MANAGERIAL ECONOMICS (MBAH013)

UNIT 1 INTRODUCTION

Introduction to Managerial Economics: Definition, Nature, Scope, Importance and General Foundation of Managerial Economics. Circular flow of activities. Nature of firm; Objectives of firm; Theory of firm Forms of Organizations-Sole Proprietorship; Partnership; Joint Stock Company; Cooperatives; Public Enterprises.

Relevance of demand analysis in Business Decision-making: Law of Demand; Elasticity of Demand; Determinants of Demand; Individual, firm and Market demand; Demand Curve and its nature; Demand Forecasting Techniques.

INTRODUCTION

People have limited number of **needs** which must be satisfied if they are to survive as human beings. Some are material needs, some are psychological needs and some others are emotional needs. People's needs are limited; however, no one would choose to live at the level of basic human needs if they want to enjoy a better standard of living.

This is because human **wants** (desire for the consumption of goods and services) are unlimited. It doesn't matter whether a person belongs to the middle class in India or is the richest individual in the World, he or she wants always something more. For example bigger a house, more friends, more salary etc., Therefore the basic economic problem is that the resources are limited but wants are unlimited which forces us to make choices.

Economics is the study of this allocation of resources, the choices that are made by economic agents. An **economy** is a system which attempts to solve this basic economic problem. There are different types of economies; household economy, local economy, national economy and international economy but all economies face the same problem.

The major economic problems are

(i) What to produce?
(ii) How to produce?
(iii) When to produce and
(iv) For whom to produce?

Economics is the study of how individuals and societies choose to use the scarce resources that nature and the previous generation have provided. The world's resources are limited and scarce. The resources which are not scarce are called free goods. Resources which are scarce are called economic goods.

Every management thinks and takes or makes decision in the given environment. Almost all such decisions, in one way or the other, relate to economic (decision) variables like demand, price, supply, stock, input, output, finance, profit and the like.

Managerial economics as a separate discipline owes its origin to the growing disenchantment with economic theory in providing solutions to the problems faced by business.

Managerial economics does not provide readymade solutions to business problems rather it provides a tool-box of analysis and a technique of thinking which can be helpful in conceptualizing the problems faced by management of a business firm.

Thus Management Economics is supposed to enrich the conceptual and technical skill of a manager facing business decision problems. All managerial decisions involve some degree of choice and they are,

therefore essentially economic in nature.

Economic analysis

The concern of Economics is with the economic problem and its identification, description, explanation and solution if possible. An economic problem is a problem of choice and valuation. The problem of choice arises because limited means (resources) with alternative uses are to be utilized to satisfy ends (wants) which are unlimited and of varying degree of importance.

Scarcity is at the root of all economic problems of choice. Because of scarcity of resources, we have to constantly match ends to means; this is called 'economic activity'. The optimal economic activity is to maximize the attainment of ends, given the means and their scarcities or to minimize the use of resources, given the ends and their priorities.

Decision-making by management is truly economic in nature because it involves choice among a set of alternatives – alternative courses of action. The optimal decision-making is an act of optimal economic choice, considering objectives and constraints. This justifies an evaluation of managerial decisions through concepts, precepts, tools and techniques of economic analysis.

MANAGERIAL ECONOMICS:

Managerial Economics concentrates on the decision process, decision model and decision variables at the firm level. The firm is viewed as a microeconomic unit located within the industry which exists in the context of a given socio-economic environment of business.

Managerial Economics is concerned with the economic behavior of the firm. It assumes that the firm maximizes profit. Profit is defined as the difference between revenue and costs. The flow of revenue is determined by the demand conditions in the market, whereas the costs are influenced by the supply conditions.

Demand and supply interact with each other to determine prices-commodity prices in the product market and input decisions in the factor market. The firm decides its economic strategy (in view of its objectives and constraints) and tactics. The tactical decisions are reflected in the course of economic decision variables affects the firm's level of profit.

The firm can evaluate its performance in terms of the rate of return on investment – intended and achieved. The firm will be in a position to estimate the element of risk and uncertainty it is subject to. In its decision-making process, the firm's strategy is to minimize such risks and uncertainties through forecasting and forward planning.

Why Study Economics?

A good grasp of economics is vital for managerial decision making, for designing and understanding public policy, and to appreciate how an economy functions. The students need to know how economics can help us to understand what goes on in the world and how it can be used as a practical tool for decision making.

Managers and CEO's of large corporate bodies, managers of small companies, nonprofit organizations, service centers etc., cannot succeed in business without a clear understanding of how market forces create both opportunities and constraints for business enterprises.

Reasons for Studying Economics:

- It is a study of **society** and as such is extremely important.

- It trains the mind and enables one to **think systematically** about the problems of business and wealth.
- From a study of the subject it is possible to **predict** economic **trends** with some precision.
- It helps one to **choose** from various economic **alternatives**.

Economics is the science of making decisions in the presence of scarce resources. Resources are simply anything used to produce a good or service to achieve a goal. Economic decisions involve the allocation of scarce resources so as to best meet the managerial goal. The nature of managerial decision varies depending on the goals of the manager.

A **Manager** is a person who directs resources to achieve a stated goal and he/she has the responsibility for his/her own actions as well as for the actions of individuals, machines and other inputs under the manager's control.

Managerial economics is the study of how scarce resources are directed most efficiently to achieve managerial goals. It is a valuable tool for analyzing business situations to take better decisions.

DEFINITIONS OF MANAGERIAL ECONOMICS:

- Prof. Evan J Douglas defines Managerial Economics as "Managerial Economics is concerned with the application of economic principles and methodologies to the decision making process within the firm or organization under the conditions of uncertainty."

- According to Milton H Spencer and Louis Siegelman "Managerial Economics is the integration of economic theory with business practices for the purpose of facilitating decision making and forward planning by management"

- According to Mc Nair and Miriam, 'Managerial Economics consists of the use of economic modes of thoughts to analyze business situations'.

Broad Categories of economics:

Economics can be divided into two broad categories:

- Macro economics and
- Micro economics

Macro economics is the study of the economic system as a whole. It is related to issues such as determination of national income, savings, investment, employment at aggregate levels, tax collection, government expenditure, foreign trade, money supply etc.,

Micro economics focuses on the behavior of the individuals, firms and their interaction in markets. Managerial economics is an application of the principles of micro and macro economics in managerial decision making.

The economic way of thinking about business decision making provides all managers with a powerful set of tools and insights for furthering the goals of their organization. Successful managers take good decisions, and one of their most useful tools is the methodology of managerial economics.

Nature of Managerial Economics:

1. Managerial economics is concerned with the analysis of finding optimal solutions to decision making problems of businesses/ firms (***micro economic in nature***).
2. Managerial economics is a practical subject therefore it is ***pragmatic***.
3. Managerial economics describes, what is the observed economic phenomenon (positive economics) and prescribes what ought to be (***normative economics***)
4. Managerial economics is based on strong economic concepts. (***conceptual in nature***)

5. Managerial economics analyses the problems of the firms in the perspective of the economy as a whole (***macro in nature***)
6. It helps to find optimal solution to the business problems (***problem solving***)

Five basic issues faced by a manager in any firm:

1. **Choice of product:** the products a firm has to produce – a manager has to allocate the available resources so as to maximize the profit of the firm.
2. **Choice of inputs:** after determining the profit maximizing level of output, the manager has to identify the input-mix which would produce the profit maximizing level of output at a minimum cost.
3. **Distribution of the firm's revenue:** the revenue received by the firm through sales has to be distributed in a just and fair manner by the manager to the workers, owner of the factory building, bankers and all those who have contributed. The materials and services in the process of production, storage and transportation, have to be paid remunerations according to the terms and conditions already agreed upon. The residual after such payments constitutes the firm's profit which has to be distributed among the owners of the firm after tax payment.
4. **Rationing:** this constitutes an important function of a manager. He/she should utilize the scarce resources optimally, which involves expenditure. As the manager has to often look after several plants simultaneously, he/she must prioritize not only the allocation of resources but also the time.
5. **Maintenance and expansion:** in addition, the manager has to plan strategies to ensure that the level of output is maintained, the efficiency of the firm is retained over time, and also to plan the future expansion of the firm. Expansion of the firm involves making adequate provisions for mobilizing additional capital from the market and/or borrowing money from banks. A dynamic manager always aspires to expand the firm's scale of operation so as to increase the profits.

Managerial Economics and Other Disciplines

Managerial economics has its relationship with other disciplines for propounding its theories and concepts for managerial decision making. Essentially it is a branch of economics.

Managerial economics is closely related to certain subjects like statistics, mathematics, accounting and operations research.

Managerial economics helps in estimating the product demand, planning of production schedule, deciding the input combinations, estimation of cost of production, achieving economies of scale and increasing the returns to scale.

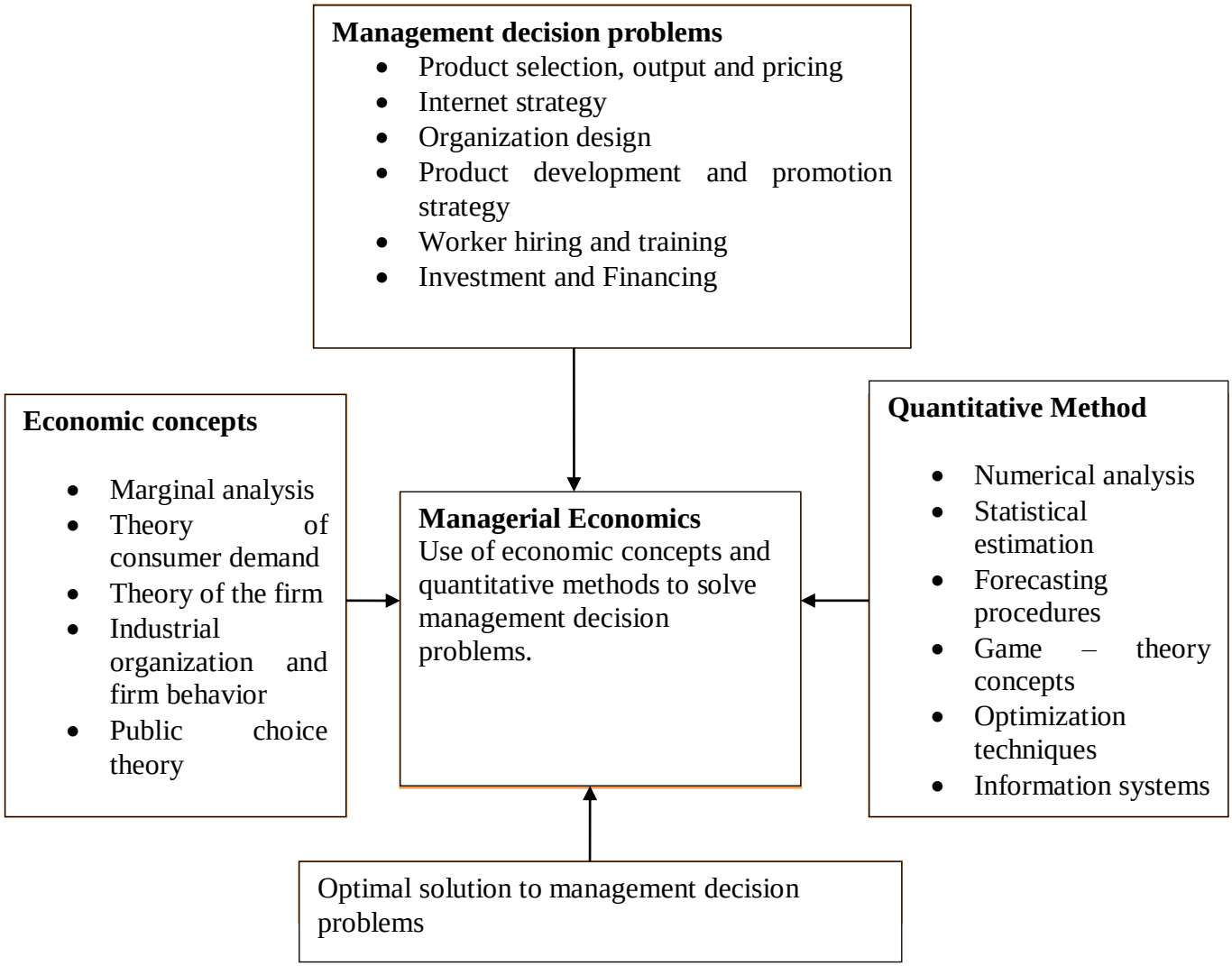
It also includes determining price of the product, analyzing market structure to determine the price of the product for profit maximization, which helps them to control and plan capital in an effective manner.

NATURE AND SCOPE OF MANAGERIAL ECONOMICS

Economics can be defined as " the science which study the aspect of managerial behaviour which is concerned with the economic rationale of decision making.

Fig 1.1 Managerial economics is tool for improving management decision making.

Managerial economics use economic concepts and quantitative methods to solve managerial problems.



SCOPE OF MANAGERIAL ECONOMICS

The scope of managerial economics includes all those economic concepts, theories and analytical tools which can be used to analyze business environment and to find solutions for practical business problems.

The following are some of the important areas covering the scope of managerial economics:

1. Demand analysis
2. Production analysis
3. Cost analysis
4. Pricing analysis
5. Profit analysis
6. Investment analysis
7. Managerial techniques

DEMAND ANALYSIS:

Demand analysis is of great importance in managerial economics. It seeks to identify and measure the factors that determine the demand for a product in the product market. The demand for a firm product reflects what the consumers actually buy.

In every business firm, executive manager has to estimate current demand and forecast future demand for the output produced by the firm. Such demand can be evaluated through an analysis of consumer behavior. There are two basic approaches to the theory of consumer behavior, they are cardinal utility approach and ordinal utility approach.

Under the cardinal approach there are two fundamental laws, viz., law of diminishing marginal utility and law of equi-marginal utility have been developed and are of several practical applications and uses in business. Under the ordinal utility approach, indifference curve analysis and revealed preference theorem have been evolved and are also of practical importance in business decision making.

The important aspects dealt with under demand analysis are:

1. Individual and market demand
2. Demand estimation
3. Demand function
4. Demand distinctions
5. Demand forecasting and Elasticity of demand and its relevance in decision- making in business.

Demand forecasting attempts to estimate the likely demand for a product in future periods. If future demands are identified, production can be better planned. The basic techniques dealt with under business and economic forecasting are:

- Sources of data (expert opinion, surveys and market experiments);
- Time series analysis (trend projections);
- Barometric forecasting; and
- Econometric in model building

The demand analysis helps business executives to carry out business process:

- To strengthen market position;
- To maximize profits; and
- To maximize social welfare

PRODUCTION ANALYSIS:

Production analysis plays a pivotal role in managerial economics. It is concerned with the supply side of the market. It deals with physical terms of the product produced in a business firm. Decision like location of the production unit: the amount of products to be produced: the scale of production and the extent of product-mix can be taken through production analysis.

Production analysis relates physical output to physical inputs (factors of production). In other words, it highlights production functions and their managerial uses. Production theory includes the analysis of production function with ONE variable input; production function with ALL variable inputs; and production function with TWO variable inputs.

The production function with ONE variable input is otherwise known as *the law of variable proportions.* The production function with ALL variable inputs is otherwise known as *the laws of return to scale*. The production function with TWO variable inputs is otherwise known as *production function through isoquants.*

The main aspects dealt with under production analysis are:

- Production functions,
- Return to scale, isoquants,
- Economies and diseconomies of scale

COST ANALYSIS:

Cost analysis plays an important role in decision-making of a business firm. It is also concerned with the supply side of the market. It is discussed in monetary terms of the product produced in the business firm.

The main aspects dealt with under cost analysis are:

- Cost concepts,
- Cost behavior in the short run and long run,
- Cost functions,
- Cost determinants,
- Cost control and
- Cost reduction

Cost analysis especially deals with the various cost concepts and their practical usefulness in managerial decision-making.

PRICING ANALYSIS:

Pricing analysis forms the core of managerial economics. It plays an important role in profit planning. The success of a firm largely depends upon the correct price decisions taken by it. It the price is set too high, the firm may not find enough consumers to buy its product. If the price is set too low, the firm may not be able to cover its costs. Thus, setting an appropriate price is Important for every business firm.

At what price and in what quantity are the productive factors obtained from the factor market and at what price and in what quantity are the products sold in the product markets? These questions can be answered through the analysis of different market structures such as perfect competition, monopoly, monopolistic competition, oligopoly, duopoly, bilateral monopoly and discriminating monopoly.

Theoretically, the buyers and sellers alone determine the price of a product in the market. Practically, competitions and the governments are also involved in the pricing process. The competitors are potential rivals who produce and sell related products. The government influences the price of a product through taxes, subsidies, and direct price controls.

The main aspects dealt with under pricing analysis are:

- The concepts of market mechanism,
- Price determination under different market structures,
- Pricing policies,
- Pricing methods and
- Approaches

PROFIT ANALYSIS:

Profit is the best index of good performance of a business firm. Generally, firm aim at making profits. But the survival of every business firm depends upon its ability to earn profit traditionally, profit maximization is assumed to be the objective of a business firm. In reality, firms may not aim at maximizing profit but they do have a profit policy. Hence decisions concerning level of profit, rate of profit, reinvestment of profit etc. are relevant in every business firm nowadays.

The main aspects dealt with under profit analysis are:

- Nature and measurement of profit,
- Profit theories,
- Profit policies,
- Profit planning,
- Control (break even analysis) and
- Profit forecasting

INVESTMENT ANALYSIS:

Investment analysis is concerned with planning and control of capital expenditure. The essence of this analysis is to compare the benefits that occur over a period a time with the amount of capital invested.

The decision on amount of investment, rate of investment, the proportion of new investment and replacement investment are some of the investments issues which can be evaluated through cost-benefits analysis in general and capital budgeting in particular.

The main aspects dealt with under investment analysis are:

- Nature of capital budgeting,
- Cost of capital,
- Capital investment appraisal and so on

MANAGERIAL TECHNIQUES:

The managerial techniques like linear programming techniques, input-output techniques and game theory are clearly analyzed under managerial analysis. The above- mentioned techniques are the basic to managerial economics in business decision-making.

IMPORTANCE OF MANAGERIAL ECONOMICS:

Managerial economics is of great importance in the decision-making process of a business firm. Business firms aim at earning maximum profit. In order to achieve this, business executives have to resort to decision-making is the process of selecting a particular course of action from among various alternatives available to a business firm to achieve its pre-determined objective or goal.

A sound decision needs a good knowledge of economic concepts, theories and analytical tools which are directly involved in the decision-making process of a business firm. Managerial economics is useful in taking good and sound decision which require an ability to analyze problems logically and vividly.

Managerial economics assists the decision-making process of a business firm in the following ways:

1. Managerial economics helps the management and business executives of the firm in making decisions concerning product-mix, input-mix, production techniques, level of output, price of the product, investments etc.
2. Managerial economics provides basic economic concepts such as elasticity of demand short run and long run costs, marginal costs etc. which helps the executives for identifying, analyzing business problems and finding out solutions to these problems.
3. Managerial economics helps the management in predicting future business in the light of the various economic variables such as cost, production, price, demand, profit, capital, etc.
4. Managerial economics reconciles the basic tools, models and theories of traditional economics with actual business practices and environment.
5. Managerial economics assists the management to identify and understand the factors of both external and internal, that influence the business firm. External factors are the factors that are outside the purview of the business firm whereas internal factors are the factors that are within the purview of the firm.
6. Managerial economics is the basis for business policies which in turn are prepared on the basis of the studies and findings of managerial economics.
7. Managerial economics estimates the relationships between factors such as income, elasticity of demand, cost volume profit analysis.

CIRCULAR FLOW OF ECONOMIC ACTIVITY

The individuals own or control resources which are necessary inputs for the firms in the production process. These resources (factors of production) are classified into four types.

Land: It includes all natural resources on the earth and below the earth. Non renewable resources such as oil, coal etc. once used will never be replaced. It will not be available for our children. Renewable resources can be used and replaced and is not depleted with use.

Labor: is the work force of an economy. The value of the worker is called as human capital.

Capital: It is classified as working capital and fixed capital (not transformed into final products)

Entrepreneurship: It refers to the individuals who organize production and take risks.

