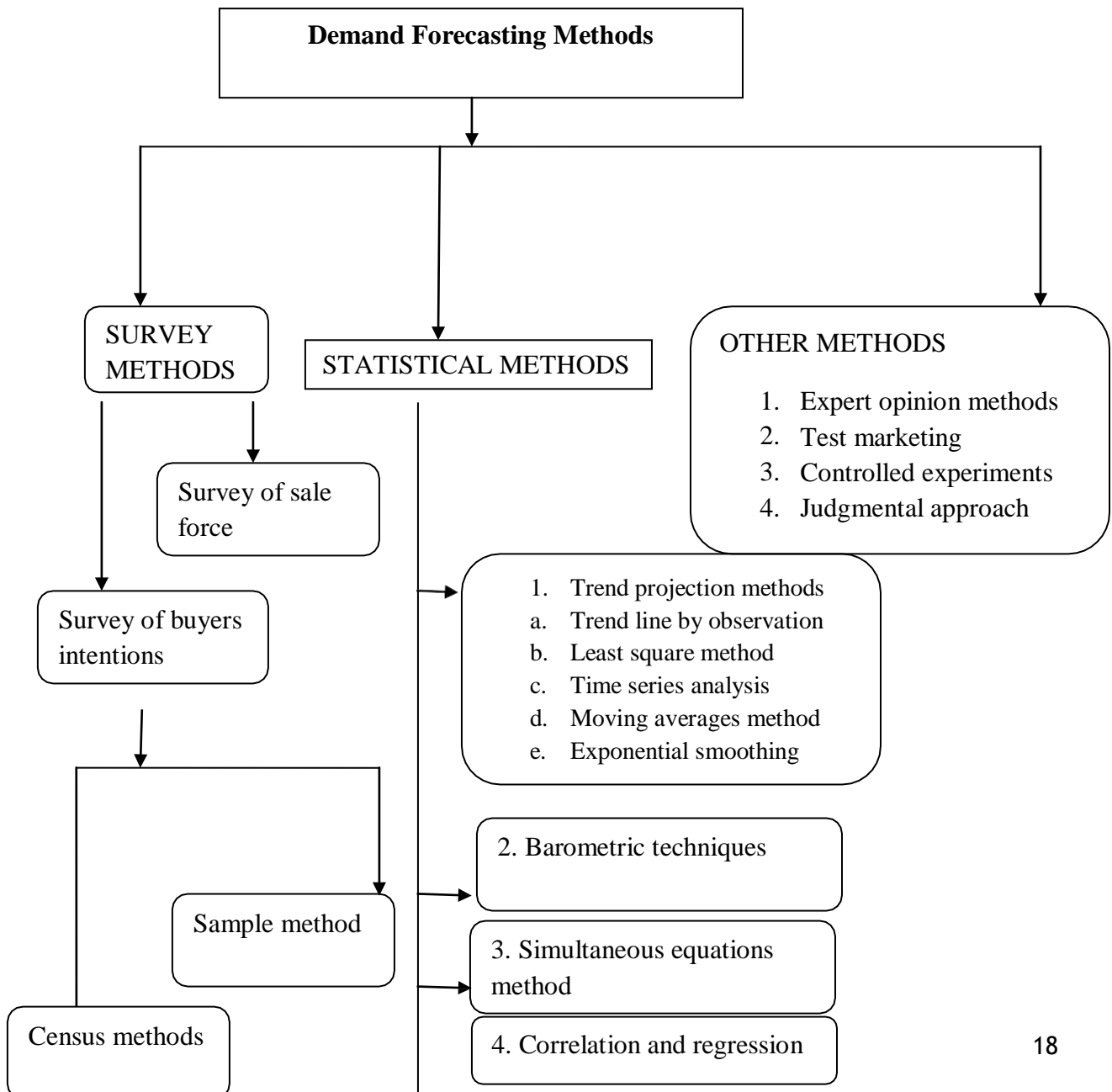
**Controlled experiments:** Controlled experiment refer to such exercise where some of the major determinants of demand are manipulated to suit to the customers with different tastes

and preferences, income groups, and such others, it is further assumed that all other factors remain the same.

**Judgmental approach:**

When none of the above methods are directly related to the given product or service, the management has no alternative other than using its own judgment. Even when the above methods are used, the forecasting process is supplemented with the factor of judgment for the following reasons

- Historical data for significantly long period is not available
- Turning point in terms of policies or procedures or causal factors cannot be precisely determined
- Sale fluctuation are wide and significant
- The sophisticated statistical techniques such as regression and so on, may not cover all the signing.



## Factors Governing Demand Forecasting

- a) **Functional nature of demand:** market demand for a particular product or service is not a single number but it is a function of a number of factors, for instance, higher volumes of sales can be realized with higher levels of advertising or promotion efforts.
- b) **Types of forecasting:** based on the period under forecast, the demand forecast can be of two types 1) short – run forecasting and 2) long – run forecasting. Short run forecasts cover a period of one year whereas long- run forecasting any period ranging from one year to 20 years.
- c) **Forecasting level:** The forecasting can be made at the firm level, industry level, national level or at the global level.
  1. **Firm level:** firm level means estimating the demand for the products and services offered by a single firm
  2. **Industry level:** the aggregate demand estimated for the good and service of all the firms constitutes the industry level forecast. The total estimate of different trade associations can also be view as industry level forecast.
  3. **National level :** national level forecasting is for the whole economy, national level forecasts are worked out based on the levels of income, savings of the consumers.
  4. **Global level:** globalization and deregulation , the entrepreneurs have started exploring the foreign markets for which the global level forecasts are utilized.
- d) **Degree of orientation:** demand forecasts can be worked out based on total sales or product or service wise sales for a given time period. Forecasting in terms of total sales can be viewed as general forecast whereas product or service – wise or region or customer segment – wise forecast is referred is referred to as specific forecast.
- e) **New product:** it is relatively easy to forecast demand for established products or products which are currently in use. The new product in consideration can be analyzed as a substitute for some existing product. Assess the demand through a sampled or total survey of consumers intentions over the new product features and price.
- f) **Nature of good:** The goods are classified into producer goods, consumer goods, consumer durables and services. The patterns of forecasting in each of these differ.
- g) **Degree of competition:** there may be a single trader or a few traders depending upon the nature of goods and services

## Supply Analysis

### Law of Supply:

The law of supply shows a direct relationship between price and supply of a commodity. The law states that as the price of commodity increases, the quantity of the commodity supplied per unit of time increases and vice-versa, assuming all other factors influencing supply

remain unchanged. In this statement, change in price is the cause and change in supply is the effect. Thus, price rise leads to supply rise and not otherwise.

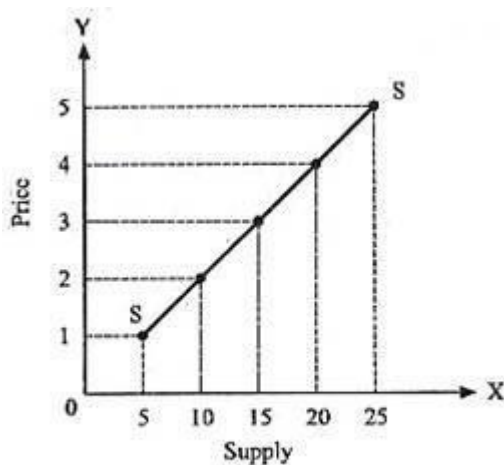
The relationship between price and supply can be shown by drawing the supply curve. The supply curve for a product depicts the direct relation between the price of that commodity and the quantity, producers wish to supply at that price.

This curve can be drawn by preparing supply schedule, which is a tabular statement that gives different prices of a commodity and the quantities which a producer is willing to supply per unit of time, at each price, assuming other factors affecting the supply to be constant. A hypothetical supply schedule is given in the following table.

**Table 3.1 : Supply Schedule**

Price (Rs.)	Quantity (Units)
1	5
2	10
3	15
4	20
5	25

Supply curve based on this imaginary data is shown below (Fig. 3.1)



**Fig. 3.1: Supply Curve**

This curve is drawn on the assumption that all other factors (other than the price of the commodity) that affect the supply remain same. Supply curve conveys the same information as a supply schedule.

### **Determinants of Supply**

Supply can be influenced by a number of factors that are termed as determinants of supply. Generally, the supply of a product depends on its price and cost of production. In simple terms, supply is the function of price and cost of production.