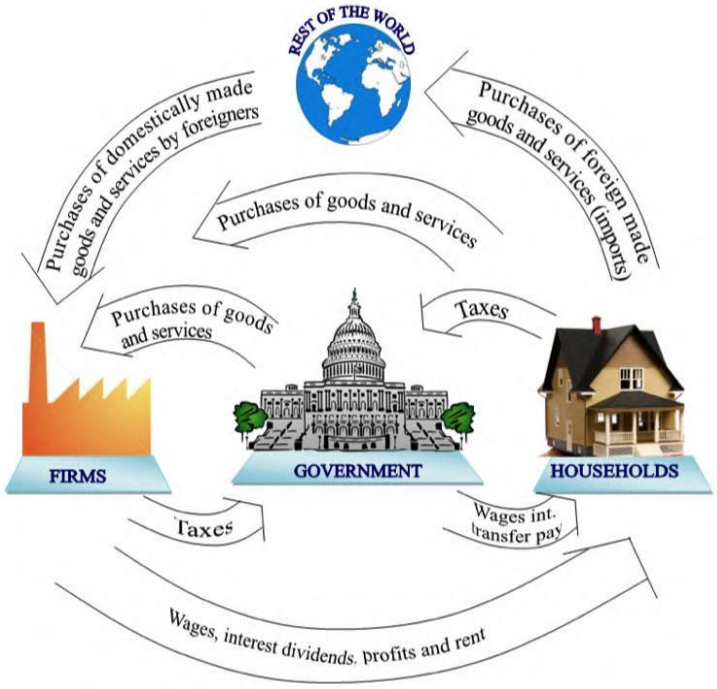
All these resources are allocated in an effective manner to achieve the objectives of consumers (to maximize satisfaction), workers (to maximize wages), firms (to maximize the output and profit) and government (to maximize the welfare of the society).

The fundamental economic activities between households and firms are shown in the diagram. The circular flows of economic activities are explained in a clockwise and counterclockwise flow of goods and services.

The four sectors namely households, business, government and the rest of the world can also be considered to see the flow of economic activities. The circular flow of activity is a chain in which production creates income, income generates spending and spending in turn induces production.

The major four sectors of the economy are engaged in three economic activities of production, consumption and exchange of goods and services. These sectors are as follows:

Chart – 1 Circular Flow of Economic Activity



Households: Households fulfill their needs and wants through purchase of goods and services from the firms. They are owners and suppliers of factors of production and in turn they receive income in the form of rent, wages and interest.

Firms: Firms employ the input factors to produce various goods and services and make payments to the households.

Government: The government purchases goods and services from firms and also factors of production from households by making payments.

Foreign sector: Households, firms and government of India purchase goods and services (import) from abroad and make payments. On the other hand all these sectors sell goods and services to various countries (export) and in turn receive payments from abroad

The above said four agents take economic decisions to produce goods and services and to exchange them and to consume them for satisfying the wants of the economy as a whole. Understanding the opportunities and constraints in the exchange is essential to take better decision in business. This is discussed in the forthcoming chapters in detail.

The economy comprises of the interaction of households, firms, government and other nations. Households own resources and supply factor services like land, raw material, labour and capital to the firms which helps them to produce goods and services.

In turn, firms pay rent for land, wages for their labour and interest against the capital invested by the households. The earnings of the household are used to purchase goods and services from the firms to fulfill their

needs and wants, the remaining is saved and it goes to the capital market and is converted as investments in various businesses.

The household and business firms have to pay taxes to the government for enjoying the services provided. On the other hand firms and households purchase goods and services (import) from various countries of the world. Firms tend to sell their products to the foreign customers (export) who earn income for the firm and foreign exchange for the country.

Therefore, it is clear that households supply input factors, which flow to firms. Goods and services produced by firms flow to households. Payment flows in the opposite direction (refer chart 1).

NATURE OF THE FIRM

A **firm** is an association of individuals who have organized themselves for the purpose of turning inputs into output. The firm organizes the factors of production to produce goods and services to fulfill the needs of the households. Each firm lays down its own objectives which is fundamental to the existence of a firm.

THE MAJOR **OBJECTIVES** OF THE FIRM ARE:

- To achieve the Organizational Goal
- To maximize the Output
- To maximize the Sales
- To maximize the Profit of the Organization
- To maximize the Customer and Stakeholders Satisfaction
- To maximize Shareholder's Return on Investment
- To maximize the Growth of the Organization

Firms are not always able to operate at a profit. They may be facing the operating loss also. Economists believe that firms maximize their long run rather than their short run profit. So managers have to make enough profit to satisfy the demands of their shareholders and to maximize their wealth through the company.

FIRM'S OBJECTIVES:

The following are the objectives of the firms:

1. **PROFIT MAXIMISATION:**

- The objective of the firm is to maximize the amount of short run profit
- There is a difference between business and economic profit
- In business profit there is a difference between total receipts and explicit accounting costs of carrying the business

Total Receipts – Explicit
In economic profit, there is a difference between total receipts, accounting costs and imputed costs of self earned factors of production employed in the business. (For e.g. own earnings, own time etc)

Total Receipts – Accounting Costs – Imputed Costs
There are many theories to explain profit making by firms, some are

i. Innovation Theory
ii. Risk Baring Theory
iii. Monopoly Theory
iv. Friction Theory – there is long run equilibrium of economic profit which is zero. (for example, if the winter season is too longer, firms dealing with woolen garments would reap long economic profit while those dealing in terms like ice creams may run into losses)
v. Managerial Efficiency Theory – this theory argues that economic profit can arise because of exceptional management skill of well managed firms.

2. FIRMS VALUE MAXIMIZATION:

- Most of the firms are expected to operate for a longer period; they are postulated to aim for maximum long-term profits instead of maximum short-run profit.
- Wealth maximization is recognized today as the primary objects of a business firm

3. SIZE MAXIMIZATION:

- Size maximization is an alternative goal for some firms
- Edith Penrose argues that managers have a vital interest in growth because individuals gain prestige, personal satisfaction in the successful growth of the firm with which they are connected, more responsible and better paid position and wider scope for ambitious and abilities

4. SALES MAXIMIZATION SUBJECT TO SOME PRE-DETERMINED PROFIT:

- William J. Barnol has advanced theory of firms behavior in which he argues that a firm seeks a certain level of profit and within that constraint aims at maximum sales.
- The certain level of profit presumably means the level of profit considered satisfactory by the shareholders

5. LONG RUN SURVIVAL:

- Under the long run survival of firm, the firm seeks to maximize the profitability of its survival into the future
- This objective would be commensurate with the interests of the share-holders and the management
- Through this objective, the owners of today would be able to provide security and business to their next generations

6. MANAGEMENT UTILITY MAXIMIZATION:

- O.E. William's model of firm behavior focuses on the self-interest seeking behaviour of corporate managers. The theory ignores that owner's interest, whenever there is a dichotomy between owners and managers.
- Among many variables, in organization which affect the management utility, the prominent one is salary, including bonus etc.

7. SATISFACTION:

- In order to promote maximum sales and to generate maximum profit, the firm must satisfy all the constituents of firms, including the stock holders, management, employees etc. this is a multiple goal and it is very difficult to practice and to achieve for any organization.

FORMS OF ORGANISATION

In modern times, organization of business assume several forms, viz., sole proprietorship, individual entrepreneur or one-man business, partnership, joint-stock companies, industrial combination, co-operative enterprises and state enterprises.

1. **Individual entrepreneur:** under the 'one-man' concern, organizer invests his/her own capital and may also borrow some. He/she rents a shop and employs a worker, if necessary. He/she personally make purchases and attend to the sales, and who also takes the entire risk. Thus, an entrepreneur organizes, directs all economic activity and takes the full risks and is the sole proprietor.

2. **Partnership:** in partnership firm, two, three or more people join together, contribute capital, and share the profits and risks of losses in agreed proportions.

3. **Joint-stock company:** in this type, two or more companies join together to form a firm. It is the most important type of business organization today. It overcomes the disadvantages of the partnership arising out of small financial resources and limited business talent.

4. **Co-operative enterprise:** they are of two types:
   i. producer's cooperation and
   ii. consumer's cooperation

Producer's cooperation: under it, the workers take up the entrepreneurial work; contribute some capital and borrow the rest; elect their own foreman and managers and employ other staff. After all expenses on rent, capital, salaries and wages, the profits are divided by the workers. This type of co-operation is called the productive cooperation or producer's cooperation.

Consumer's cooperation: under it, the consumers of a region contribute small shares of capital and start a store. These cooperative stores buy goods from wholesalers or and sells them to the members at the market price. The profits are shared by the members in proportion to their purchases or, commonly, in proportion to their capital share. Usually, the capital share is contributed equally and therefore profits are also equally shared by the members.

5. **State enterprise:**

The organization of state enterprise is similar to that of the private enterprises. It consists of general manager, foreman, works manager, accountant, treasurer, departmental heads, etc. it functions in a similar way like a joint-stock company. But, the fundamental difference is that all its employees are government servants with fixed tenure and pension benefits on retirement. The capital comes from the state revenue, which are attributed by the tax-payers. Therefore, the profit, if any, goes to the state government.

6. **public enterprises:** public enterprises may be in the forms of

i. ***Departments***, i.e., run by a government department, for example, railways and postal in India.
ii. ***Corporation***, i.e., Life Insurance Corporation of India which is established by a special Act of Parliament, and
iii. ***Limited Liability Company*** registered under the Companies Act.

DEMAND ANALYSIS

Introduction:

The concepts of demand and supply are useful for explaining what is happening in the market place. Every market transaction involves an exchange and many exchanges are undertaken in a single day. The circular flow of economic activity explains clearly that every day there are a number of exchanges taking place among the four major sectors mentioned earlier.

A market is a place where we buy and sell goods and services. A buyer demands goods and services from the market and the sellers **supply** the goods in the market. In economics, demand is "the quantity of goods and services that will be bought for a given price over a period of time".

For example if 10 Lakhs laptops are purchased in India during a year at an average price of Rs.25000/- then we can say that the annual demand for laptops is 10 Lakhs units at the rate of 25,000/-.

The manager can take better decisions regarding the kind of product to be produced, the quantity, the cost of the product and its selling price. Let us understand the concept of demand and its importance in decision making.

Demand: Demand means the ability and willingness to buy a specific quantity of a commodity at the prevailing price in a given period of time. Therefore, demand for a commodity implies the desire to acquire it, willingness and the ability to pay for it.

Law of demand: The quantity of a commodity demanded in a given time period increases as its price falls, ceteris paribus. (I.e. other things remaining constant)

Demand schedule: a table showing the quantities of a good that a consumer is willing and able to buy at the prevailing price in a given time period. (Table – 1)

Table – 1: The Demand Schedule For Coke

Price of Coke (200 ml) In Rupees	Quantity Demanded
50	1
45	2
40	3
35	5
30	7
25	9
20	12
15	15
10	20

Demand Curve:

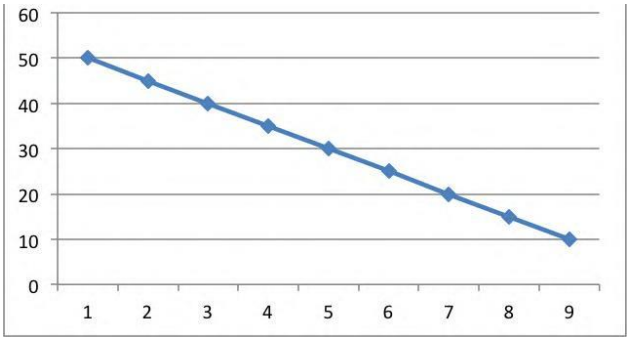
A curve indicating the total quantity of a product that all consumers are willing and able to purchase at the prevailing price level, holding the prices of related goods, income and other variables as constant.

A demand curve is a graphical representation of a demand schedule. The price is quoted in the 'Y' axis and the quantity demanded over time at different price levels is quoted in 'X' axis. Each point on the curve refers to a specific quantity that will be demanded at a given price. If for example the price of a 200 ml coke is Rs. 10, this curve tells us that the consumer (the students in a class of 50) would purchase 20 units. When the price rises to Rs. 50 there was only one student would buy it.

The demand curve, (DD) is downward sloping curve from left to right showing that as price falls, quantity

demanded rises. This inverse relationship between price and quantity is called as the law of demand. When price changes, there is said to be a movement along the curve from point A to B.

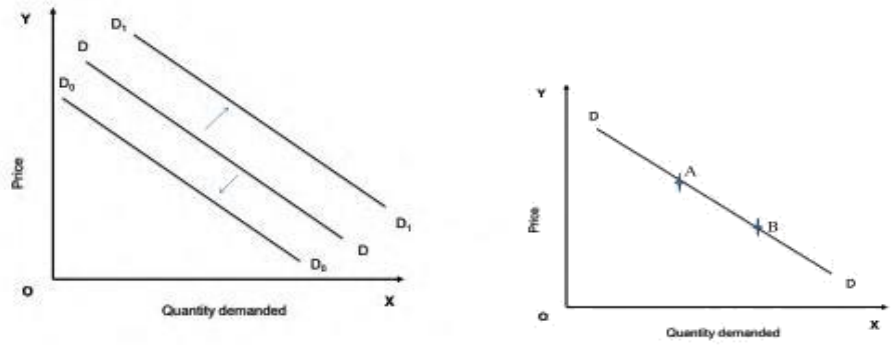
Graph – Demand Curve



Shifts in Demand:

Shift of the demand curve occurs when the determinants of demand change. When tastes and preferences and incomes are altered, the basic relationship between price and quantity demanded changes (shifts). This shifts the entire demand curve upward (rightward) and is called as increase in demand because more of that commodity is demanded at that price. The downward shift (leftward) is called as decrease in demand. The new demand curves D_1D_1 and D_0D_0 can be seen in the Graph below.

Graph – Shift In Demand Curve



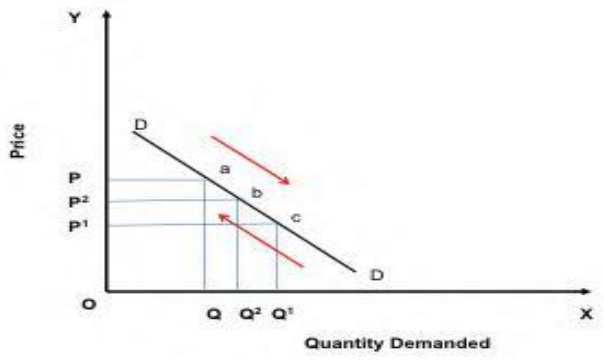
Therefore we understand that a shift in a demand curve may happen due to the changes in the variables other than price. The movement along a demand curve takes place (extension or contraction) due to price rise or fall.

Extension and Contraction Of Demand Curve:

When with a fall in price, more of a commodity is bought, then there is an extension of the demand curve. When lesser quantity is demanded with a rise in price, there is a contraction of demand.

From the above graph we can understand that an increase in prices result in the contraction of demand. If the price increases from P^2 to P then the demand for the commodity fall from OQ^2 to OQ. Therefore the demand curve DD contracts from 'b' to 'a' on the other hand when there is a fall in price; it results in the extension of demand. Let us assume that the price falls from P^2 to P^1 then the quantity demanded OQ^2 increases to OQ^1 and the demand curve extends from point 'b' to 'c'.

Graph –Extension and Contraction In Demand Curve



Demand function is a function that describe how much of a commodity will be purchased at the prevailing prices of that commodity and related commodities, alternative income levels, and alternative values of other variables affecting demand.

Price is not the only factor which determines the level of demand for a good. Other important factor is income. The rise in income will lead to an increase in demand for a normal commodity. A few goods are named as inferior goods for which the demand will fall, when income rises. Another important factor which influences the demand for a good is the price of other goods.

Other factors which affect the demand for a good apart from the above mentioned factors are:

- Changes in Population
- Changes in Fashion
- Changes in Taste
- Changes in Advertising

A change in demand occurs when one or more of the determinants of demand change and it is expressed in the following equation.

Q_d X = f (P_x, P_r, Y, T, E_y, E_p, Adv….)

Where,

Q_d X = quantity demanded of good 'X'

P_x = the price of good X

P_r = the price of a related good

Y = income level of the consumer

T = taste and preference of the consumers

^{E}y = expected income

^{E}p = expected price

Adv = advertisement cost

The above mentioned demand function expresses the relationship between the demand and other factors. The quantity demanded of commodity X varies according to the price of commodity (P_x), income (Y), the price of a related commodity (P_r), taste and preference of the consumers (T), expected income (E_y) and advertisement cost(Adv) spent by the organization.

DETERMINANTS OF DEMAND

There are various factors affecting the demand for a commodity. They are:

1.Price of the good: The price of a commodity is an important determinant of demand. Price and demand are inversely related. Higher the price less is the demand and vice versa.

2.Price of related goods: The price of related goods like substitutes and complementary goods also affect the demand. In the case of substitutes, rise in price of one commodity lead to increase in demand for its substitute. In the case of complementary goods, fall in the price of one commodity lead to rise in demand for both the goods.

3.Consumer's Income: This is directly related to demand. A change in the income of the consumer significantly influences his demand for most commodities. If the disposable income increases, demand will be more.

4.Taste, preference, fashions and habits: These are very effective factors affecting demand for a commodity. When there is a change in taste, habits or preferences of the consumer, his demand will change. Fashions and customs in society determine many of our demands.

5.Population: If the size of the population is more, demand for goods will be more . The market demand for a commodity substantially changes when there is change in the total population.

6.Money Circulation: More the money in circulation, higher the demand and vice versa.

7.Value of money: The value of money determines the demand for a commodity in the market. When there is a rise or fall in the value of money there may be changes in the relative prices of different goods and their demand.

8.Weather Condition: Weather is also an important factor that determines the demand for certain goods.

9.Advertisement and Salesmanship: If the advertisement is very attractive for a commodity, demand will be more. Similarly if the salesmanship and publicity is effective then the demand for the commodity will be more.

10.Consumer's future price expectation: If the consumers expect that there will be a rise in prices in future, he may buy more at the present price and so his demand increases.

11.Government policy (taxation): High taxes will increase the price and reduce demand, while low taxes will reduce the price and extend the demand.

12.Credit facilities: Depending on the availability of credit facilities the demand for commodities will change. More the facilities higher the demand.

13.Multiplicity of uses of goods: if the commodity has multiple uses then the demand will be more than if the commodity is used for a single purpose.

TYPES OF DEMAND (DEMAND DISTINCTIONS):

Demand may be defined as the quantity of goods or services desired by an individual, backed by the ability and willingness to pay.

1.Direct and indirect demand: (or) Producers' goods and consumers' goods: demand for goods that are directly used for consumption by the ultimate consumer is known as direct demand (example: Demand for T shirts). On the other hand demand for goods that are used by producers for producing goods and services. (example: Demand for cotton by a textile mill)

2.Derived demand and autonomous demand: when a produce derives its usage from the use of some primary product it is known as derived demand. (example: demand for tyres derived from demand for car) Autonomous demand is the demand for a product that can be independently used. (example: demand for a washing machine)

3.Durable and non durable goods demand: durable goods are those that can be used more than once, over a period of time (example: Microwave oven) Non durable goods can be used only once (example: Band-aid)

4.Firm and industry demand: firm demand is the demand for the product of a particular firm. (example: Dove soap) The demand for the product of a particular industry is industry demand (example: demand for steel in India)

5.Total market and market segment demand: a particular segment of the markets demand is called as segment demand (example: demand for laptops by engineering students) the sum total of the demand for laptops by various segments in India is the total market demand. (example: demand for laptops in India)

6.Short run and long run demand: short run demand refers to demand with its immediate reaction to price changes and income fluctuations. Long run demand is that which will ultimately exist as a result of the changes in pricing, promotion or product improvement after market adjustment with sufficient time.

7.Joint demand and Composite demand: when two goods are demanded in conjunction with one another at the same time to satisfy a single want, it is called as joint or complementary demand. (example: demand for petrol and two wheelers) A composite demand is one in which a good is wanted for several different uses. (example: demand for iron rods for various purposes)

8.Price demand, income demand and cross demand: demand for commodities by the consumers at alternative prices are called as price demand. Quantity demanded by the consumers at alternative levels of income is income demand. Cross demand refers to the quantity demanded of commodity 'X' at a price of a related commodity 'Y' which may be a substitute or complementary to X.

Price Demand: The ability and willingness to buy specific quantities of a good at the prevailing price in a given time period.

Income Demand: The ability and willingness to buy a commodity at the available income in a given period of time.

Market Demand: The total quantity of a good or service that people are willing and able to buy at prevailing prices in a given time period. It is the sum of individual demands.

Cross Demand: The ability and willingness to buy a commodity or service at the prevailing price of the related commodity i.e. substitutes or complementary products. For example, people buy more of wheat when the price of rice increases.

EXCEPTIONAL DEMAND CURVE:

The demand curve slopes from left to right upward if despite the increase in price of the commodity, people tend to buy more due to reasons like fear of shortages or it may be an absolutely essential good.

The law of demand does not apply in every case and situation. The circumstances when the law of demand becomes ineffective are known as exceptions of the law. Some of these important exceptions are as under

1. Giffen Goods:

Some special varieties of inferior goods are termed as Giffen goods. Cheaper varieties millets like bajra, cheaper vegetables like potato etc come under this category. Sir Robert Giffen of Ireland first observed that people used to spend more of their income on inferior goods like potato and less of their income on meat. After purchasing potato the staple food, they did not have staple food potato surplus to buy meat. So the rise in price of potato compelled people to buy more potato and thus raised the demand for potato. This is against the law of demand. This is also known as Giffen paradox.