**Some of the factors that influence the supply of a product are described as follows:**

**i. Price:**

Price is the main factor that influences the supply of a product to a greater extent. Unlike demand, there is a direct relationship between the price of a product and its supply. If the price of a product increases, then the supply of the product also increases and vice versa. Change in supply with respect to the change in price is termed as the variation in supply of a product.

**ii. Cost of Production:**

Implies that the supply of a product would decrease with increase in the cost of production and vice versa. The supply of a product and cost of production are inversely related to each other.

**iii. Natural Conditions:**

Implies that climatic conditions directly affect the supply of certain products. For example, the supply of agricultural products increases when monsoon comes on time. However, the supply of these products decreases at the time of drought.

**iv. Technology:**

Refers to one of the important determinant of supply. A better and advanced technology increases the production of a product, which results in the increase in the supply of the product.

**v. Transport Conditions:**

Refer to the fact that better transport facilities increase the supply of products. Transport is always a constraint to the supply of products, as the products are not available on time due to poor transport facilities.

**vi. Factor Prices and their Availability:**

The inputs, such as raw material man, equipment, and machines, required at the time of production are termed as factors. If the factors are available in sufficient quantity and at lower price, then there would be increase in production. This would increase the supply of a product in the market.

**vii. Government's Policies:**

Policies of government, such as fiscal policy and industrial policy, has a greater impact on the supply of a product

**viii. Prices of Related Goods:**

The prices of substitutes and complementary goods also affect the supply of a product. For example, if the price of wheat increases, then farmers would tend to grow more wheat than rice. This would decrease the supply of rice in the market.

### **Supply Function:**

Supply function is the mathematical expression of law of supply. In other words, supply function quantifies the relationship between quantity supplied and price of a product, while keeping the other factors at constant. The law of supply expresses the nature of relationship between quantity supplied and price of a product, while the supply function measures that relationship.

### **The supply function can be expressed as:**

$$S_x = f(P_x)$$

#### **Where:**

$S_x$  = Quantity supplied for product X

$P_x$  = Price of product X

$f$  = Constant representing change produced in  $S_x$  with one unit change in  $P_x$

### **Questions**

1. Explain in law of demand with the help of an Illustration?
2. What is meant by elasticity of demand? How do you measure it? What are determinates of elasticity of demand?
3. Describe briefly various types of Elasticity of Demand with the help of Graphs?
4. What is cross elasticity of demand? Is it positive for substitute or complements? Show in a diagram relating to the demand for coffee to the price of tea?
5. What is Demand Forecasting. Explain various Demand Forecasting Techniques?
6. Discuss Briefly various factors determining Demand Forecasting?
7. Define Supply and explain Law of Supply?

### **Objective Questions**

1. Who explained the "Law of Demand"? ( )

- (a) Joel Dean (b) Cobb-Douglas (c) Marshall (d) C.I.Savage & T.R.Small
2. Demand Curve always\_\_\_\_\_sloping. ( )
- (a) Positive (b) Straight line (c) Negative (d) Vertical
3. Giffen goods, Veblen goods and speculations are exceptions to\_\_\_\_. ( )
- (a) Cost function (b) Production function (c) Law of Demand (d) Finance function
4. Who explained the “Law of Demand”? ( )
- (a) Cobb-Douglas (b) Adam Smith (c) Marshall (d) Joel Dean
5. When  $PE = \infty$  (Price Elasticity of Demand is infinite), we call it\_\_\_\_. ( )
- (a) Relatively Elastic (b) Perfectly Inelastic (c) Perfectly Elastic (d) Unit Elastic
6. Income Elasticity of demand when less than ‘0’ ( $IE = < 0$ ), it is termed as\_\_\_\_\_. ( )
- (a) Income Elasticity less than unity (b) Zero income Elasticity (c) Negative Income Elasticity (d) Unit Income Elasticity
7. The other name of inferior goods is\_\_\_\_\_. ( )
- (a) Veblen goods (b) Necessaries (c) Giffen goods (d) Diamonds
8. Estimation of future possible demand is called\_\_\_\_\_. ( )
- (a) Sales Forecasting (b) Production Forecasting (c) Income Forecasting (d) Demand Forecasting
9. When a small change in price leads great change in the quantity demanded, We call it \_\_\_\_\_ . ( )
- (a) Inelastic Demand (b) Negative Demand (c) Elastic Demand (d) None
10. When a great change in price leads small change in the quantity demanded, We call it \_\_\_\_\_ . ( )
- (a) Elastic Demand (b) Positive Demand (c) Inelastic Demand (d) None
11. “Coffee and Tea are the\_\_\_\_\_goods”. ( )
- (a) Relative (b) Complementary (c) Substitute (d) None
12. When  $PE = 0$  (Price Elasticity of Demand is Zero), we call it\_\_\_\_. ( )
- (a) Relatively Elastic demand (b) Perfectly Elastic demand (c) Perfectly Inelastic demand (d) Unit Elastic demand

## UNIT- III Production, Cost, Market Structures & Pricing

### Production Function:

Samuelson define the production function as “the technical relationship which reveals the maximum amount of output capable of being produced by each and every set of inputs”

Michael define production function as “ that function which defines the maximum amount of output that can be produced with a given set of inputs”.

The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs. Mathematically production function can be written as

$$Q = F(L1,L2,C,O,T)$$

Where Q is the quantity of production, F explains the functions, that is, the type of relation between inputs and outputs , L1,L2,C,.O,T refer to land, labour, capital, organization and technology respectively. These inputs have been taken in conventional terms. In reality, material also can be included in a set of inputs.

A manufacturer has to make a choice of the production function by considering his technical knowledge, the process of various factors of production and his efficiency level to manage. He should not only select the factors of production but also should work out the different permutations and combinations which will mean lower cost of inputs for a given level of production.

With change in industry and the requirements the production function also needs to be modified to suit to the situation.

### Production Function with One Variable Input

The laws of returns states that when at least one factor of production is fixed or factor input is fixed and when all other factors are varied, the total output in the initial stages will increase at an increasing rate, and after reaching certain level or output the total output will increase at declining rate. If variable factor inputs are added further to the fixed factor input, the total output may decline. This law is of universal nature and it proved to be true in agriculture and industry also. The law of returns is also called the law of variable proportions or the law of diminishing returns.

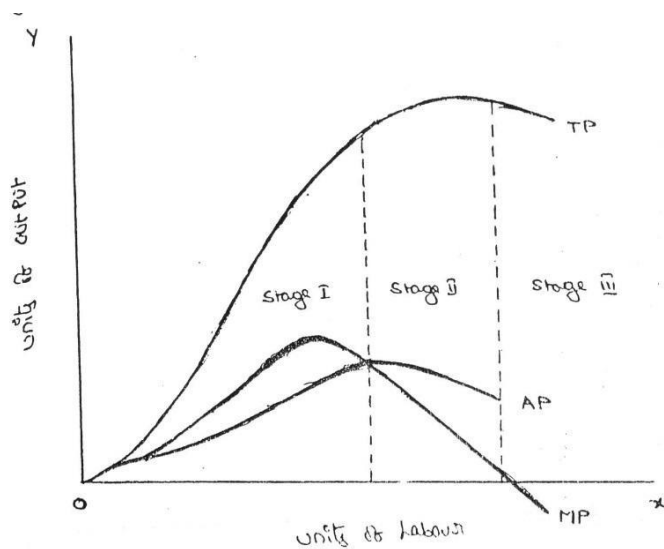
Definition According to **F. Benham**

“As the proportion of one factor in a combination of factors is increased, after a point, first the marginal and then the average product of that factor will diminish”.

Units	of	Total	Marginal	Average	Stages
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labour	production(tp)	product (mp)	product (ap)	
0	0	0	0	Stages 1
1	10	10	10	
2	22	12	11	
3	33	11	11	Stages 2
4	40	7	10	
5	45	5	9	
6	48	3	8	Stages 3
7	48	0	6.85	
8	45	-3	5.62	



From the above graph the law of variable proportions operates in three stages. In the first stage, total product increases at an increasing rate. The marginal product in this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage. The law of diminishing returns starts operating from the second stage onwards. At the second stage total product increases only at a diminishing rate. The average product also declines. The second stage comes to an end where total product becomes maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline.