2. Conspicuous Consumption / Veblen Effect:

This exception to the law of demand is associated with the doctrine propounded by Thorsten Veblen. A few goods like diamonds etc are purchased by the rich and wealthy sections of society. The prices of these goods are so high that they are beyond the reach of the common man. The higher the price of the diamond, the higher its prestige value. So when price of these goods falls, the consumers think that the prestige value of these goods comes down. So quantity demanded of these goods falls with fall in their price. So the law of demand does not hold good here.

3. Conspicuous Necessities:

Certain things become the necessities of modern life. So we have to purchase them despite their high price. The demand for T.V. sets, automobiles and refrigerators etc. has not gone down in spite of the increase in their price. These things have become the symbol of status. So they are purchased despite their rising price.

4. Ignorance:

A consumer's ignorance is another factor that at times induces him to purchase more of the commodity at a higher price. This is especially true, when the consumer believes that a high-priced and branded commodity is better in quality than a low-priced one.

5. Emergencies:

During emergencies like war, famine etc, households behave in an abnormal way. Households accentuate scarcities and induce further price rise by making increased purchases even at higher prices because of the apprehension that they may not be available. . On the other hand during depression, , fall in prices is not a sufficient condition for consumers to demand more if they are needed.

6. Future Changes In Prices:

Households also act as speculators. When the prices are rising households tend to purchase large quantities of the commodity out of the apprehension that prices may still go up. When prices are expected to fall further, they wait to buy goods in future at still lower prices. So quantity demanded falls when prices are falling.

7. Change In Fashion:

A change in fashion and tastes affects the market for a commodity. When a digital camera replaces a normal manual camera, no amount of reduction in the price of the latter is sufficient to clear the stocks. Digital cameras on the other hand, will have more customers even though its price may be going up. The law of demand becomes ineffective.

8. Demonstration Effect:

It refers to a tendency of low income groups to imitate the consumption pattern of high income groups. They will buy a commodity to imitate the consumption of their neighbors even if they do not have the purchasing power.

9. Snob Effect:

Some buyers have a desire to own unusual or unique products to show that they are different from others. In this situation even when the price rises the demand for the commodity will be more.

10. Speculative Goods/ Outdated Goods:

Speculative goods such as shares do not follow the law of demand. Whenever the prices rise, the traders expect the prices to rise further so they buy more.

Goods that go out of use due to advancement in the underlying technology are called outdated goods. The demand for such goods does not rise even with fall in prices

11. Seasonal Goods:

Goods which are not used during the off-season (seasonal goods) will also be subject to similar demand behaviour.

12. Goods In Short Supply:

Goods that are available in limited quantity or whose future availability is uncertain also violate the law of demand.

ELASTICITY OF DEMAND

In economics, the term elasticity means a proportionate (percentage) change in one variable relative to a proportionate (percentage) change in another variable. The quantity demanded of a good is affected by changes in the price of the good, changes in price of other goods, changes in income and changes in other factors. Elasticity is a measure of just how much of the quantity demanded will be affected due to a change in price or income.

Elasticity of Demand is a technical term used by economists to describe the degree of responsiveness of the demand for a commodity due to a fall in its price. A fall in price leads to an increase in quantity demanded and vice versa.

The elasticity of demand may be as follows:

- Price Elasticity
- Income Elasticity and
- Cross Elasticity

PRICE ELASTICITY

The response of the consumers to a change in the price of a commodity is measured by the price elasticity of the commodity demand. The responsiveness of changes in quantity demanded due to changes in price is referred to as price elasticity of demand. It is measured by dividing the percentage change in quantity demanded by the percentage change in price.

Price Elasticity= Proportionate change in the Quantity Demanded/Proportionate change in price

$$= \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$= \frac{\Delta Q / Q}{\Delta P / P} = \frac{10}{20} = 0.5$$

ΔQ = change in quantity demanded

ΔP = change in price

Where P= price and Q= quantity demanded

For example:

Quantity demanded is 20 units at a price of Rs.500. When there is a fall in price to Rs. 400 it results in a rise in demand to 32 units. Therefore the change in quantity demanded is12 units resulting from the change in price of Rs.100.

- The Price Elasticity of Demand is = (12/20) / (100/500) = 0.6/0.2 = **3**

The Determinants Of Price Elasticity Of Demand

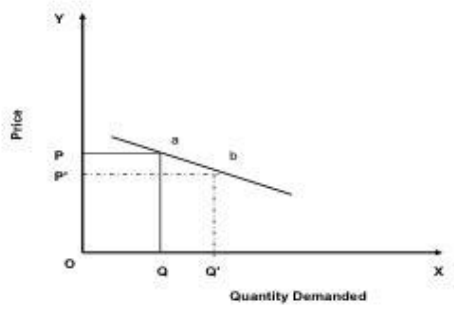
The exact value of price elasticity for a commodity is determined by a wide variety of factors. The two factors considered by economists are the **availability of substitutes** and **time**. The better the substitutes for a product, the higher the price elasticity of demand.. The longer the period of time, the more the price elasticity of demand for that product. The price elasticity of necessary goods will have lower elasticity than luxuries.

The elasticity of demand depends on the following factors:

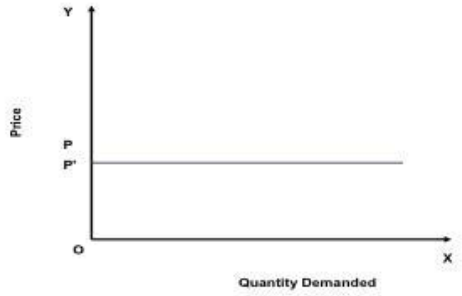
1. Nature of the commodity: The demand for necessities is inelastic because the demand does not change much with a change in price. But the demand for luxuries is elastic in nature.
2. Extent of use: A commodity having a variety of uses has a comparatively elastic demand.
3. Range of substitutes: The commodity which has more number of substitutes has relatively elastic demand. A commodity with fewer substitutes has relatively inelastic demand.
4. Income level: People with high incomes are less affected by price changes than people with low incomes.
5. Proportion of income spent on the commodity: When a small part of income is spent on the commodity, the price change does not affect the demand therefore the demand is inelastic in nature.
6. Urgency of demand / postponement of purchase: The demand for certain commodities are highly inelastic because you cannot postpone its purchase. For example medicines for any sickness should be purchased and consumed immediately.
7. Durability of a commodity: If the commodity is durable then it is used it for a long period. Therefore elasticity of demand is high. Price changes highly influences the demand for durables in the market.
8. Purchase frequency of a product/ recurrence of demand: The demand for frequently purchased goods are highly elastic than rarely purchased goods.
9. Time: In the short run demand will be less elastic but in the long run the demand for commodities are more elastic.

The following are the possible combination of changes in Price and Quantity demanded. The slope of each combination is depicted in the following graphs.

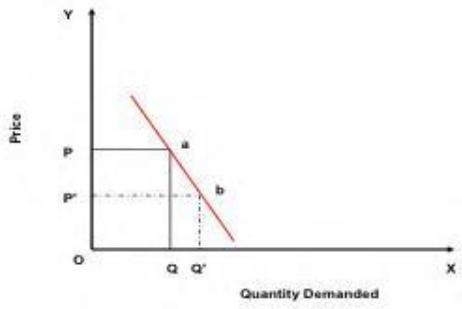
1. Relatively Elastic Demand (E_d >1) a small percentage change in price leading to a larger change in Quantity demanded.



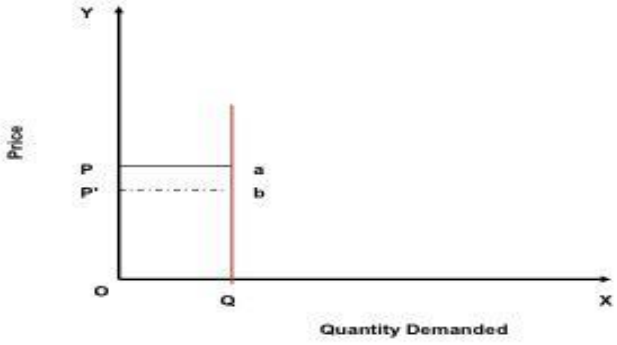
2. Perfectly Elastic Demand ($E_d = \infty$) a small change in price will change the quantity demanded by an infinite amount.



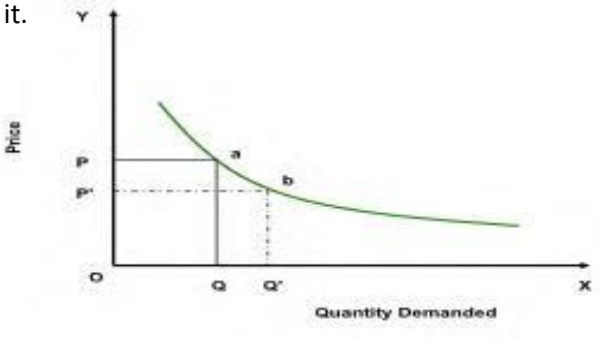
3. Relatively Inelastic Demand ($E_d < 1$) a change in price leads to a smaller percentage change in quantity demanded.



4. Perfectly Inelastic Demand ($E_d = 0$) the quantity demanded does not change regardless of the percentage change in price.



5. Unit Elasticity of Demand ($E_d = 1$) the percentage change in quantity demanded is the same as the percentage change in price that caused it.



INCOME ELASTICITY

Income elasticity of demand measures the responsiveness of quantity demanded to a change in income. It is measured by dividing the percentage change in quantity demanded by the percentage change in income. If the demand for a commodity increases by 20% when income increases by 10% then the income elasticity of that

commodity is said to be positive and relatively high. If the demand for food were unchanged when income increases, the income elasticity would be zero. A fall in demand for a commodity when income rises results in a negative income elasticity of demand.

The following are the various types of income elasticity:

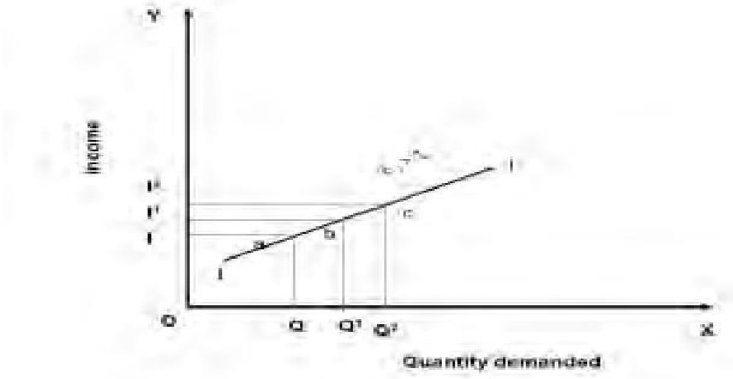
Zero Income Elasticity: The increase in income of the individual does not make any difference in the demand for that commodity. (Ei = 0)

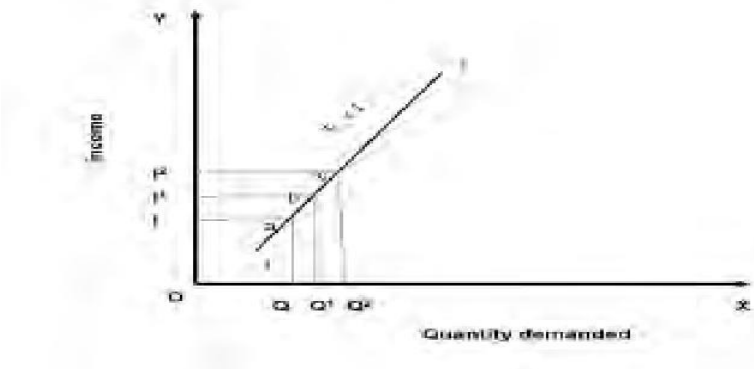
Negative Income Elasticity: The increase in the income of consumers leads to less purchase of those goods. (Ei < 0).

Unitary Income Elasticity: The change in income leads to the same percentage of change in the demand for the good. (Ei = 1).

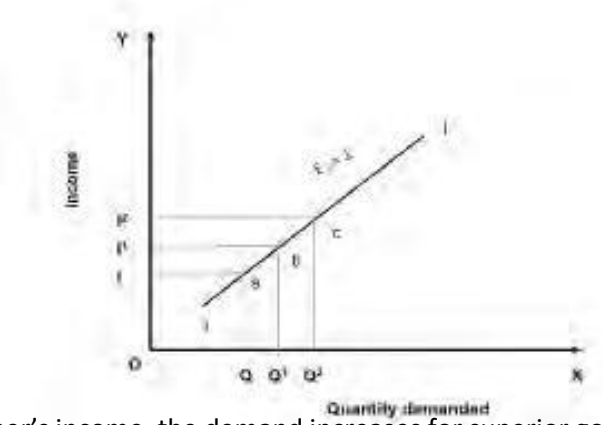
Income Elasticity is Greater than 1: The change in income increases the demand for that commodity more than the change in the income. (Ei > 1).

Income Elasticity is Less than 1: The change in income increases the demand for the commodity but at a lesser percentage than the change in the Income. (Ei < 1).



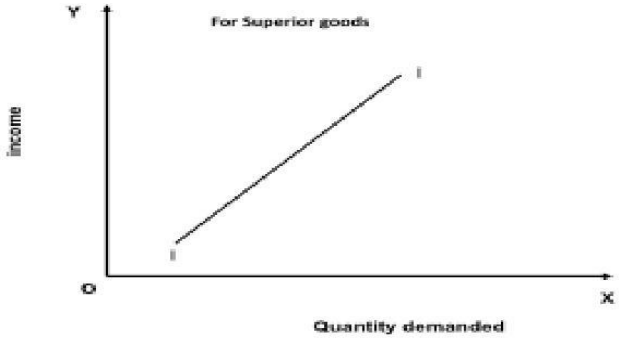


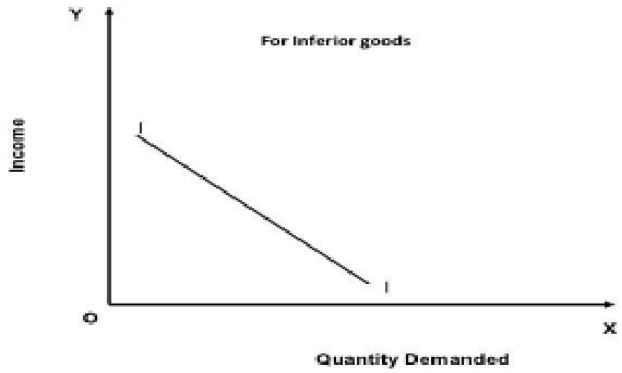
The positive income elasticity of demand can be classified as unity, more than unity and less than unity. We can understand from the above graphs that the product which is highly elastic in nature will grow faster when the economy is expanding. The performance of firms having low income elasticity on the other hand will be less affected by the economic changes of the country.



With a rise in consumer's income, the demand increases for superior goods and decreases for inferior goods and vice versa.

The income elasticity of demand is positive for superior goods or normal goods and negative for inferior goods since a person may shift from inferior to superior goods with a rise in income.





CROSS ELASTICITY

The quantity demanded of a particular commodity varies according to the price of other commodities. Cross elasticity measures the responsiveness of the quantity demanded of a commodity due to changes in the price of another commodity.

For example the demand for tea increases when the price of coffee goes up. Here the cross elasticity of demand for tea is high. If two goods are substitutes then they will have a positive cross elasticity of demand. In other words if two goods are complementary to each other then negative income elasticity may arise.

The responsiveness of the quantity of one commodity demanded to a change in the price of another good is calculated with the following formula.

$$Ec = \frac{\%\text{ change in demand for commodity A}}{\%\text{ change in price of commodity B}}$$

If two commodities are unrelated goods, the increase in the price of one good does not result in any change in the demand for the other goods. For example the price fall in Tata salt does not make any change in the demand for Tata Nano.

Significance Of Elasticity Of Demand:

The concept of elasticity is useful for the managers for the following decision making activities

1. In production i.e. in deciding the quantity of goods to be produced
2. Price fixation i.e. in fixing the prices not only on the cost basis but also on the basis of prices of related goods.
3. In distribution i.e. to decide as to where, when, and how much etc.
4. In international trade i.e. what to export, where to export
5. In foreign exchange
6. For nationalizing an industry
7. In public finance

EMPIRICAL DEMAND ESTIMATES

All managers are concerned with empirical demand estimates because they provide summary information about the direction and proportion of change in demand, as a result of a given change in its explanatory variables. From the standpoint of control and management of external factors, such empirical estimates and their interpretations are therefore, very relevant.

Empirical studies of demand are of three broad types:

- Consumer surveys
- Statistical studies and
- Experimental surveys

Consumer surveys are concerned with the purchaser's intentions. They help in sales forecasting rather than providing information for price policy making. Such surveys thus reveal the 'likely' demand which may not coincide with 'actual' demand.

Statistical studies of a rudimentary type such as trend analysis, postulate time series of the single independent variable. Such studies normally ignore the important determinants of demand such as prices, which are controlled by the management.

More sophisticated statistical analysis using multiple correlation and regression techniques is capable of isolating and measuring the fluctuations in demand which occur in response to principle demand determinants

like price and disposable income.

Experimental surveys or controlled experiments can estimate the influence of important demand determinants under management's control. However, care must be taken to reduce the effect of unimportant variables to a minimum. Sometimes, stimulated exercises are also undertaken.

The most reliable method of estimating the demand function is to combine the controlled experiments with statistical studies. In fact, in empirical estimation of demand function, there is no escape from statistical techniques.

DEMAND FORECASTING

All organizations operate in an atmosphere of uncertainty but decisions must be made today that affect the future of the organization. There are various ways of making forecasts that rely on logical methods of manipulating the data that have been generated by historical events.

The major short run decisions are	The major long run decisions are
Purchase of inputs Maintaining of economic level of inventory Setting up sales targets $$ Distribution network Management of working Capital $$ Price policy $$ Promotion policy	Expansion of existing capacity Diversification of the product mix Growth of acquisition Change of location of plant $$ Capital issues Long run borrowings $$ Manpower planning

A forecast is a prediction or estimation of a future situation, under given conditions. Demand forecast *will help the manager to take the following decisions effectively.

The steps to be followed:

- ✓ Identification of objectives
- ✓ Nature of product and market
- ✓ Determinants of demand
- ✓ Analysis of factors

- ✓ Choice of technology
- ✓ Testing the accuracy

Criteria to choose a method of forecasting are:

- ❖ Accuracy
- ❖ Plausibility
- ❖ Durability
- ❖ Flexibility
- ❖ Availability

The following are needed for demand forecasting:

- ➢ Appropriate production scheduling
- ➢ Suitable purchase policy
- ➢ Appropriate price policy
- ➢ Setting realistic sales targets for salesmen
- ➢ Forecasting financial requirements
- ➢ Business planning
- ➢ Financial planning
- ➢ Planning man-power requirements

To select the appropriate forecasting technique, the manager/forecaster must be able to accomplish the following:

1. Define the nature of the forecasting problem
2. Explain the nature of the data under investigation
3. Describe the capabilities and limitations of potentially useful forecasting techniques.
4. Develop some predetermined criteria on which the selection decision can be made.

Demand Forecasting Methods:

1. Survey of buyers' intension
2. Delphi method
3. Expert opinion
4. Collective opinion
5. Naïve model
6. Smoothing techniques
7. Time series / trend projection
8. Controlled experiments

9. Judgmental approach

TIME SERIES / TREND PROJECTION

The linear trend is the most commonly used method of time series analysis. The following are various trend projections used under various circumstances.

linear trend $Y = a + b X$

quadratic trend $Y = a + bX + cX^2$

cubic trend $Y = a + bX + cX^2 + dX^3$

exponential trend $Y = {}_{a\,e}\, b/x$

double log trend $Y = a X^b$

Linear Trend Equation:

Y = a + b X where, Y = demand
And X = time period

a, b constant values representing intercept and slope of the line. To calculate Y for any value of X we have to solve the following equations, (i) and (ii). We can derive the values of 'a' and 'b' through solving these equations and by substituting the same in the above given linear trend equation we can forecast demand for 'X' time period.

$\sum Y = na + b\sum X$ ----- (i)

$\sum XY = a\sum X + b\sum X^2$ ----- (ii)

Example:

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sales	22734	24731	31489	44685	55319	91021	146234	107887	127483	97275

Estimate the sales for 2012, 2015 and fit a linear regression equation and draw a trend line.