### Production Function with Two Variable Inputs

Production process that requires two inputs, capital (C) and labour (L) to produce a given output (Q). There could be more than two inputs in a real life situation, but for a simple analysis, we restrict the number of inputs to two only. In other words, the production function based on two inputs can be expressed as

$$Q = f(C, L)$$

Where C= capital , L = labour,

Normally, both capital and labour are required to produce a product. To some extent, these two inputs can be substituted for each other. Hence the producer may choose any combination of labour and capital that gives him the required number of units of output, for any one combination of labour and capital out of several such combinations. The alternative combinations of labour and capital yielding a given level of output are such that if the use of one factor input is increased , that of another will decrease and vice versa. However, the units of an input foregone to get one unit of the other input changes, depends upon the degree of substitutability between the two input factors, based on the techniques or technology used, the degree of substitutability may vary.

### Iso - Quants

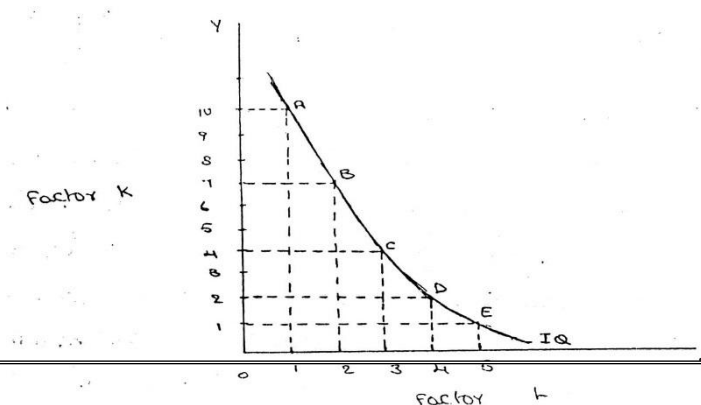
The term Isoquants is derived from the words ‘iso’ and ‘quant’ – ‘Iso’ means equal and ‘quant’ implies quantity. Isoquant therefore, means equal quantity. Isoquant are also called isopridcut curves, an isoquant curve show various combinations of two input factors such as capital and labour, which yield the same level of output.

As an isoquant curve represents all such combinations which yield equal quantity of output, any or every combination is a good combination for the manufacturer. Since he prefers all these combinations equally , an isoquant curve is also called product indifferent curve.

An isoquant may be explained with the help of an arithmetical example

Combinations	Labour (units)	Capital (Units)	Output (quintals)
A	1	10	50
B	2	7	50
C	3	4	50
D	4	4	50
E	5	1	50

Combination ‘A’ represent 1 unit of labour and 10 units of capital and produces ‘50’ quintals of a product all other combinations in the table are assumed to yield the same given output of a product say ‘50’ quintals by employing any one of the alternative combinations of the two factors labour and capital. If we plot all these combinations on a paper and join them, we will get a smooth curve called Iso-product curve as shown below.



Labour is on the X-axis and capital is on the Y-axis. IQ is the ISO-Product curve which shows all the alternative combinations A, B, C, D, E which can produce 50 quintals of a product

### **Features of Isoquant**

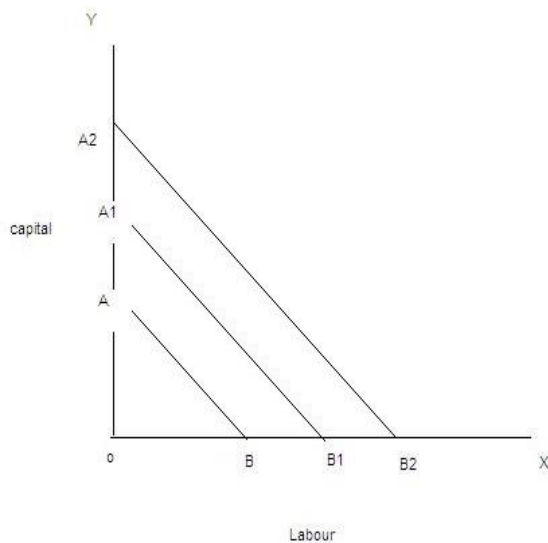
1. Downward sloping: isoquant are downward sloping curves because , if one input increase, the other one reduces. There is no question of increase in both the inputs to yield a given output. A degree of substitution is assumed between the factors of production
2. Convex to origin: isoquant are convex to the origin. It is because the input factors are not perfect substitutes. One input factor can be substituted by other input factor in a diminishing marginal rate. If the input factors were perfect substitutes , the isoquant would be a falling straight line.
3. Do not intersect: two isoquant do not intersect with each other. It is because, each of these denote a particular level of output. If the manufacturer wants to operate at a higher level of output, he has to switch over to another isoquant with a higher level of output and vice versa.
4. Do not axes: the isoquant touches neither X-axis nor Y- axis, as both inputs are required to produce a given product.

### **Iso Cost**

Iso cost refers to that cost curve that represent the combination of inputs that will cost the producer the same amount of money. In other words, each isocost denotes a particular level of total cost for a given level of production. If the level of production changes, the total cost changes and thus the isocost curve moves upwards, and vice versa.

Iso cost line shows various combinations of labour and capital that the firm can buy for a given factor prices. The slope of iso cost line =  $PL/Pk$ . In this equation , PL is the price of labour and Pk is the price of capital. The slope of iso cost line indicates the ratio of the factor prices. A set of isocost lines can be drawn for different levels of factor prices, or different sums of money. The iso cost line will shift to the right when money spent on factors increases or firm could buy more as the factor prices are given.

With the change in the factor prices the slope of Isocost line will change. If the price of labour falls the firm could buy more of labour and the line will shift away from the origin. The slope depends on the prices of factors of production and the amount of money which the firm spends on the factors.



### Marginal Rate Of Technical Substitution

The marginal rate of technical substitution (MRTS) refers to the rate at which one input factor is substituted with the other to attain a given level of output. In other words, the lesser units of one input must be compensated by increasing amounts of another input to produce the same level of output.

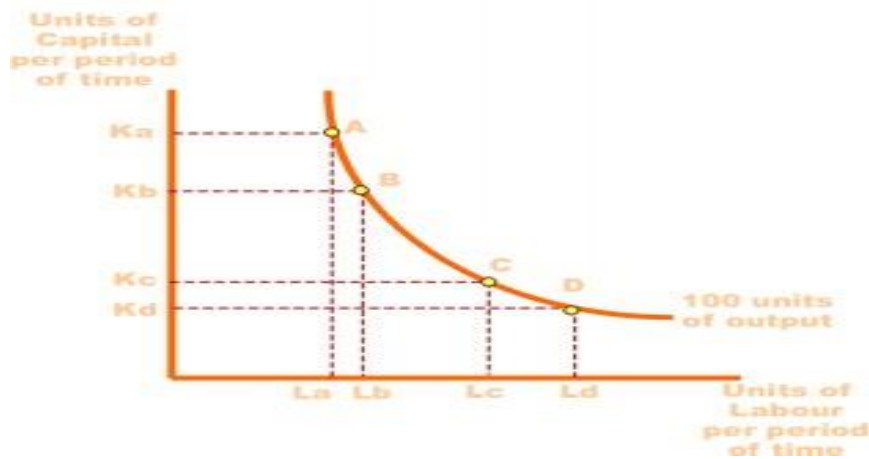
Isoquants are typically convex to the origin reflecting the fact that the two factors are substitutable for each other at varying rates. This rate of substitutability is called the “marginal rate of technical substitution” (MRTS) or occasionally the “marginal rate of substitution in production”. It measures the reduction in one input per unit increase in the other input that is just sufficient to maintain a constant level of production. For example, the marginal rate of substitution of labour for capital gives the amount of capital that can be replaced by one unit of labour while keeping output unchanged.

To move from point A to point B in the diagram, the amount of capital is reduced from  $K_a$  to  $K_b$  while the amount of labour is increased only from  $L_a$  to  $L_b$ . To move from point C to point D, the amount of capital is reduced from  $K_c$  to  $K_d$  while the amount of labour is increased from  $L_c$  to  $L_d$ . The marginal rate of technical substitution of labour for capital is equivalent to the absolute slope of the isoquant at that point (change in capital divided by change in labour). It is equal to 0 where the isoquant becomes horizontal, and equal to infinity where it becomes vertical.

The opposite is true when going in the other direction (from D to C to B to A). In this case we are looking at the marginal rate of technical substitution capital for labour (which is the reciprocal of the marginal rate of technical substitution labour for capital).