Year	X	Sales (Y)	XY	X^2
2002	1	22734	22734	1
2003	2	24731	49462	4
2004	3	31489	94467	9
2005	4	44685	178740	16
2006	5	55319	276595	25
2007	6	91021	546126	36
2008	7	146234	1023638	49
2009	8	107887	863096	64
2010	9	127483	1147347	81
2011	10	97275	972750	100

	∑X = 55	∑Y= 748858	∑XY= 5174955	$\sum X^2$= 385

$\sum Y = na + b\sum X$ ----- (i)

$\sum XY = a\sum X + b\sum X^2$ ----- (ii)

	748858	= 10a + 55b	-----	(i)
	5174955	= 55a + 385 b	-----	(ii)
Equation (i) x 7	5242006	= 70a + 385 b	-----	(iii)
Equation (iii) – (ii)	67051	= 15a		

4470.07 = a

Substitute value of 'a' in equation (i)

748858 = 44700 + 55 b

55b = 748858 – 44700

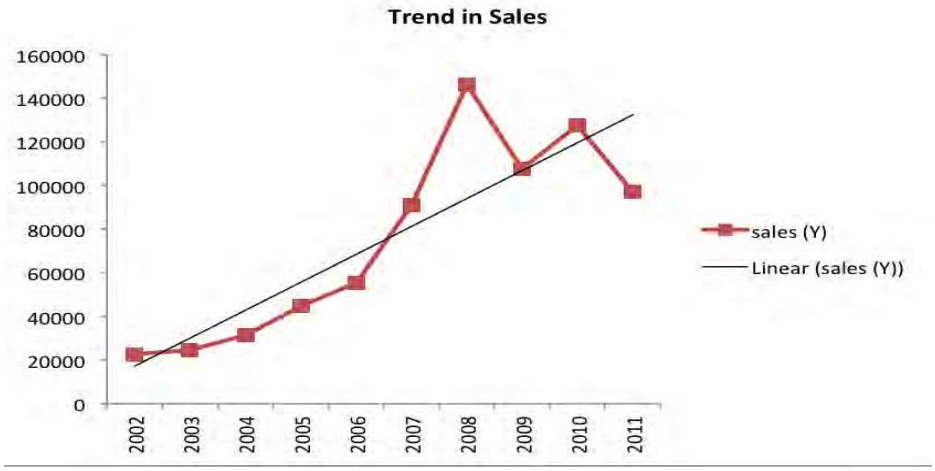
b = 12802.8

Y = a + b X

Y = 4470.07 + 12802.8 X

Sales for **2012** = 4470.07 + 12802.8 (11) = **145300.87**

Sales for **2015** = 4470.07 + 12802.8 (14) = **183709.27**



Techniques that should be used when forecasting **stationary series** (the demand patterns influencing the series are relatively stable) include naïve method, simple average method, moving average, and autoregressive moving average (ARMA) and Box-Jenkins method.

When forecasting **trend series** then, moving averages, simple regression, growth curves, exponential models and autoregressive integrated moving average (ARIMA) models and Box-Jenkins methods can be used.

For **seasonal series** census X-12, winter's exponential smoothing, multiple regression and ARIMA models can be used.

When forecasting **cyclical series** econometric models, economic indicators, multiple regression and ARIMA models can be used.

The major forecasting techniques are: naïve, simple average, moving averages, exponential smoothing, linear exponential smoothing, quadratic exponential smoothing, seasonal exponential smoothing, adaptive filtering, simple regression, multiple regression, classical decomposition, exponential trend models, S-curve fitting, Compertz models, growth curves, census X-12, Box-Jenkins, leading indicators, econometric models and time series multiple regression may be used.

The causal forecasting models (simple, multiple regression analysis) will be useful to decide the production, personnel hiring, and facility planning in the short run. In Time series forecasting models like decomposition is suitable to decide the new plant, equipment planning. Moving average and exponential smoothing is used for operations such as inventory, scheduling and pricing decisions.

The autoregressive models, Box-Jenkins techniques are used to forecast price, inventory, production, stock and sales related decisions. Neural network method is for forecasting applications in development phase of the organization.

Apart from the above mentioned statistical methods the **survey methods** are also commonly used. They are:

1. **Complete Enumeration Method:** the survey covers all the potential consumers in the market and an interview is conducted to find out the probable demand. The sum of all gives the total demand for the industry. If the number of customers is too many this method cannot be used.
2. **Sample Survey Method:** the complete enumeration is not possible always. The forecaster can go in for sample survey method. In this method, only few (a sample) customers are selected from the total and interviewed and then the average demand is estimated.
3. **Expert's Opinion:** the experienced people from the same field or from marketing agents can also be taken into consideration for collecting information about the future demand.

The above discussed qualitative and quantitative methods are commonly used to forecast the future demand and based on this information firms will take production decision.

MANAGERIAL ECONOMICS

Unit II

UNIT-II: MARKETS AND PRICING

Product Markets and Recourse Markets. Market Structure: Differently Competitive Markets; Pricing under different Market structures. Methods of Pricing new and existing products; Pricing strategies. Cost-Oriented and Market-Oriented Pricing. Cost concepts: Types of cost; Relationship between Average and Marginal Cost in Short run and long run; Economies and Accountant View on Cost; Using Marginal costing in business decision-making. Production functions in short and long run. Wages and wage differentials.

INTRODUCTION

Market is a place where people can buy and sell commodities. It may be vegetables market, fish market, financial markets or foreign exchange markets. In economic language market is a study about the demand for and supply of a particular item and its consequent fixing of prices, example bullion on market and foreign exchange market or a commodity market like food grains market etc. Market is classified into various types based on the characteristic features.

They are classified on the basis of:

Area: family market, local, regional, national and international

Time: very short period, short period, long period, very long period

Commodity: produce exchange, bullion market, capital market, stock market

Nature of Transaction: spot market, forward market and futures market

Volume of business: whole sale market, retail market

Importance: primary market, secondary market, territory market

Regulation: regulated market, unregulated market

Economics: Perfect market and imperfect market

Market In Economic Sense Implies:

1. Presence of buyers and sellers of the commodity
2. Establishment of contact between the buyer and seller
3. Similarity of the product
4. Exchange of commodity for a price

Classification of Market Structure Based On the Nature of Competitor:

1. Perfect market
2. Imperfect market

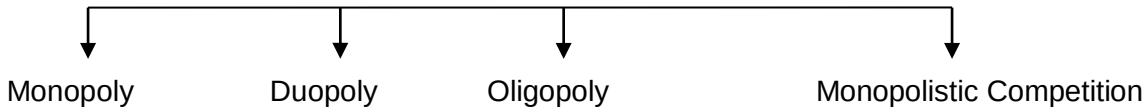
The imperfect market in turn can be classified as

a. Monopoly market

b. Duopoly market
c. Oligopoly market
d. Monopolistic market/ competition

The number and relative size of firms producing a good vary across industries. Market structures range from perfect competition to monopoly. Most real-world firms are along the continuum of imperfect competition. Market structure affects market outcomes, ie., the price and quantity of goods supplied.

Imperfect Competition



The above chart tells us that there are four types of imperfect competition existing in the present market environment. It is classified based on the number of buyers, sellers and competitors in the market. This chapter explains the price determination and profit maximization methods followed in these markets. Let us understand the meaning of each competition.

Monopoly market: a market with only one seller and a large number of buyers.

Duopoly: market in which two firms compete with each other.

Oligopoly market: market in which only a few firms compete with one another and entry by new firms is impeded / restricted.

Monopolistic competition: a market in which firms can enter freely, each producing its own brand or version of a differentiated product.

e. **Monopsony:** is a market with only one buyer, and a few / large sellers.

COMPARISON OF VARIOUS MARKET STRUCTURE:

Type of competition/ Characteristics	**Perfect competition**	**Monopoly**	**Oligopoly**	**Monopolistic**
Number of sellers	Many	One	Few (around 20)	Many
Number of buyers	Many	Many	Many	Many
Entry and Exit	Free. No restrictions	High Barriers exist. Restrictions like patent laws and licensing	High Barriers exist Restrictions like patent laws and licensing	Low Barriers exist
Information	Complete and free information	Less information	Restricted access to price and product information	Less information

Product Differentiation	Homogeneous	Unique. No close substitutes	Homo/heterogeneous	Similar. Differentiation among competitors.
Profit Potential	Normal profit in long run, economic profit in short run	Economic profit in long run and short run	Economic profit in both short run and long run	Economic profit in short run and normal in long run
Price of the product	Uniform and varies with changes in demand and Supply forces.	High price with limited supply or Low price with large supply. Price Discrimination is often found.	Kinky demand curve. Leadership of a firm or collusion of marketers fixes Price. Price rise is not followed. Secret discounts are common.	Non price competition. Products are Offered depending upon the quality in Price range. Promotion and Product differentiation (positioning) play a big role.
Examples	Agricultural Products - Vegetable markets and stock market	Electricity, Railways	Steel, Automobiles, oil and cement	Soaps, detergents, Clothing and TVs

PERFECT MARKET

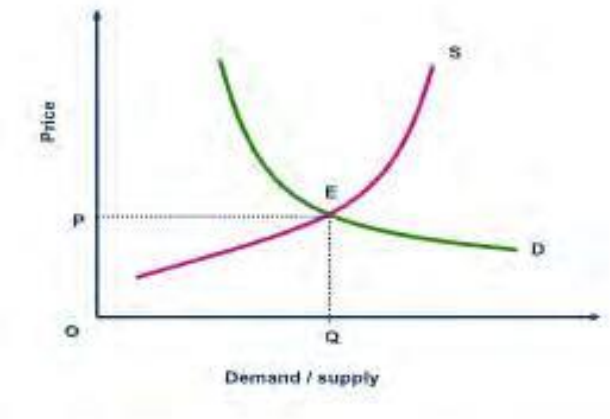
Perfect competition is a market structure characterized by a complete absence of rivalry among the individual firms. A perfectly competitive firm is one whose output is so small in relation to market volume that its output decisions have no perceptible impact on price. No single producer or consumer can have control over the price or quantity of the product.

Characteristic features of perfect market:

1. Large number of buyers and sellers
2. Homogeneous product
3. Perfect knowledge about the market
4. Ruling prices
5. Absence of transport cost
6. Perfect mobility of factors
7. Profit maximization
8. Freedom in decision making

In perfect market, the price of the commodity is determined based on the demand for and supply of the product in the market. The equilibrium price and output determination is as shown in the graph.

Graph - Price And Output Determination In The Perfect Market



The demand curve (D) and the supply curve (S) intersect each other at a particular point which is called the equilibrium point. At the equilibrium point 'E' the quantity demanded and the quantity supplied are equal (that is OQ quantity of commodity is demanded and the same level is supplied etc). Based on the equilibrium the price of the commodity is fixed as OP. This is the fundamental pricing strategy followed in the perfect market.

Pricing Under Perfect Competition

Demand and supply curves can be used to analyze the equilibrium market price and the optimum output.

1. If quantity demanded is equal to quantity supplied at a particular price then the market is in equilibrium
2. If quantity demanded is more than the quantity supplied then market price may not be stable. i.e., it will rise.
3. If quantity demanded is less than quantity supplied then market price is fixed not in an equilibrium position.

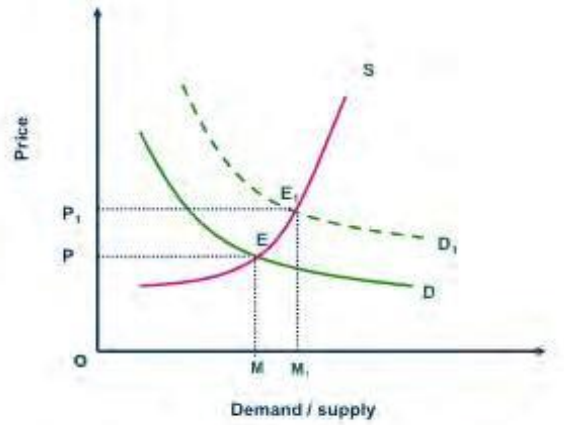
When the price at which quantity demanded is equal to quantity supplied, buyers as well as sellers are satisfied. If price is greater than the equilibrium price, some sellers would not be able to sell the commodity. So they would try to dispose the unsold stock at a lower price. Thus the price will go on declining till they get equalized (Qd = Qs). The various possible changes in Demand and supply are expressed in the following graphs to understand the price fluctuations in the market.

When the firm is producing its goods at the maximum level, the unit cost of production or marginal cost of the last item produced is the lowest. If the firm produces more than this, the marginal cost will rise. If that firm produces less than that level of output, it is not taking advantage of the economies of the large scale operation. When the firm produces largest level of output and sell at the marginal cost, it is said to be in equilibrium position. There is no temptation to produce more or produce less level of output. Likewise, when all the firms put together or the industry produces the largest amount of output at the lowest marginal cost, the industry is also said to be in the equilibrium

Let us assume that the demand equal to supply $Q_d = Q_s$ and the equilibrium point 'E' determines

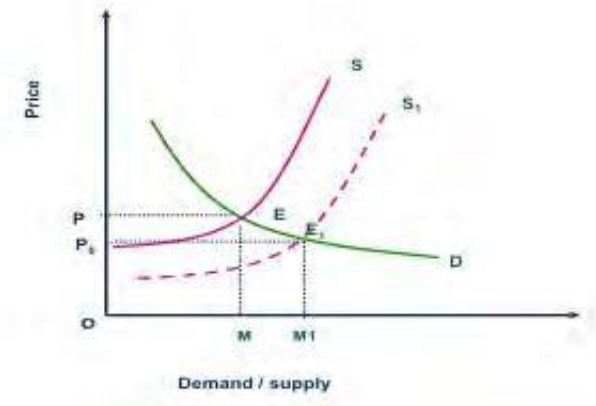
the price as OP. In the short run the demand for the commodity increases but the supply remains the same. Then the demand curve shifts to the right and the new demand curve D_1D_1 is derived. The demand has increased from OM quantity to OM_1. The new demand curve intersects the supply curve at the new equilibrium point 'E_1' and the price of the commodity is increased from OP to OP_1. Therefore it is clear that when demand increases without any change in supply this leads to price rise in the market.

Graph – Price and Quantity Variability When Increase In Demand



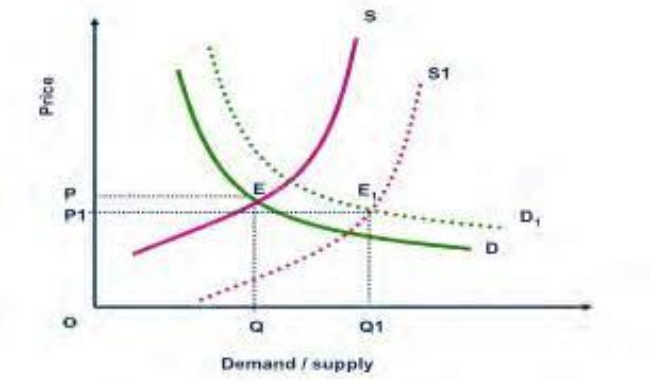
If the demand remains the same and the firm tries to supply more of the commodity, then the supply curve shifts from SS to S_1S_1 (Graph - below). Earlier the equilibrium point was 'E' and the price of the commodity was OP. Due to change in supply the equilibrium point has changed into 'E_1' which in turn reduced the price form OP to OP_0. Therefore if the firm supplies more than the demand this leads to price fall in the market.

Graph – Price And Quantity Variability When Increase In Price



If the firm changes its supply due to increase in demand then the possible fluctuations in the price is explained below. Let us assume that the firm increased its supply 10% , the demand has also increased but not in the same proportion – it increased only 2% ($\Delta Qd < \Delta Qs$). From the graph we can understand that the equilibrium point 'E' has changed into 'E_1' which reduced the price of the commodity from OP to OP_1.

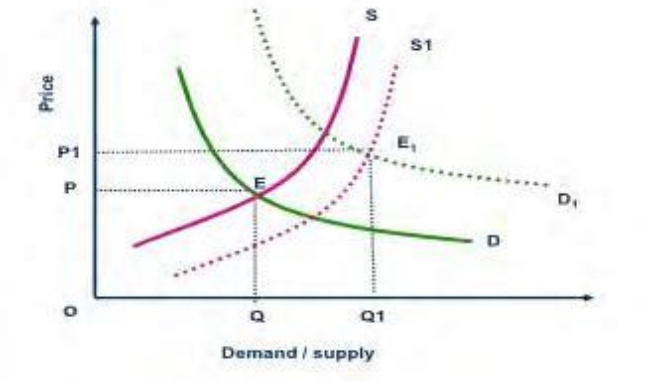
Graph – Price And Variability When Change In Demand Is Less Than Change In Supply



On the other hand when there is 10% increase in the demand and the supply has increased only to 2%, the new demand curve D_1D_1 and the new supply curve S_1S_1 intersect each other at the new equilibrium point 'E_1'.

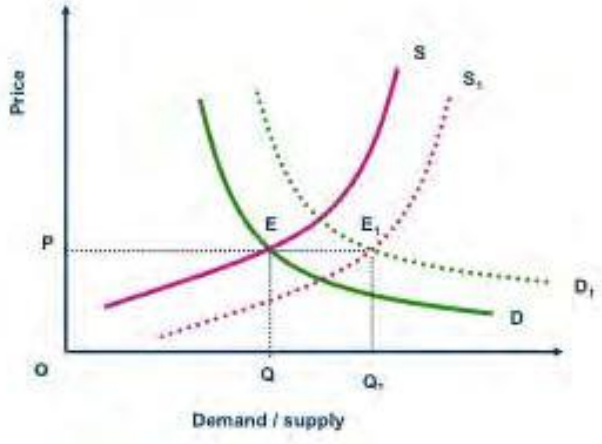
The price of the commodity is OP at 'E' and it increases from P to P_1 and becomes OP_1.i.e. When the demand increases more than the supply (ΔQd > ΔQs) the price of the commodity will increase.

Graph – Price And Quantity Variability When Change In Demand Is More Than The Change In Supply



The following graph explains clearly that both the demand for the commodity and the supply increases in the same proportion (i.e. ΔQD = ΔQS).The shift in supply curve and the shift in demand curve are in the same level and the new equilibrium point 'E_1' determines the same price OP level. There is no change in the price when the demand and supply are equal.

Graph – Price And Quantity Variabilty When Change In Demand And Supply Equally



Profit Maximization under Perfect Competition

The primary objective of any business is to maximize the profit. Profit can be increased either by increasing total revenue (TR) or by reducing the total cost (TC). The profit is nothing but the difference between the revenue and the cost.

The total profit = TR – TC

Let us assume that whatever produced is sold in the market.

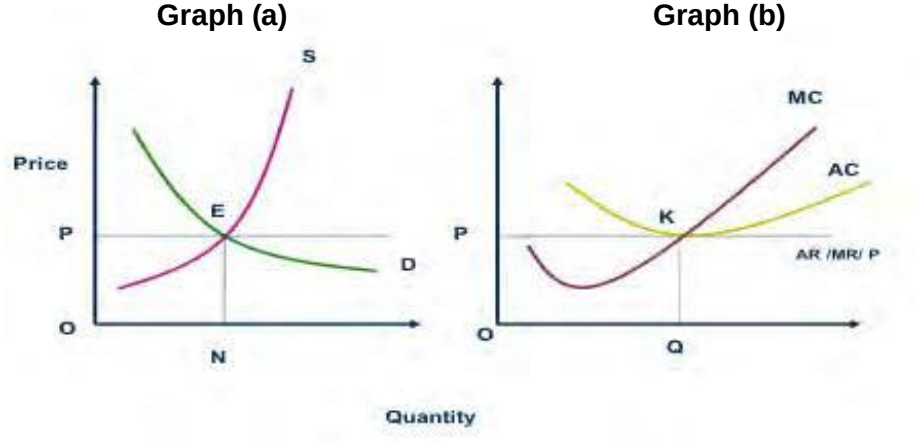
TR = Quantity sold x price

To increase the revenue, it is better to either increase the quantity sold or increase the price. Therefore while increasing the revenue or minimizing the total cost of production over a period of time with attendant economies of scale will widen the difference to gain more profit.

In PERFECT MARKET, ***the firm's Marginal cost, Average cost, Average revenue, Marginal revenue are equal to the price of the commodity***. The cost is measured as average cost and marginal cost. When the firm is in equilibrium, producing the maximum output i.e. cost of the last item produced is known as marginal cost. The total cost divided by the number of goods produced will give the average cost. When the firm is operating in perfect market MC = AC.

In the same way the revenue available to the firm through selling goods is called as total revenue. The last item sold is the marginal revenue. The total revenue divided by the number of items sold is the average revenue and when the firm is working in the perfect market the MR shall be equal to AR. Therefore the MC = MR = AR = AC = P in the short run. The size of the plant is fixed only with the variable factors and the price is fixed by the demand and supply.

Perfect Market Price Determination

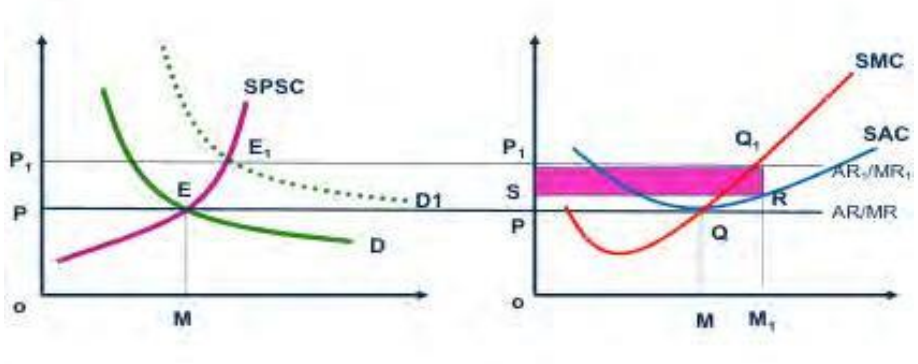


The demand for the commodity is expressed in the demand curve (D) and the supply (S) curve is known as S curve. The point of intersection of the D curve and S Curve is the equilibrium point (E) where the price is determined as OP. (Rs.10)

The average revenue per unit is also Rs.10 expressed in graph (b) along with the marginal cost

(MC) and average cost (AC) curves. The MC and AC intersect at point 'K' which is equal to the price OP / AR / MR. Therefore we can say that P=AR=AC=MR=MC at this level. At this equilibrium point buyers and sellers are satisfied with their price. The price of the commodity includes the normal profit through the average cost. The average cost consists of implicit and explicit costs. That means the organizers knowledge, time, idea and effort is also considered in the cost of production. Let us assume that in the short run the demand for the commodity increases, then the change in price and profit are explained in the graph below.

Graph - Short Run Profit Maximization Under Perfect Competition



From the above graph we can understand that in the short run demand curve DD and the short period supply curve SPSC intersects at 'E' and the price of the commodity is determined as OP. The right side graph indicates the cost and revenue curves. The average revenue (AR) and marginal revenue (MR) are equal to the price of the commodity OP. The short period marginal cost (SMC) and short period average cost (SAC) are also depicted in the graph. The minimum average cost is selected based on the equilibrium point Q which produces optimum quantity of OM. The marginal cost curve and average cost curve intersects at the point Q that means QM amount (rupees) is spent as marginal as well as average cost. The SAC is tangential to AR/MR at this point therefore we can conclude that the price of the commodity is equal to the average cost, average revenue, marginal cost and marginal revenue (P = AR = MR = AC = MC)

If the demand increases in the market then the new demand curve D_1D_1 intersects the SPSC at the new equilibrium point 'E_1' and the price increases from OP to OP1. Therefore the average revenue also increases from AR to AR_1. At this situation $P_1 = AR_1 = MR_1$ but the SMC curve intersects at Q_1 ie., new equilibrium point and the OM quantity has increased from OM to OM1 in the 'X' axis. The average cost has increased as M_1R.

The profit = Total Revenue (TR) – Total Cost (TC)

TR = quantity sold x price

TC = average cost x quantity produced

TR = OM_1 x OP_1 = $OM_1Q_1P_1$

TC = M_1R x OM_1 = OM_1RS

Profit = $OM_1Q_1P_1$ - OM_1RS = P_1Q1RS

In the above graph, the shaded portion of P_1Q_1RS is the total profit earned by the firm in the short run but in the long run the organization will increase the production and will supply more of the

commodity. Ultimately both the demand and the supply gets equalized and the short run abnormal profit becomes normal. Therefore we can conclude that even in the perfect market it is possible to earn profit in the short period.

It indicates clearly that in the short run, in any perfect market, the increase in demand will increase the profit to the businessmen. The normal profit will be there until it gets equalized with the demand i.e. new D_1D_1 with the increased supply of S_1S_1.

This economic profit attracts new firms into the industry and the entry of these new firms increases the industry supply. This increased supply pushes down the price. As price falls, all firms in the industry adjust their output levels in order to remain in profit maximizing equilibrium. New firms continue to enter the industry and price continues to fall, and existing firms continue to adjust their outputs until all economic profits are eliminated. There is no longer an incentive for the new firms to enter and the owners of all firms in the industry will earn only what they could make through their best alternatives.

Economic losses motivate some to exit (shut down) from the industry. The exit of these firms decreases industry supply. The reduction in supply pushes up market price and all the firms shall adjust their output in order to maximize their profit.

Shut Down Point:

If the market price for the product is below minimum average variable cost, the firm will cease to produce, if this appears to be not just a temporary phenomenon. When the price is less than average variable cost it will neither cover fixed cost nor a part of the variable costs. Then the firm can minimize losses up to total fixed costs only by not producing. It is therefore regarded as the shut down point.

In the short run, a firm can be in equilibrium at various levels depending upon different cost and market price conditions. But these are temporary equilibrium points. Thus at this unstable equilibrium point the firm gets excess profits or normal profit and sometimes incur loss also.

Consequences of Pure Competition

Perfect competition ensures maximum welfare of the people as a whole. Each firm tends to attain the most efficient size to expand output and to reduce the average cost of production.

MONOPOLY MARKET

Mono means single, poly means seller and hence monopoly is a market structure where only one sells the goods and many buyers buy the same. Monopoly lies at the opposite extreme from perfect competition on the market structure continuum. A firm produces the entire supply of a particular good or service that has no close substitute.

Characteristic Features:

1. A single seller in the market

2. There are no close substitutes
3. There is a restriction for the entry and exit for the firms in the market
4. Imperfect dissemination of information

This does not mean that the monopoly firms are large in size. For example a doctor who has a clinic in a village has no other competitor in the village but in the town there may be more doctors. Therefore the barrier to the entry is due to economies of scale, economies of scope, cost complementarities, patents and other legal barriers.

Profit maximization under Monopoly Competition

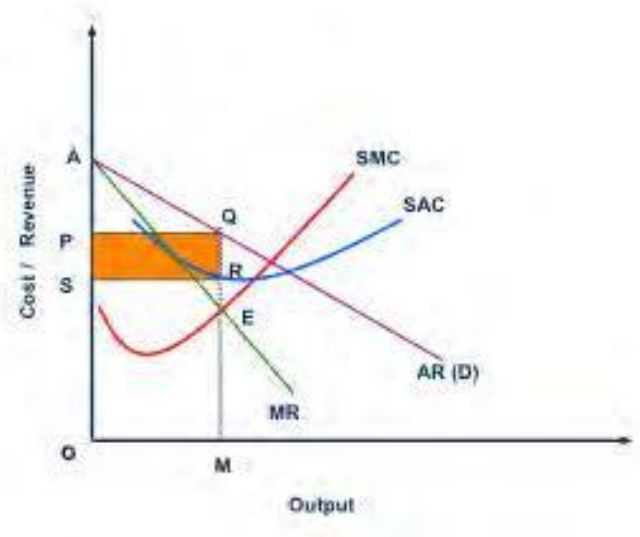
For monopolist there are two options for maximizing the profit i.e. maximize the output and the limit the price or limit the production of the goods and services and fix a higher price (market driven price). In monopoly competition, the demand curve of the firm is identical to the market demand curve of that product. In monopoly the MR is always less than the price of the commodity.

Profit Maximization Rule:

Produce at that rate of output where MR = MC. From the graph we can understand the profit maximization under monopoly. 'X' axis indicates the output and 'Y' the price/cost and revenue. The marginal revenue curve is denoted as MR. The average revenue curve is AR which is also the demand curve. MC is the marginal cost curve, It looks like a tick mark and average cost curve AC is boat shape.

From the graph it is seen that the demand curve D and average revenue curve AR are depicted as a single curve. The marginal revenue curve MR also slopes the same but the MR curve is below the AR curve. The short run marginal cost curve SMC looks like a tick mark and the boat shaped average cost curve SAC is also seen in the graph.

Graph- Profit Maximization Under Monopoly Market



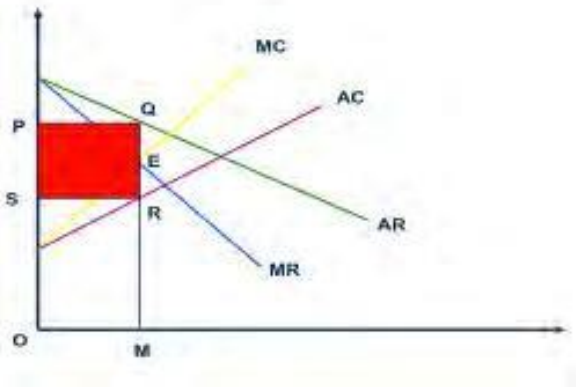
The profit maximization criteria of MR=MC is followed in the monopoly market and the equilibrium point 'E' is derived from the intersection of MR and SMC curves in the short run. i.e. MC curve or SMC here

intersects the MR curve from below. Based on the equilibrium point, the output is the optimum level of production i.e., at OM quantity. The price of the commodity is determined as OP. On an average the firm receives MQ amount as revenue. The total revenue of selling OM quantity gives OMQP amount of total revenue (OM quantity x OP price). The firm has spent MR as an average cost to produce OM quantity and the total cost of production is OMRS (OM quantity x MR cost per unit)

Profit	=	TR - TC
	=	OMQP - OMRS
	=	PQRS (the shaded portion in the graph)

In the short run the monopoly firm will earn profit continuously even with various returns.

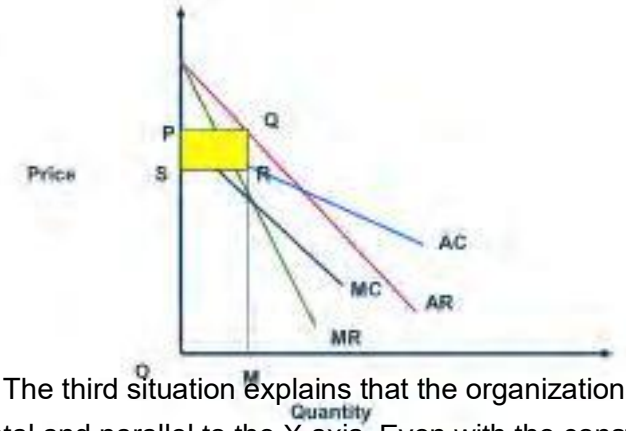
Graph- Monopoly Profit With Increasing Cost



From the above graph it can be understood that the cost of production (MC, AC) is increasing along with the output but even with the increasing scale the firm earns PQRS as profit which is the shaded portion in the graph.

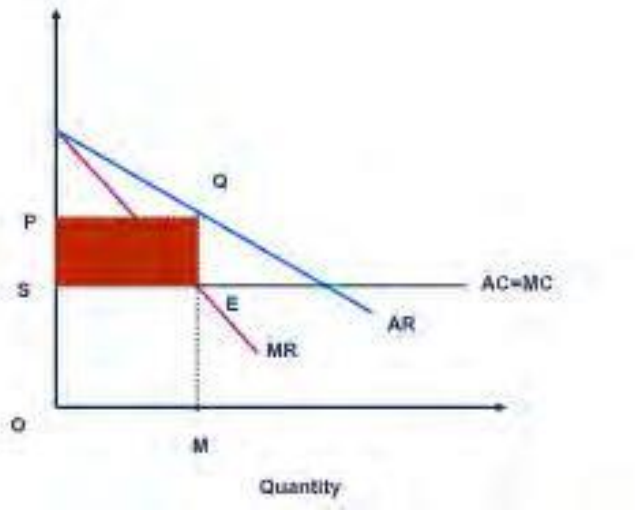
The graph given below explains clearly that the firms cost curves of Marginal cost (MC) and Average cost (AC) are declining with this slope. The organization earns PQRS profit but the profit is comparatively lesser than the previous situation.

Graph – Monopoly Profit Under Decreasing Cost



The third situation explains that the organizations' marginal cost and average cost curves are horizontal and parallel to the X axis. Even with the constant scale, the firms earns profit as PQRS.

Graph – Monopoly Profit Under Constant Cost



Therefore we can conclude by saying that under monopoly market structure the firm will earn profit even under different cost conditions and profit maximization takes place. They follow the price determination condition as MC=MR and never incur loss.

Difference Between Perfect And Monopoly Market:

1. Perfect market is unrealistic in practical life. But slowly certain commodities are moving towards it. Monopoly market exists in real time.
2. Under perfect market only homogenous products are sold but on the other hand monopoly market deals with different products.
3. Under perfect competition, price is determined by demand and

   supply of the market. But in monopoly the seller determines the price of the good.
4. Monopolist can control the market price but in perfect competition the sellers have no control over the market price.
5. There is no advertisement cost in perfect market. In other markets it is essential and it is included in the cost of production and is reflected in the price.
6. Monopolist sell their products higher than the perfect competitors except when there is government regulation or adverse public opinion.

MONOPOLISTIC COMPETITION

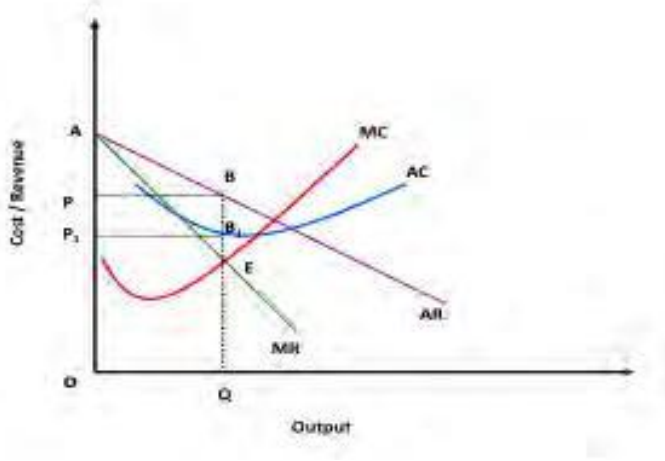
The perfect competition and monopoly are the two extreme forms. To bridge the gap the concept of monopolistic competition was developed by Edward Chamberlin. It has both the elements like many small sellers and many small buyers. There is product differentiation. Therefore close

substitutes are available and at the same time it is easy to enter and easy to exit from the market. Therefore it is possible to incur loss in this market. The profit maximization for each firm, for each product depends upon the differentiation and advertising expenditure.

As every firm is acting as a monopoly the same logic of monopoly is followed. Each and every firm will have their own set of cost and revenue curves and the price determination is based on the rule of MR=MC and they incur varied profits according to their market structure. But in the monopolistic competition number of monopoly competitors will be there in different levels. They monopolize in a small geographical area or a segment or a model.

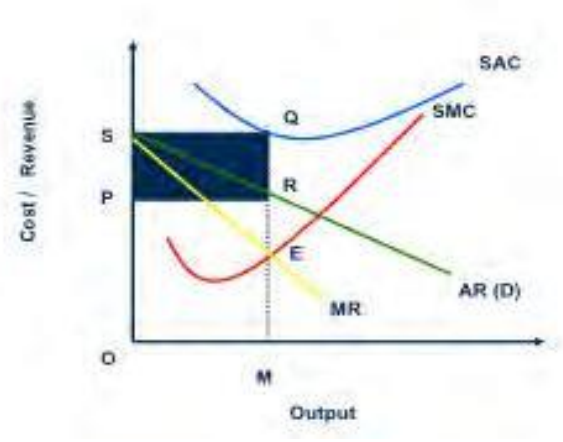
The demand curve of a monopolistically competitive firm would be more elastic than that of a purely monopolistic firm. The cost function of a firm would be that there will not be any significant difference across different types of structures in the product market. Given the function, and the corresponding AR and MR curves, and the cost function, and the corresponding SAC and SMC curves, the price and output determination of a profit – maximizing monopolistically competitive firm could be as follows.

Graph – Pricing Under Monopolistic Competition With Profit



From the above graph we can understand that under monopolistic competition firms incur profit which is PP_1BB_1 the pricing and profit determination are similar to the monopoly market. MR is marginal revenue curve AR is average revenue and demand curve. At point 'E' both MR and marginal cost curve MC intersects. Based on this equilibrium the product is sold at OP price in the market. The Average cost curve indicates that the firm has spent QB_1 amount per unit but it receives QB through its sale. Therefore the difference between the two BB_1 is the profit margin which should be multiplied with the total quantity sold OQ which gives PP_1BB_1 amount of profit.

Graph – Pricing under Monopolistic competition with loss



The marginal revenue curve MR and the average revenue curve AR that is the demand curve is also represented in the graph. The condition for product decision is MR=MC. The MR and MC intersect at point 'E' based on the equilibrium. It is decided to produce OM quantity and the price of the commodity is fixed at OP in the market. Therefore the total revenue by selling OM quantity in the market for OP price is equal to OM x OP = OPRM. But to produce OM quantity the firm has spent MQ as average cost. Therefore the total cost of production = OM x MQ = OMQS.

Therefore the profit = TR – TC
= ORPM – OMQS
= - PQRS. (Negative)

That means the cost of production per unit is more than the average revenue earned per unit. Average revenue = MR and the Average cost = MQ which is more than the revenue. Therefore the difference QR is the loss per unit multiplied with OM quantity. PQRS is the total loss to the organization.

OLIGOPOLY MARKET

This is a market consisting of a few firms relatively large firms, each with a substantial share of the market and all recognizing their interdependence. It is a common form of market structure. The products may be identical or differentiated. The price determination and profit maximization is based on how the competitors will respond to price or output changes.

Types Of Oligopoly:

1. Pure (or) perfect and Imperfect (or) Differentiated oligopoly: if the firm produced homogeneous products it is perfect oligopoly. If there is product differentiation then it is called as imperfect or differentiated oligopoly.

2.Open and closed oligopoly: entry is not possible. When it is closed to the new entrants then it is closed oligopoly. On the other hand entry is accepted in open oligopoly.

3.Partial and full oligopoly: under partial oligopoly industry is dominated by one large firm who is a price leader and others follow. In full oligopoly there is no price leadership.

4.Syndicated and organized oligopoly: where the firms sell their products through a centralized syndicate. On the other hand firms organize themselves into a central association for fixing prices, output and quotas.

Characteristic Features Of An Oligopoly Market:

1. Few sellers
2. Lack of uniformity in the product
3. Advertisement cost is included
4. No monopoly competition
5. Firms struggle constantly
6. There is interdependency
7. Experience of Group behavior
8. Price rigidity
9. Price leadership
10. Barriers to entry

Price rigidity:

The price will be kept unchanged due to fear of retaliation and prices tend to be strict and inflexible. No firm would indulge in price cutting as it would eventually lead to a price war with no benefit to anyone.

Reasons for rigidity are:

Firms know ultimate outcome of price cutting; large firms incur more expenditure than others; keeping the price low to reduce the new entrants; increased price rise leads to reduction in number of customers.

The oligopoly prices are indeterminate. The demand function is then an important ingredient in the price determination mechanism. Several theories of oligopoly prices have been developed and each one of them is based on a particular assumption about the reactions of the rival firms and the firms' actions. The popular models and appropriate classifications are discussed below.

Oligopoly Models:

1.**Cournot oligopoly:** There are few firms producing differentiated or homogeneous products and each firm believes that competitors will hold their output constant if it changes its output.

2.**Stackelberg oligopoly:** Few firms and differentiated or homogeneous product. The leader chooses an output and others follow.

3.**Bertrand oligopoly:** Few firms produce identical product. Firms compete in price and react optimally to competitor's prices.

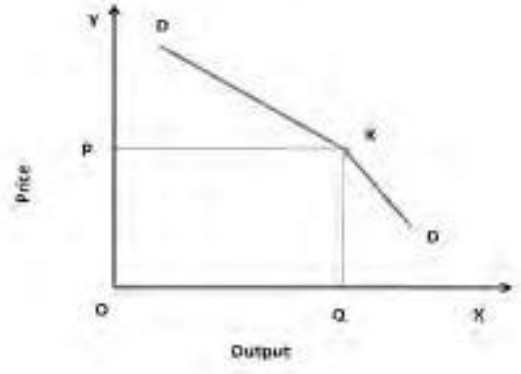
4.**Sweezy oligopoly:** An industry in which there are few firms serving many consumers. Firms produce

differentiated products and each firm believes competitors will respond to a price reduction but they will not follow a price increase.

KINKED DEMAND CURVE

When a firm increases its price, the rival firms do not follow it by increasing their prices in turn this increases its market share. When a firm reduces its price rival firms immediately follows it by decreasing their prices. If they do not do so, customers go to the firm which is offering at lower price. This is the fundamental behaviour of the firms in an oligopoly market. Let us understand the unique characteristic feature of kinked demand curve.

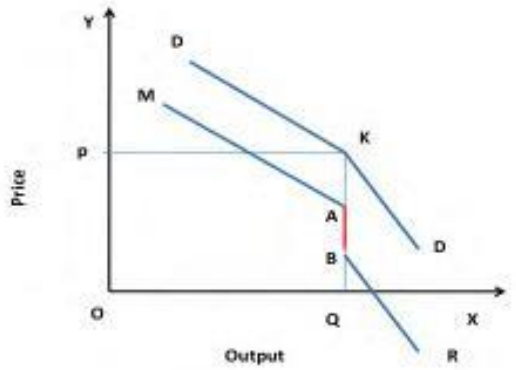
Graph – Kinked Demand Curve



The demand curve in oligopoly has two parts. (i) relatively elastic demand curve (ii) relatively inelastic demand curve as shown in the graph below. In oligopoly market firms are reluctant to change prices even if the cost of production (or) demand changes. Price rigidity is the basis for the kinked demand curve. Each firm faces demand curve kinked at the currently prevailing price. At higher prices demand is highly elastic, whereas at lower prices it is inelastic.