It can also be shown that the marginal rate of substitution labour for capital, is equal to the marginal physical product of labour divided by the marginal physical product of capital.

In the unusual case of two inputs that are perfect substitutes for each other in production, the isoquant would be linear (linear in the sense of a function  $y = a - bx$ ). If, on the other hand, there is only one production process available, factor proportions would be fixed, and these zero-substitutability isoquants would be shown as horizontal or vertical lines.



### Law of Returns to Scale

There are three laws of returns governing production function. They are

1. Law of increasing returns to scale  
This law states that the volume of output keeps on increasing with every increase in the inputs,. Where a given increase in inputs leads to a more than proportionate increase in the output, the law of increasing returns to scale is said to operate.
2. Law of constant returns to scale  
When the scope for division of labour gets restricted, the rate of increase in the total output remains constant, the law of constant returns to scale is said to operate, this law states that the rate of increase/decrease in volume of output is same to that of rate of increase/decrease in inputs.
3. Law of decreasing returns to scale  
Where the proportionate increase in the inputs does not lead to equivalent increase in output, the output increases at a decreasing rate, the law of decreasing returns to scale is said to operate. This results in higher average cost per unit.

These laws can be illustrated with an example of agricultural land. Take one acre of land. If you till the land well with adequate bags of fertilizers and sow good quality seeds, the volume of output increases the following table illustrates further

Capital (in units)	Labor( in units)	% of increase in both inputs	Output(in units)	% of increase in output	Law applicable

1	3	---	---	---	---
2	6	100	120	140	Law of increase returns to scale
4	12	100	240	100	Law of constant returns to scale
8	24	100	360	50	Law of decrease returns to scale

### Internal and External Economies of Scale

Internal Economies refer to the economies introduction costs which accrue to the firm alone when it expands its output. The internal economies occur as a result of increase in the scale of production.

- a. **Managerial Economics:** As the firm expands, the firm needs qualified managerial personnel to handle each of its functions marketing, finance, production, human resources and others in a professional way. Functional specialization ensures minimum wastage and lowers the cost of production in the long –run.
- b. **Commercial Economics:** The transaction of buying and selling raw material and other operating supplies such as spares and so on will be rapid and the volume of each transaction also grows as the firm grows, there could be cheaper savings in the procurement, transportation and storage cost, this will lead to lower costs and increased profits.
- c. **Financial Economics:** The large firm is able to secure the necessary finances either for block capital purposes or for working capital needs more easily and cheaply. It can barrow from the public, banks and other financial institutions at relatively cheaper rates. It is in this way that a large firm reaps financial economies.
- d. **Technical Economics:** Technical economies arise to a firm from the use of better machines and superior techniques of production. As a result, production increases and per unit cost of production falls. A large firm, which employs costly and superior plant and equipment, enjoys a technical superiority over a small firm.
- e. **Marketing Economics:** The large firm reaps marketing or commercial economies in buying its requirements and in selling its final products. In the matter of buying they could enjoy advantages like preferential treatment, transport concessions, cheap credit, prompt delivery and fine relation with dealers.
- f. **Risk Bearing Economics:** The large firm produces many commodities and serves wider areas. It is, therefore, able to absorb any shock for its existence
- g. **Economics of Larger Dimension:** large – scale production is required to take advantage of bigger size plant and equipment.
- h. **Economics of Research and Development:** Only such firms with a strong research and development base can cope with competition globally.

### External Economics:

External economics refer to all the firms in the industry, because of growth of the industry as a whole or because of growth of ancillary industries, external economics benefit al the firms

in the industry as the industry expands. This will lead to lowering the cost of production and thereby increasing the profitability. The external economics can be grouped under three types:

A). **Economies of Concentration:** When an industry is concentrated in a particular area, all the member firms reap some common economies like skilled labour, improved means of transport and communications, banking and financial services, supply of power and benefits from subsidiaries. All these facilities tend to lower the unit cost of production of all the firms in the industry.

B) **Economics of Research And Development:** all the firms can pool resources to finance research and development activities and thus share the benefits of research. There could be a common facility to share journals, newspapers and other valuable reference material of common interest.

C) **Economics of Welfare:** there could be common facilities such as canteen, industrial housing, community halls, schools and colleges, employment bureau, hospitals and so on, which can be used in common by the employees in the whole industry.