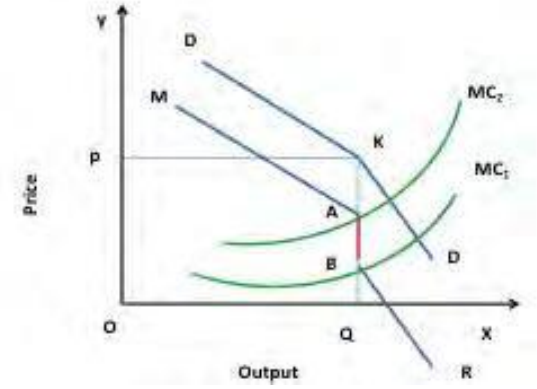
From the graph we can understand that OP is the given price. There is a kink at point K on demand curve (DD). Therefore DK is the elasticity segment and KD is the inelastic segment. There is a change in the slope of the demand curve at K. At this situation the firm follows the prevailing price and does not make any change in it because rising of price would contract sales as demand tends to be more elastic at this stage. It would also fear losing buyers due to competitor's price who have not raised their prices. On the other hand lowering of price would imply an immediate retaliation from the rivals on account of close interdependence of price, output movement in the oligopoly market. Therefore the firm will not expect much rise in sale with price reduction.

Graph – Marginal Revenue Curve In Oligopoly Market



The average revenue curve and the demand curve (DD) of an oligopoly firm have a kink. The kinked average revenue curve implies a discontinuation in the marginal revenues curve. It explains the phenomenon of price rigidity in oligopoly market.

Graph – Price Rigidity Under Oligopoly Market



The price output level that maximizes the profits for a firm is derived from the equilibrium point, which lies at the intersection of the MC and the MR curves. The price output combination can remain optimal at the kink even though the MC fluctuates because of the associated gap in the MR curve. This is shown in the graph. The profit maximizing price OP and output combination of OQ remains unchanged as long as MC fluctuates between MC1 and MC2 that is between A and B. Hence there is price rigidity- it means OP does not change. It is concluded that once a general price level is reached it remains unchanged over a period of time in oligopoly market.

Price Leadership under Oligopoly:

In an oligopolistic situation, there are more than two or a few sellers who are able to exercise monopolistic influence. In such a market situation, we generally find that there exists what is called **'price leadership'**. Under price leadership, one firm assumes the role of a price leader and fixes the price of the product for the entire industry. The other firms in the industry simply follow the price leader and accept the price fixed by him and adjust their output to this price. The price leader is generally a very large or a dominant firm. It often happens that price leadership is established as a result of price war in which one firm emerges as the winner.

Types of Price Leadership:

1. **Price Leadership of a Dominant Firm:** Under this type of price leadership, there is generally one form which produces the bulk of the product of the industry. By virtue of this position, it is able to dominate the entire market. It sets the price and the other firms simply accept this price. The other firms are not in a position to exercise any influence on the market price. So, the dominant firm fixes a price so as to maximize its profits. The other firms have to adjust their output to the price so fixed by the dominant firm.

2. **Barometric Price Leadership:** Under this type of price leadership, an old, experienced and the largest firm assumes the role of a leader. Besides, it protects the interests of all firms instead of merely promoting its own interest. In a way it acts as the custodian of firms operating in the industry. It fixes a price which is found to be suitable for all the firms in the industry. This price is fixed by taking into consideration the market conditions with regard to the demand for the product, cost of production, competition from the rival producers, etc.

3. **Exploitative or Aggressive Price Leadership:** Under this category, one big firm comes to establish its supremacy in the market by following aggressive price policies. This firm compels other firms to follow it and accept the price fixed by it. In case the other firms show any independence, this firm threatens them and coerces them to follow its leadership with the result that the prices set by this firm comes to be accepted.

PRICE DISCRIMINATION

Price discrimination means that the producer charges different prices for different consumers for the same goods and service. Price discrimination occurs when prices differ even though costs are same. For example, Doctors charge different fees for different customers. In case they charge different prices in different markets, people go to the market where price is low. Then it gets equalized in the long run.

Types of Price Discrimination:

1. Personal Discrimination
2. Place Discrimination
3. Trade Discrimination
4. Time Discrimination
5. Age Discrimination
6. Sex Discrimination
7. Location Discrimination
8. Size Discrimination
9. Quality Discrimination
10. Special Service
11. Use of services
12. Product Discrimination

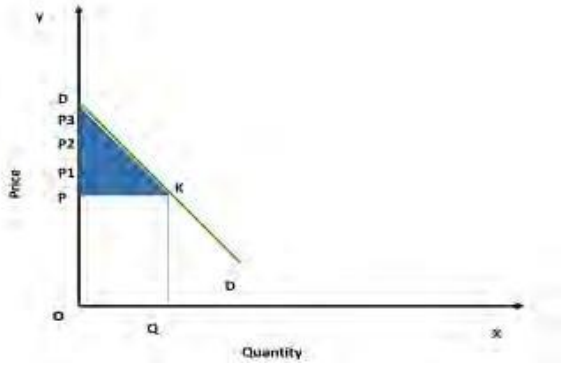
Objectives of Price Discrimination:

1. To dispose the surpluses
2. To develop new market
3. To Maximize use of unutilized capacity
4. To Earn monopoly profit
5. To Retain export market
6. To Increase the sales

DEGREES OF PRICE DISCRIMINATION

First Degree Price Discrimination:

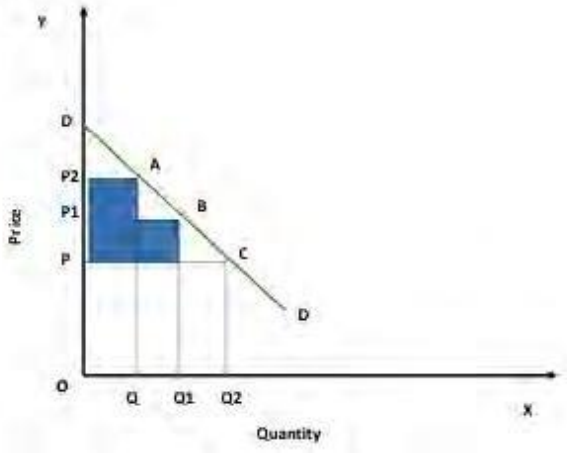
Firm charges a different price to each of its customers. The maximum willingness to pay is fixed as price which is called as reservation price. In perfect market the difference between demand and marginal revenue is the profit (for additional unit producing and selling). Firms do not know the customers willingness, therefore different prices. In imperfect market it is not possible to price for each and every customer.



Second Degree Discrimination:

Firm charges different prices per unit for different quantities of the same goods or service. They follow block pricing method. The units in a particular block will be uniformly priced. The possible maximum price is charged for some given minimum block of output purchased by the buyers and then the additional blocks are sold at lower prices.

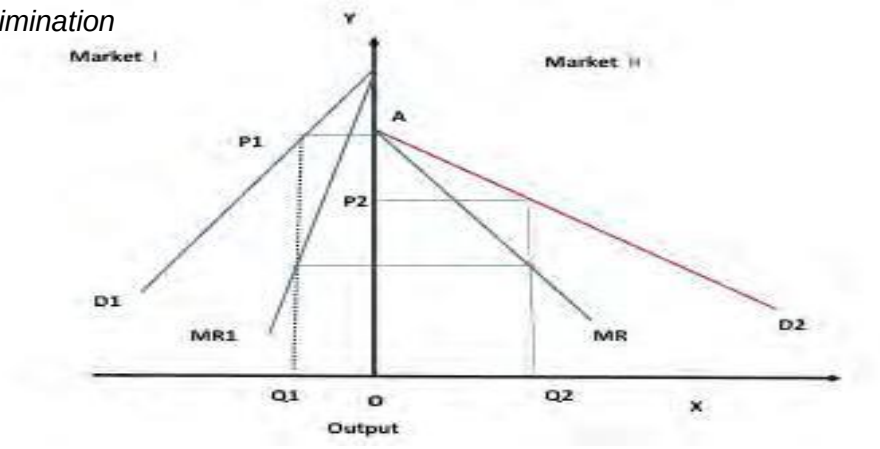
Graph – Second Degree Price Discrimination



Third Degree Discrimination:

Firm segments the customers into groups with separate demand curves and charges different prices from each group. In first degree price discrimination, in case of unit wise differing prices, the second degree price discrimination is a case of block wise differing prices. In second degree discrimination a part of consumer's surplus is captured. But the third degree is commonly used. The firm divides its total output into many submarkets and sets different prices for its product in each market in relation to the demand elasticity. There are two markets I and II their demand curves D1 and D2 is given. D1 is less elastic and D2 is more elastic demand curve. The firm distributes OQ1 to market - I at OP1 price and OQ2 to the market II at OP2 price. Market- I has less elastic demand therefore higher price is charged.

Graph – Third Degree Price Discrimination



The pricing mechanisms in different market structures provide a sound theoretical base to understand how price and output decisions are made. There are several other methods commonly followed in practice. However, price discrimination does not receive social and moral justification in the society.

Conditions for Price Discrimination:

1. **Multiple Demand Elasticity's:** there must be difference in demand elasticity's among buyers due to differences in income, location, available alternatives, tastes or other factors.
2. **Market Segmentation:** the seller must be able to partition (segment) the total market by segregating buyers into groups according to elasticity.
3. **Market Sealing:** the seller must be able to prevent, or natural circumstances must exist which will prevent any significant resale of goods from the lower to the higher price sub-market.

DUOPOLY

Duopoly may be of two types:

1. duopoly without product differentiation and
2. duopoly with product differentiation

Duopoly without product differentiation:

Under duopoly the simplest cases will be those selling an identical commodity and there is no product differentiation and there will be collusion between the two. They may agree on a price assign quotas and divide the territory in which each is to market his goods.

Incase, if there is no agreement between the two, a constant price war will be the most probable consequence. The important factors to be considered in this context will be the costs and gains in driving out the rival, the relative sizes of the two firms, the demand elasticity and mobility of the purchasers, the promptitude with which the rival reacts to changes in the other's policy and the extent to which price concession can be kept secret, and so on.

Duopoly with Product Differentiation:

There is no fear of immediate retaliatory measures by the rivals. If one producer changes his price-output policy, there is less danger of price-war. The firm with better products can earn supernormal profits.

THEORY OF THE FIRM – PRODUCTION FUNCTION

Introduction:

Production is an important economic activity which satisfies the wants and needs of the people. Production function brings out the relationship between inputs used and the resulting output. A firm is an entity that combines and processes resources in order to produce output that will satisfy the consumer's needs. The firm has to decide as to how much to produce and how much input factors (labor and capital) to employ to produce efficiently. This chapter helps to understand the set of conditions for efficient production of an organization.

Factors of production include resource inputs used to produce goods and services. Economists categorize input factors into four major categories such as land, labor, capital and organization.

Land: Land is heterogeneous in nature. The supply of land is fixed and it is a permanent factor of production but it is productive only with the application of capital and labor.

Labor: The supply of labor is inelastic in nature but it differs in productivity and efficiency and it can be improved.

Capital: is a man made factor and is mobile but the supply is elastic.

Organization: the organization plans, supervises, organizes and controls the business activity and also takes risks.

PRODUCTION FUNCTION

Production function indicates the maximum amount of commodity 'X' to be produced from various combinations of input factors. It decides on the maximum output to be produced from a given level of input, and how much minimum input can be used to get the desired level of output. The production function assumes that the state of technology is fixed. If there is a change in technology then there would be change in production function.

Q = f (Land, Labour, Capital, Organization) Q = f (L, L, C, O)

The production manager's responsibility is that of identifying the right combination of inputs for the decided quantity of output. As a manager, he has to know the price of the input factors and the budget allocation of the organization.

The major objective of any business organization is maximizing the output with minimum cost. To achieve the maximum output the firm has to utilize the input factors efficiently. In the long run, without increasing the fixed factors it is not possible to achieve the goal. Therefore it is necessary to understand the relationship between the input and output in any production process in the short and long run.

Cobb Douglas Production Function:

This is a function that defines the maximum amount of output that can be produced with a given level of inputs. Let us assume that all input factors of production can be grouped into two categories such as labour (L) and capital (K).The general equilibrium for the production function is

Q = f (K, L)

There are various functional forms available to describe production. In general Cobb-Douglas

production function (Quadratic equation) is widely used

$$Q = A K^{\alpha} L^{\beta}$$

Q = the maximum rate of output for a given rate of capital (K) and labour (L).

SHORT RUN PRODUCTION FUNCTION:

In the short run, some inputs (land, capital) are fixed in quantity. The output depends on how much of other variable inputs are used. For example if we change the variable input namely (labour) the production function shows how much output changes when more labour is used. In the short run producers are faced with the problem that some input factors are fixed.

The firms can make the workers work for longer hours and also can buy more raw materials. In that case, labour and raw material are considered as variable input factors. But the number of machines and the size of the building are fixed. Therefore it has its own constraints in producing more goods.

In the long run all input factors are variable. The producer can appoint more workers, purchase more machines and use more raw materials. Initially output per worker will increase up to an extent. This is known as the Law of Diminishing Returns or the Law of Variable Proportion. To understand the law of diminishing returns it is essential to know the basic concepts of production.

Measures Of Productivity:

Total production (TP): the maximum level of output that can be produced with a given amount of input.
Average Production (AP): output produced per unit of input AP = Q/L

Marginal Production (MP): the change in total output produced by the last unit of an input

Marginal production of labour = Q / L (i.e. change in the quantity produced to a given change in the labour)

Marginal production of capital = Q / K (i.e. change in the quantity produced to a given change in the capital)

PRODUCTION FUNCTION:

A production function, like any other function can be expressed and analyzed by any one or more of the three tools namely table, graph and equation. The maximum amounts of output attainable from various alternative combinations of input factors are given in the table.

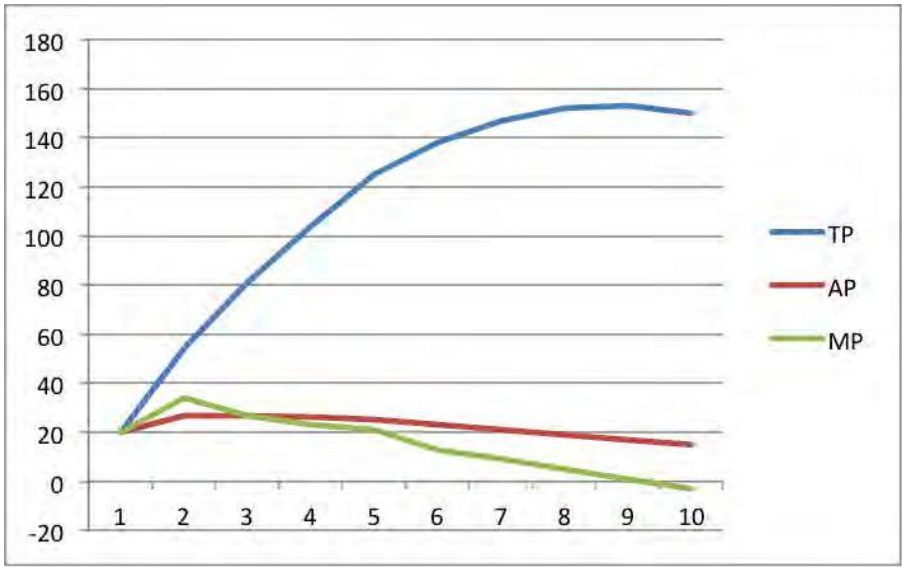
The firm has a set of fixed variables. As long with that it increases the labor force from 1 unit to 10 units. The increase in input factor leads to increase in the output up to an extent. After that it starts declining. Marginal production increases in the initial period and then it starts declining and it become negative.

The production function expressed in tabular form is as follows.

Labour	TP	AP	MP

1	20	20	0
2	54	27	34
3	81	27	27
4	104	26	23
5	125	25	21
6	138	23	13
7	147	21	9
8	152	19	5
9	153	17	1
10	150	15	-3

The firm should stop increasing labor force if the marginal production is zero- that is the maximum output that can be derived with the available fixed factors. The 9th labor does not contribute to any output. In case the firm wants to increase the output beyond 153 units it has to improve its fixed variable. That means purchase of new machinery or building is essential. Therefore the firm understands that the maximum output is 153 units with the given set of input factors. The graphical representations of the production function are as shown in the following graph.



The graphical presentations of the values are shown in the graph. The 'X" axis denotes the labour and the 'Y' axis indicates the total production (TP), average production (AP) and marginal production (MP). From the given table and graph we can understand all the three curves in the graph increased in the beginning and the marginal product (MP) first fell, then the average product (AP) finally total production (TP). The marginal production curve MP cuts the AP at its highest point. Total production TP falls when marginal production curve cuts the 'X' axis. The law of diminishing returns states that if increasing quantity of a variable input are combined with fixed, eventually the marginal product and then average product will decline.

When the production function is expressed as an equation it shall be as follows:

Q = f (Ld, L, K, M, T)

It can be expressed as Q = f1, f2, f3, f4, f5 > 0

Where,

Q = Output in physical units of good X
Ld = Land units employed in the production of Q
L = Labour units employed in the production of Q
K = Capital units employed in the production of Q
M = Managerial Units employed in the production of Q
T = Technology employed in the production of Q f = Unspecified function
fi = Partial derivative of Q with respect to ith input.

This equation assumes that output is an increasing function of all inputs.

The Law Of Diminishing Returns:

In the combination of input factors when one particular factor is increased continuously without changing other factors the output will increase in a diminishing manner. Let us assume that a person preparing for an examination continuously prepares without any break.

The output or the understanding and the coverage of the syllabus will be more in the beginning rather than in the later stages. There is a limit to the extent to which one factor of production can be substituted for another.

The total production increases up to an extent and it gets saturated or there won't be any change in the output due to the addition of the input factor and further it leads to negative impact on the output. That means the marginal production declines up to an extent and it reaches zero and becomes negative.

The point at which the MP becomes zero is the maximum output of the firm with the given set of input factors. This law is applicable in all human activities and business activities.

For example with two sewing machines and two tailors, a firm can produce a maximum of 14 pairs of curtains per day. The machines are used only from 9 AM to 5 PM and the machines lie idle from 5 pm onwards.

Therefore the firm appoints 2 more tailors for the second shift and the production goes up to 28 units. Then adding two more labour to assist these people will increase the output to 30 units. When the firm appoints two more people, then there won't be any change in their production because their Marginal productivity is zero. There is no addition in the total production.

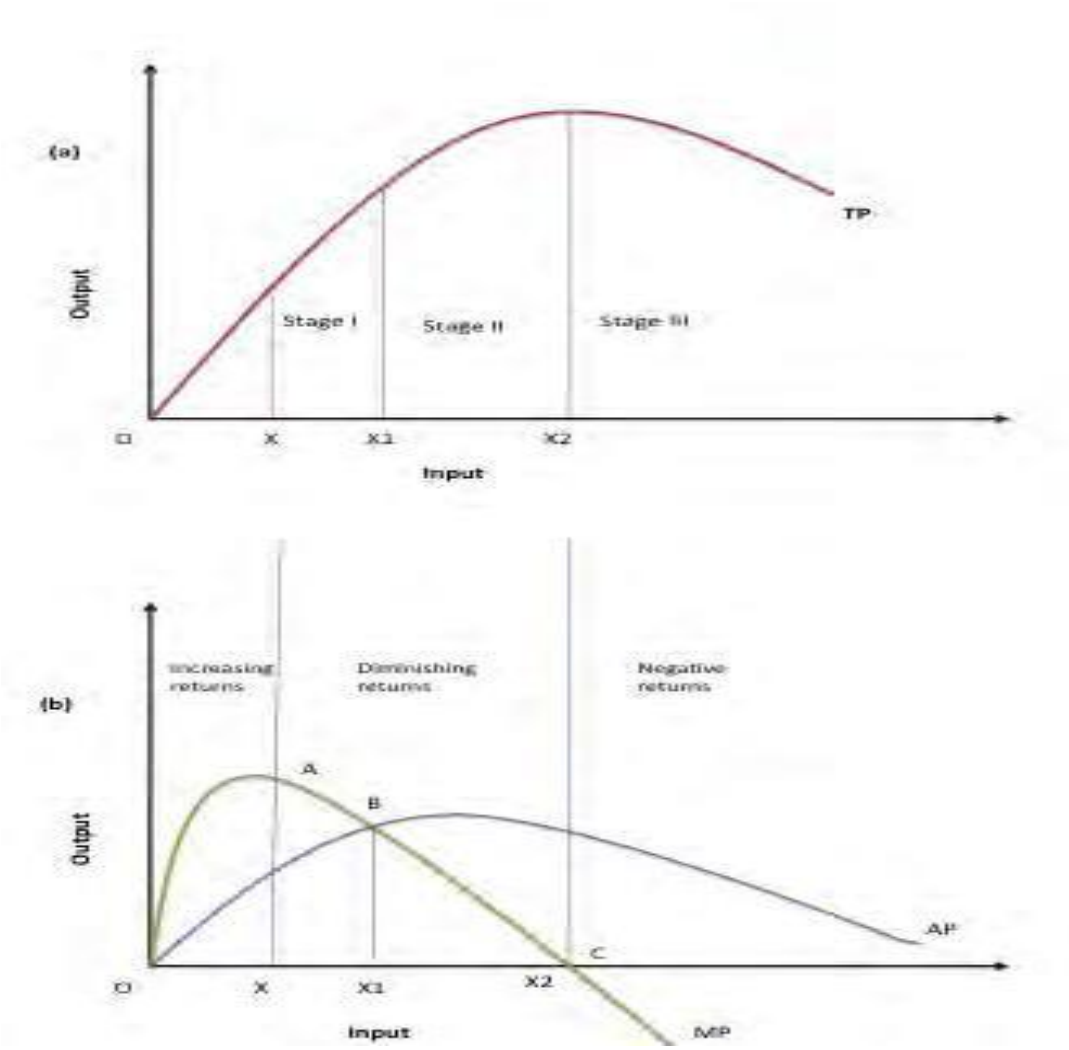
That means there is no use of appointing two more tailors. Therefore, there is a limit for output from a fixed input factors but in the long run purchase of one more sewing machine alone will help the firm to increase the production more than 30 units.

From the graph given below we can see the total production (TP) curve and the marginal production curve (MP) and average production curve (AP). It is classified into three stages; let us understand the stages in terms of returns to scale.

Stage I: The total production increased at an increasing rate. We refer to this as increasing stage where the total product, marginal product and average production are increasing.

Stage II: The total production continues to increase but at a diminishing rate until it reaches the next stage. Marginal product, average product are declining but are positive. The total production is at the maximum level at the end of the second stage with a zero marginal product.

Stage III: In this third stage total production declines and marginal product becomes negative. And the average production also started decline. Which implies that the change in input factors there is a decline in the over all production along with the average and marginal.



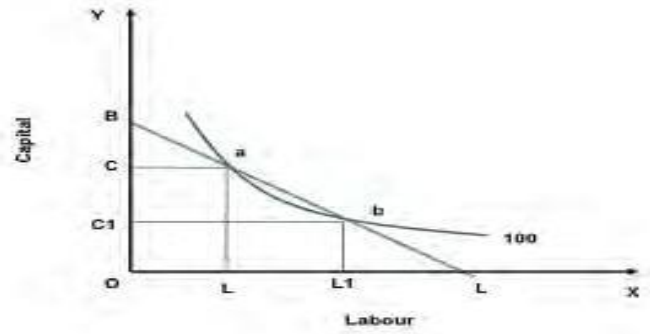
In economics, the production function with one variable input is illustrated with the well known law of variable proportions. (Above graph) it shows the input-output relationship or production function with one factor variable while other factors of production are kept constant. To understand a production function with two variable inputs, it is necessary know the concept iso-quant or iso-product curve.

ISO-Quants:

To understand the production function with two variable inputs, iso-quant curve is used. These curves show the various combinations of two variable inputs resulting in the same level of

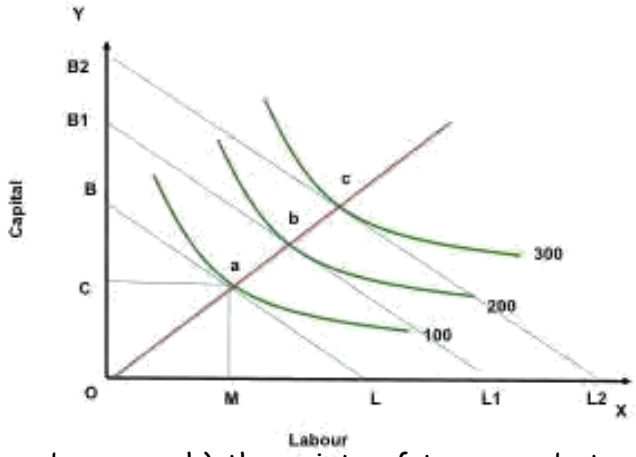
output. The shape of an Iso-quant reflects the ease with which a producer can substitute among inputs while maintaining the same level of output.

From the graph we can understand that the iso-quant curve indicates various combinations of capital and labour usage to produce 100 units of motor pumps. The points a, b or any point in the curve indicates the same quantum of production. If the production increases to 200 or 300 units definitely the input usage will also increase therefore the new iso-quant curve for 200 units (Q1) is shifted upwards. Various iso-quant curves presented in a graph is called as iso- quant map.
Iso-cost: different combination of inputs that can be purchased at a given expenditure level.



The above graph explains clearly that the iso quant curve for 100 units of motor consists of 'n' number of input combinations to produce the same quantity. For example at 'a' to produce 100 units of motors the firm uses OC amount of capital and OL amount of labour ie., more capital and less labour force. At 'b' OC1 amount of capital and OL1 labour force is used to produce the same that means more labour and less capital.

Optimal input combination:



Optimal input combination: (the above graph) the points of tangency between iso quant and iso cost curves depict optimal input combination at different activity levels.

<u>Expansion path:</u>

Optimal input combinations as the scale of production expand. From the graph it is clear that the optimum combination is selected based on the tangency point of iso cost (budget line) and iso-

quant ie., a, b respectively. The point 'a' indicates that to produce 100 units of motor the best combination of capital and labour are OC and OM which is within the budget. Over a period of time a firm will face various optimum levels if we connect all points we derive expansion path of a firm.

The Law of Returns to Scale

In the long run the fixed inputs like machinery, building and other factors will change along with the variable factors like labor, raw material etc. With the equal percentage of increase in input factors various combinations of returns occur in an organization.

Returns to scale: the change in percentage output resulting from a percentage change in all the factors of production. They are increasing, constant and diminishing returns to scale.

Increasing returns to scale may arise: if the output of a firm increases more than in proportionate to an increase in all inputs. For example the input factors are increased by 50% but the output has doubled (100%).

Constant returns to scale: when all inputs are increased by a certain percentage the output increases by the same percentage.

For example input factors are increased by 50% then the output has also increased by 50 percentages. Let us assume that a laptop consists of 50 components we call it as a set. In case the firm purchases 100 sets they can assemble 100 laptops but it is not possible to produce more than 100 units.

Diminishing returns to scale: when output increases in a smaller proportion than the increase in inputs it is known as diminishing return to scale. For example 50% increment in input factors lead to only 20% increment in the output.

Managerial Uses Of Production Function:

Production functions are logical and useful. Production analysis can be used as aids in decision making because they can give guidance to obtain the maximum output from a given set of inputs and how to obtain a given output from the minimum aggregation of inputs. The complex production functions with large numbers of inputs and outputs are analyzed with the help of computer based programmes.

COST CONCEPTS

Introduction:

A production function tells us how much output a firm can produce with its existing plant and equipment. The level of output depends on prices and costs. The most desirable rate of output is the one that maximizes total profit that is the difference between total revenue and total cost.

Entrepreneurs pay for the input factors- Wages for labour, price for raw material, rent for building hired, interest for borrowed money. All these costs are included in the cost of production. The economist's concept of cost of production is different from accounting.

This chapter helps us to understand the basic cost concepts and the cost output relationship in the short and long runs. Having looked at input factors in the previous chapter it is now possible to see how the law of diminishing returns affect short run costs.

Cost Determinants

The cost of production of goods and services depends on various input factors used by the organization and it differs from firm to firm. The major cost determinants are:

1. **Level of output:** The cost of production varies according to the quantum of output. If the size of production is large then the cost of production will also be more.
2. **Price of input factors:** A rise in the cost of input factors will increase the total cost of production.

3. **Productivities of factors of production:** When the productivity of the input factors is high then the cost of production will fall.
4. **Size of plant:** The cost of production will be low in large plants due to mass production with mechanization.

5. **Output stability:** The overall cost of production is low when the output is stable over a period of time.

6. **Lot size:** Larger the size of production per batch then the cost of production will come down because the organizations enjoy economies of scale.

7. **Laws of returns:** The cost of production will increase if the law of diminishing returns applies in the firm.

8. **Levels of capacity utilization:** Higher the capacity utilization, lower the cost of production

9. **Time period:** In the long run cost of production will be stable.

10. Technology: When the organization follows advanced technology in their process then the cost of production will be low.

11. Experience: over a period of time the experience in production process will help the firm to reduce cost of production.

12. Process of range of products: Higher the range of products produced, lower the cost of production.

13. Supply chain and logistics: Better the logistics and supply chain, lower the cost of production.

14. Government incentives: If the government provides incentives on input factors then the cost of production will be low.

Types Of Costs

There are various classifications of costs based on the nature and the purpose of calculation. But in economics and for accounting purpose the following are the important cost concepts.

Actual cost/ Outlay cost/ Absolute cost / Accounting cost: The cost or expenditure which a firm incurs for producing or acquiring a good or service. (Eg. Raw material cost)

Opportunity cost: The revenue which could have been earned by employing that good or service in some other alternative uses. (Eg. A land owned by the firm does not pay rent. Thus a rent is an income sacrificed by not letting it out)

Sunk cost: Are retrospective (past) costs that have already been incurred and cannot be recovered.

Historical cost: The price paid for a plant originally at the time of purchase.

Replacement cost: The price that would have to be paid currently for acquiring the same plant.

Incremental cost: Is the addition to costs resulting from a change in the nature of level of business activity. Change in cost caused by a given managerial decision.

Explicit cost: Cost actually paid by the firm. If the factors of production are hired or rented then it is an explicit cost.

Implicit cost: If the factors of production are owned by a firm then its cost is implicit cost.

Book cost: Costs which do not involve any cash payments but a provision is made in the books of accounts in order to include them in the profit and loss account to take tax advantages.

Social cost: Total cost incurred by the society on account of production of a good or service.

Transaction cost: The cost associated with the exchange of goods and services.

Controllable cost: Costs which can be controllable by the executives are called as controllable cost.

Shut down cost: Cost incurred if the firm temporarily stops its operation. These can be saved by continuing business.

Economic costs are related to future. They play a vital role in business decisions as the costs considered in decision - making are usually future costs. They are similar in nature to that of incremental, imputed explicit and opportunity costs.

Determinants Of Short –Run Cost

Fixed cost: Some inputs are used over a period of time for producing more than one batch of goods. The costs incurred in these are called fixed cost. For example amount spent on purchase of equipment, machinery, land and building.

Variable cost: When output has increased the firm spends more on these items. For example the money spent on labour wages, raw material and electricity usage. Variable costs vary according to the output. In the long run all costs become variable.

Total cost: The market value of all resources used to produce a good or service.

Total Fixed cost: Cost of production remains constant whatever the level of output.

Total Variable cost: Cost of production varies with output.

Average cost: Total cost divided by the level of output.

Average variable cost: Variable cost divided by the level of output.

Average fixed cost: Total fixed cost divided by the level of output.

Marginal cost: Cost of producing an extra unit of output.

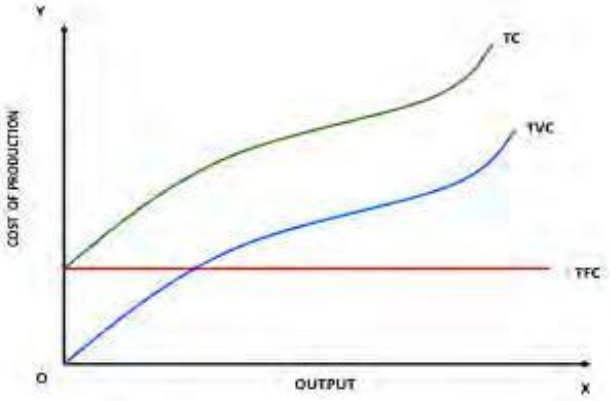
Short Run Cost Output Relationship

Fixed cost curve is a horizontal line which is parallel to the 'X' axis. This cost is constant with respect to output in the short run. Fixed cost does not change with output. It must be paid even if '0' units of output are produced. For example: if you have purchased a building for the business you have invested capital on building even if there is no production.

Total fixed cost (TFC) consists of various costs incurred on the building, machinery, land, etc.. For example if you have spent Rs. 2 Lakhs and bought machinery and building which is used to produce more than one batch of commodity, then the same cost of Rs. 2 Lakhs is fixed cost for all batches. The total variable costs vary according to the output.

Whenever the output increases the firm has to buy more raw materials, use more electricity, labour and other sources therefore the TVC curve is upward sloping. The total cost consists of fixed (TFC) and variable costs (TVC). The TFC of Rs. 2 Lakhs is included with the variable cost throughout the production schedule so the total cost (TC) is above the TVC line.

Graph – Total Cost Curves



Graph – Average Cost Curves

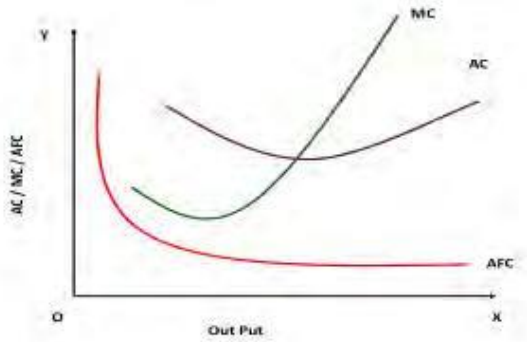


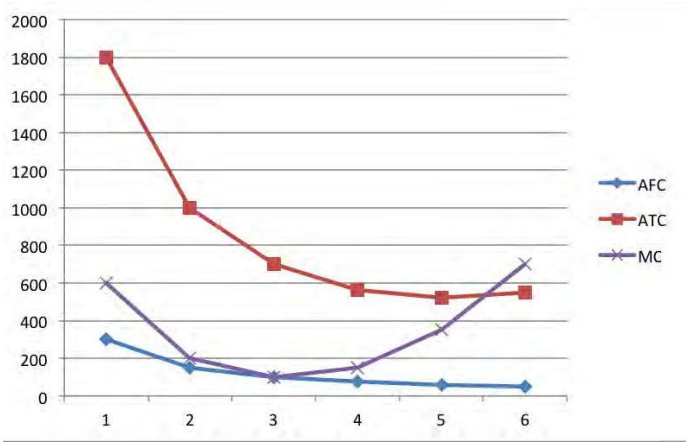
Table - Cost Schedule (Rupees in thousands '000)

Output	TC	TFC	TVC	AFC	ATC	AVC	MC
0	1200	300	900	-	-	-	-
1	1800	300	1500	300	1800	1500	600
2	2000	300	1700	150	1000	850	200
3	2100	300	1800	100	700	600	100
4	2250	300	1950	75	562.5	487.5	150
5	2600	300	2300	60	520	460	350
6	3300	300	3000	50	550	500	700

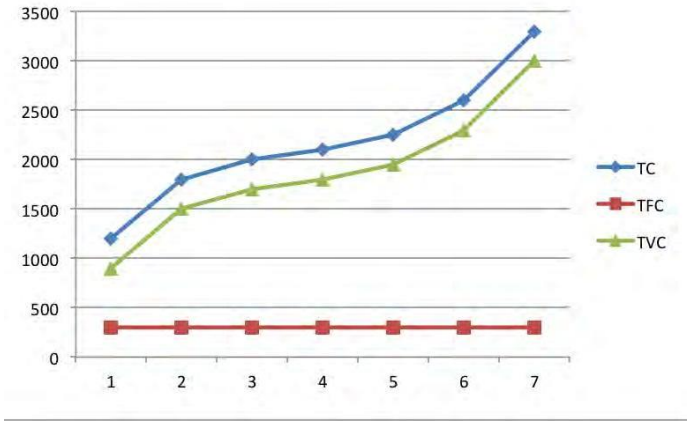
The above set of graphs indicates clearly that the average variable cost curve looks like a boat. Average fixed cost curve declines as output increases and it is a hyperbola to the origin.

The Marginal cost curve slopes like a tick mark which declines up to an extent then it starts increasing along with the output. Let us see and understand the nature of each and every curve with an example. The table and graphs shown below indicates the total costs curves and average cost curves at various output level.

Graph – Average Cost Curves



Graph – Total Cost Curves



From the above table and set of graphs we can understand that capital is the fixed factor of production and the total fixed cost will be the same Rs. 300,000. The total variable cost will increase as more and more goods are produced. So the total variable cost TVC of producing 1 unit is Rs.1500 000, for 2 units 1700 000 and so on.

Total cost = TFC + TVC for 1 unit TC = 300 + 1500 = 1800.

The marginal cost of producing an extra unit is calculated based on the difference in total cost.

$MC_n = TC_n - TC_{n-1}$

MC2 = TC2 – TC 2-1 = 2000 – 1800 = 200

MC for 5th unit = TC of 5th unit minus TC of 4th unit, in our example 2600 – 2250 = 350.

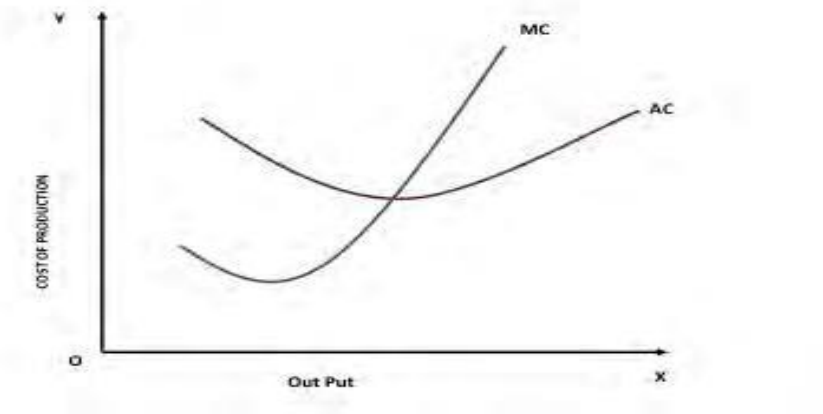
AVC also is calculated in the same manner TVC / output = 2600 / 5 = 460 AFC = TFC / output = 300 / 5 = 60.

Relationship between Marginal Cost And Average Cost Curve:

The marginal cost and average cost curves are U shaped because of law of diminishing returns. The marginal cost curve cuts the average cost curve and average variable cost curves at their lowest point. Marginal cost curve cuts the average variable cost from below.

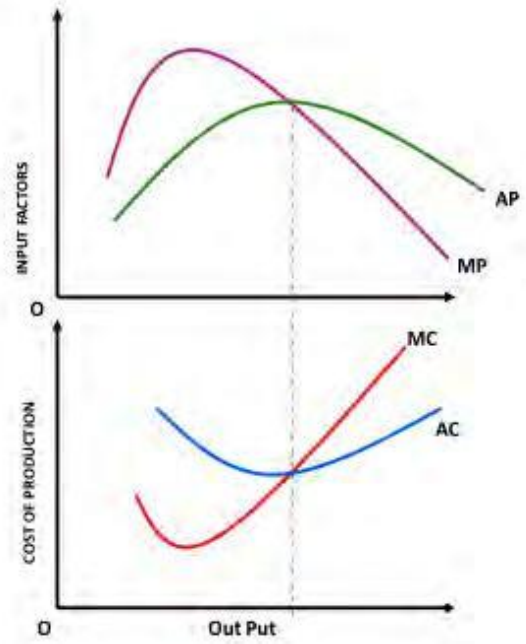
The AC curve is above the MC curve when AC is falling. The AC curve is below the MC when AC is increasing. The intersecting point indicates that AC=MC and that is the minimum average cost with an optimum output. (No more output can be produced at this average cost without increasing the fixed cost of production)

Graph – Relationship Between Average Cost And Marginal Cost



Optimum Output And Minimum Cost

Graph – Optimum Cost And Output



The MC and AC curves are mirror image of the MP and AP curves. It is presented in the graph.

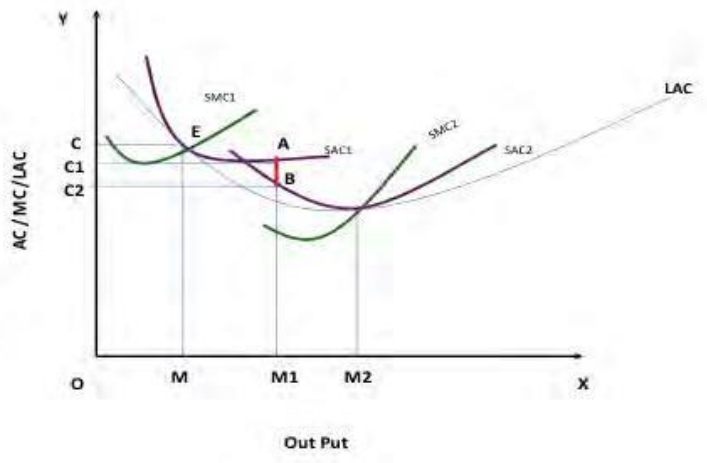
All organizations aim for maximum output with minimum cost. To achieve this goal they like to derive the point where optimum output can be produced with the given amount of input factors and with a minimum average cost. In the graph the MP=AP at maximum average production. On the other hand MC = AC at minimum average variable cost. Therefore this is the optimum output to be produced to achieve their managerial goals.

The above set of cost curves explain the cost output relationship in the short period but in the long run there is no fixed cost because all costs vary over a period of time. Therefore in the long run the firm will have only average cost curve that is called as long run average cost curve (LAC). Let us see how the average cost curve is derived in the long run. This LAC also slopes like the short period average cost curve (U shaped) provided the law of diminishing returns prevails. In case the returns to scale are increasing or constant then the LAC curve will have a different slope. It will be a horizontal line, which is parallel to the 'X' axis.

COST OUTPUT RELATIONSHIP IN THE LONG RUN

In the long run costs fall as output increases due to economies of scale, consequently the average cost AC of production falls. Some firms experience diseconomies of scale if the average cost begins to increase. This fall and rise derives a U shaped or boat shaped average cost curve in the long run which is denoted as LAC. The minimum point of the curve is said to be the optimum output in the long run. It is explained graphically in the chart given below.

Graph – Long Run Average Cost Curve



In the long run all factors are variable and the average cost may fall or increase to A, B respectively but all these costs are above the long run cost average cost. LAC is the lower envelope of all the short run average cost curves because it contains them all. At point 'E' the SAC1 and SMC1 intersects each other, in case the organization increases its output from OM to OM1 they have to spend OC1 amount. In case the organization purchases one more machine (increase in fixed cost) then they will get a new set of cost curves SAC2, and SMC2.

But the new average cost curve reduces the cost of production from OC1 to OC2.That means they can save the difference of C1C2 which is nothing but AB. Therefore in the long run

due to business expansion a firm can reduce their cost of production. During their business life they will meet many combinations of optimum production and minimum cost in different short periods. In the long run due to law of diminishing returns the long run average cost curve LAC also slopes like boat shape.

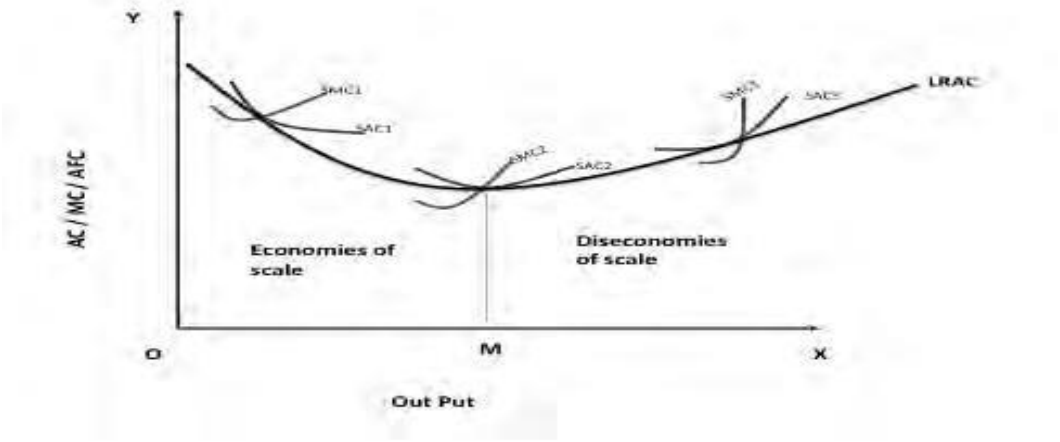
Economies Of Scale:

Economies of scale exist when long run average costs decline as output is increased. Diseconomies of scale exist when long run average cost rises as output is increased. It is graphically presented in the following graph. The economies of scale occur because of (i) technical economies: the change in production process due to technology adoption. (ii) Managerial economies (iii) purchasing economies, (iv) marketing economies and (v) financial economies.

Economies of scale means a fall in average cost of production due to growth in the size of the industry within which a firm operates.

Diseconomies Of Scale:

Arises due to managerial problems. If the size of the business becomes too large, then it becomes difficult for management to control the organizational activities therefore diseconomies of scale arise.



Factors Causing Economies Of Scale:

There are various factors influencing the economies of scale of an organization. They are generally classified in to two categories as Internal factors and External factors.

Internal Factors:

1. Labour economies: if the labour force of a firm is specialized in a specific skill then the organization can achieve economies of scale due to higher labour productivity.

2. Technical economies: with the use of advanced technology they can produce large quantities with quality which reduces their cost of production.

3. Managerial economies: the managerial skills of an organization will be advantageous to achieve economies of scale in various business activities.

4. Marketing economies: use of various marketing strategies will help in achieving economies of scale.
5. Vertical integration: if there is vertical integration then there will be efficient use of raw material due to internal factor flow.

6. Financial economies: the firm's financial soundness and past record of financial transactions will help them to get financial facilities easily.

7. Economies of risk spreading: having variety of products and diversification will help them to spread their risk and reduce losses.

8. Economies of scale in purchase: when the organization purchases raw material in bulk reduces the transportation cost and maintains uniform quality.

External Factors:

1. Better repair and maintenance facilities: When the machinery and equipments are repaired and maintained, then the production process never gets affected.

2. Research and Development: research facilities will provide opportunities to introduce new products and process methods.

3. Training and Development: continuous training and development of skills in the managerial, production level will achieve economies of scale.

4. Economies of location: the plant location plays a major role in cutting down the cost of materials, transport and other expenses.

5. Economies of Information Technology: advanced Information technology provides timely accurate information for better decision making and for better services.

6. Economies of by-products: Organizations can increase the economies of scale by minimizing waste and can be environmental responsible by using the by- products of the organization.

Factors Causing Diseconomies Of Scale:

1. Labour union: continuous labour problem and dissatisfaction can lead to diseconomies of scale.

2. Poor team work: Poor performance of the team leads to diseconomies of scale.

3. Lack of co-ordination: lack of coordination among the work force has a major role to play in causing diseconomies of scale.

4. Difficulty in fund raising: difficulties in fund raising reduce the scale of operation.

5. Difficulty in decision making: the managerial inability, delay in decision making is also a factor that determines the economies of scale.

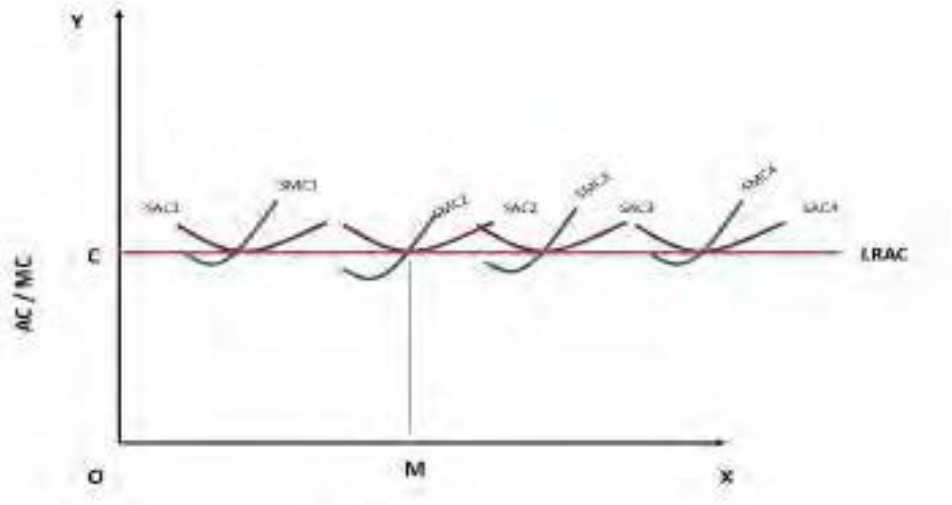
6. Scarcity of Resources: raw material availability determines the purchase and price. Therefore there is a possibility of facing diseconomies in firms.

7. Increased risk: growing risk factors can cause diseconomies of scale in an organization. It is essential to reduce the same.

Constant Returns To Scale:

In the long run if the returns to scale are constant then the average cost of production will be the same. For example : Ananda Vikatan magazine, started 100 years ago and it was sold in the market for 25 paise but now it is still sold at a nominal cost of Rs.15. The price increased because raw material cost and printing and labour costs have also increased but in the long run the price of the commodity has not increased much.

The constant returns to scale curve is graphically presented below which indicates that the LRAC is not a boat shaped curve.



From the above graph it is clear that in the long run it is possible to derive a LRAC as a straight line with constant returns to scale.

Economies of scope: producing variety to get cost advantage. In retail business it is commonly used. Product diversification within the same scale of plant will help them to achieve success.

WAGES

Meaning of wages:

The term, 'wages' means payments made for the services of labor. A wage may be as a sum of money paid under contract by an employer to a worker for services rendered.

Nominal wages versus real wages:

According to the classical wage theory, labour supply was considered a function of real wages. According to Keynes, the workers acted irrationally and generally bargained for money wages and they sharply reacted against any cut in money wages. That is, a rise in prices does not offend labour as much as a cut in the money wage. The money wage is also known as nominal wage. Nominal wages are wages paid in terms of money. After deflating nominal wages with the help of price index, we obtain real wages. The main factors influencing on real wages are,

1. **Purchasing Power Of Money**: When comparing wages at different places and at different times, the changes in the purchasing power of money must be considered. The purchasing power of money varies inversely with the price level. This means that higher the prices, the lower the purchasing power of money, and vise versa. It is generally supposed that the prices rise faster than money wages during the times of rising prices and fall faster than money wages during the periods of falling prices. The result is that money wages decline in the former and rise in the latter case.

2. **Subsidiary Earnings**: In addition to the regular money wage, an employee has extra wages in the form of money or goods. For example, free board and lodging are provided to the domestic servants. Subsidiary earnings may also arise from opportunities of employment available to other members of the worker's family.

3. **Extra Work without Extra Payment:** If an employee is required to do extra work without any compensation, his real wages are less by that extent. Maid servants are paid for doing their duty during working hours, but quite often they are required to work late. This means that their real earnings are reduced to that extent.

4. **Regularity Or Irregularity Of Employment**: Regular employment may give lower money wages, but the real wages may be higher than irregular and employments which give high money wages. For instance, a person with Rs.50/- daily wage but whose employment is intermittent, may not be so well off as another, who earns regularly Rs.40/- per day.

5. **Conditions Of Work**: The conditions of work such as humanistic approach sympathetic nature of an employer etc., should be taken into account in estimating a person's earnings.

6. **Future Prospects:** A low money income will be considered a high real wage if there are good prospects of a rise in the future. On the other hand, a high initial salary may not be considered as good in the absence of prospects for a further rise.

WAGE DIFFERENTIALS

In the context of wage differentials we have to explain the causes of differences in wages in different employments and between different persons in the same employment or grade. Wages everywhere tend to approximate to the marginal productivity of labour.

But, the marginal productivity of labour is different in different employments and grades. It varies with the degree of scarcity of each kind of labour in relation to the demand for it. If there were free mobility of labour over the whole field of employment, real wage would tend to be in proportion to the relative efficiency of labour engaged in each kind of work. Real wage (not nominal wages) of workers of the same level of efficiency would tend to be the same.

If workers in one employment were getting real wages more than in proportion to their efficiency, labour would tend to move to that employment until increased supply would bring down its marginal productivity and wages. An opposite movement would take place if in an employment lower wages were paid than those justified by the relative efficiency of labour.

The main causes which create differences in wages in different employment are:

1. **Difference in Efficiency:** These may be due to different inborn qualities, education, training and conditions under which work is performed. Hence, wages should vary according to efficiencies.

2. **Existence of Non-competing groups:** The non-computing groups arise due to the difficulties in the way of mobility of labour from low-paid to high-paid employments. These difficulties may be due to geographical, social or economic reasons. Besides, they may arise from lack of transport facilities, existence of family ties and cast barriers.

3. **Difficulty of Learning a Trade:** The number of those who can master difficult trades is small. Their supply is inelastic less than demand for them and their wages are normally will be higher.

4. **Future Prospects:** An occupation provides opportunities for future promotion, then people will accept a lower pay, as against another occupation offering higher initial rewards where chances of rise in future are less.

5. Hazardous and dangerous occupations generally offer higher emoluments.

6. Regularity or irregularity of employment also exerts a strong influence on the level of wages.

7. **Collective Bargaining:** The differences in the strength and militancy of trade unions also account for differences in wages in different industries.

PRICING

Pricing Objectives

The firm's pricing objectives must be identified in order to determine the optimal pricing. Common objectives include the following:

- **Current profit maximization** - seeks to maximize current profit, taking into account revenue and costs. Current profit maximization may not be the best objective if it results in lower long-term profits.
- **Current revenue maximization** - seeks to maximize current revenue with no regard to profit margins. The underlying objective often is to maximize long-term profits by increasing market share and lowering costs.
- **Maximize quantity** - seeks to maximize the number of units sold or the number of customers served in order to decrease long-term costs as predicted by the experience curve.
- **Maximize profit margin** - attempts to maximize the unit profit margin, recognizing that quantities will be low.
- **Quality leadership** - use price to signal high quality in an attempt to position the product as the quality leader.
- **Partial cost recovery** - an organization that has other revenue sources may seek only partial cost recovery.
- **Survival** - in situations such as market decline and overcapacity, the goal may be to select a price that will cover costs and permit the firm to remain in the market. In this case, survival may take a priority over profits, so this objective is considered temporary.
- **Status quo** - the firm may seek price stabilization in order to avoid price wars and maintain a moderate but stable level of profit.

For pricing of products in the existing markets, the pricing objective often is either to maximize profit margin or to maximize quantity (market share). To meet these objectives, Skim pricing and Penetration pricing strategies often are employed.

(HIGH) SKIM PRICING:

Skim pricing attempts to "skim the cream" off the top of the market by setting a high price and selling to those customers who are less price sensitive. Skimming is a strategy used to pursue the objective of profit margin maximization.

Skimming is most appropriate when:

- Demand is expected to be relatively inelastic; that is, the customers are not highly price sensitive.
- Large cost savings are not expected at high volumes, or it is difficult to predict the cost savings that would be achieved at high volume.
- The company does not have the resources to finance the large capital expenditures necessary for high volume production with initially low profit margins.

(LOW) PENETRATION PRICING:

Penetration pricing pursues the objective of quantity maximization by means of a low price. It is most appropriate when:

- Demand is expected to be highly elastic; that is, customers are price sensitive and the quantity demanded will increase significantly as price declines.
- Large decreases in cost are expected as cumulative volume increases.
- The product is of the nature of something that can gain mass appeal fairly quickly.
- There is a threat of impending competition.

As the product lifecycle progresses, there likely will be changes in the demand curve and costs. As such, the pricing policy should be reevaluated over time.

The pricing objective depends on many factors including production cost, existence of economies of scale, barriers to entry, product differentiation, rate of product diffusion, the firm's resources, and the product's anticipated price elasticity of demand.

PRICING STRATEGY FOR A NEW PRODUCT

One of the four major elements of the marketing mix is price. Pricing is an important strategic issue because it is related to product positioning. Furthermore, pricing affects other marketing mix elements such as product features, channel decisions, and promotion.

While there is no single recipe to determine pricing, the following is a general sequence of steps that might be followed for developing the pricing of a new product:

1. **Develop marketing strategy** - perform marketing analysis, segmentation, targeting, and positioning.
2. **Make marketing mix decisions** - define the product, distribution, and promotional tactics.
3. **Estimate the demand curve** - understand how quantity demanded varies with price.
4. **Calculate cost** - include fixed and variable costs associated with the product.
5. **Understand environmental factors** - evaluate likely competitor actions, understand legal constraints, etc.
6. **Set pricing objectives** - for example, profit maximization, revenue maximization, or price stabilization (status quo).
7. **Determine pricing** - using information collected in the above steps, select a pricing method, develop the pricing structure, and define discounts.

These steps are interrelated and are not necessarily performed in the above order. Nonetheless, the above list serves to present a starting framework.

Marketing Strategy and the Marketing Mix

Before the product is developed, the marketing strategy is formulated, including target market selection and product positioning. There usually is a tradeoff between product quality and price, so price is an important variable in positioning.

Because of inherent tradeoffs between marketing mix elements, pricing will depend on other product, distribution, and promotion decisions.

Estimate the Demand Curve

Because there is a relationship between price and quantity demanded, it is important to understand the impact of pricing on sales by estimating the demand curve for the product.

For existing products, experiments can be performed at prices above and below the current price in order to determine the price elasticity of demand. Inelastic demand indicates that price increases might be feasible.

Calculate Costs

If the firm has decided to launch the product, there likely is at least a basic understanding of the costs involved, otherwise, there might be no profit to be made. The unit cost of the product sets the lower limit of what the firm might charge, and determines the profit margin at higher prices.

The total unit cost of a producing a product is composed of the variable cost of producing each additional unit and fixed costs that are incurred regardless of the quantity produced. The pricing policy should consider both types of costs.

Environmental Factors

Pricing must take into account the competitive and legal environment in which the company operates. From a competitive standpoint, the firm must consider the implications of its pricing on the pricing decisions of competitors. For example, setting the price too low may risk a price war that may not be in the best interest of either side. Setting the price too high may attract a large number of competitors who want to share in the profits.

From a legal standpoint, a firm is not free to price its products at any level it chooses. For example, there may be price controls that prohibit pricing a product too high. Pricing it too low may be considered predatory pricing or "dumping" in the case of international trade.

Offering a different price for different consumers may violate laws against price discrimination. Finally, collusion with competitors to fix prices at an agreed level is illegal in many countries.

PRICING METHODS

Definition:

The **Pricing Methods** are the ways in which the price of goods and services can be calculated by considering all the factors such as the product/service, competition, target audience, product's life cycle, firm's vision of expansion, etc. influencing the pricing strategy as a whole.

The pricing methods can be broadly classified into two parts:

1. Cost Oriented Pricing Method
2. Market Oriented Pricing Method

1. Cost-Oriented Pricing Method: Many firms consider the **Cost of Production** as a base for calculating the price of the finished goods. Cost-oriented pricing method covers the following ways of pricing:

a) **Cost-Plus Pricing:** It is one of the simplest pricing method wherein the manufacturer calculates the cost of production incurred and add a certain percentage of ***markup*** to it to realize the selling price. The markup is the percentage of profit calculated on total cost i.e. fixed and variable cost.

E.g. If the Cost of Production of product-A is Rs 500 with a markup of 25% on total cost, the selling price will be calculated as

Selling Price= Cost of production + Cost of Production x Markup Percentage / 100
Selling Price = 500 + 500 x 0.25 = 625
Thus, a firm earns a profit of Rs 125 (Profit=Selling price- Cost price)

b) **Markup pricing-** This pricing method is the variation of cost plus pricing wherein the percentage of markup is calculated on the selling price. **E.g.** If the unit cost of a chocolate is Rs 16 and producer wants to earn the markup of 20% on sales then mark up price will be:

Markup Price= Unit Cost / (1-desired return on sales)
Markup Price = 16 / (1 - 0.20) = 20
Thus, the producer will charge Rs.20 for one chocolate and will earn a profit of Rs.4 per unit.

c) **Target-Return pricing** – In this kind of pricing method the firm set the price to yield a required Rate of Return on Investment (ROI) from the sale of goods and services.

E.g. If soap manufacturer invested Rs 1,00,000 in the business and expects 20% ROI i.e. Rs 20,000, the target return price is given by:

Target return price= Unit Cost + {(Desired Return x capital invested)/ unit sales}
Target Return Price=16 + {(0.20 x 100000)/5000} Target Return Price= Rs.20

Thus, Manufacturer will earn 20% ROI provided that unit cost and sale unit is accurate. In case the sales do not reach 50,000 units then the manufacturer should prepare the break-even chart wherein different ROI's can be calculated at different sales unit.

2. <u>Market-Oriented Pricing Method:</u> Under this method price is calculated on the basis of market conditions. Following are the methods under this group:

a) **Perceived-Value Pricing:** In this pricing method, the manufacturer decides the price on the basis of customer's perception of the goods and services taking into consideration all the elements such as advertising, promotional tools, additional benefits, product quality, the channel of distribution, etc. that influence the customer's perception.

E.g. Customer buy Sony products despite less price products available in the market, this is because Sony company follows the perceived pricing policy wherein the customer is willing to pay extra for better quality and durability of the product.

b) **Value Pricing**: Under this pricing method companies design the low priced products and maintain the high-quality offering. Here the prices are not kept low, but the product is re-engineered to reduce the cost of production and maintain the quality simultaneously.

E.g. Tata Nano is the best example of value pricing, despite several Tata cars, the company designed a car with necessary features at a low price and lived up to its quality.

c) **Going-Rate Pricing-** In this pricing method, the firms consider the competitor's price as a base in determining the price of its own offerings. Generally, the prices are more or less same as that of the competitor and the price war gets over among the firms.

E.g. In Oligopolistic Industry such as steel, paper, fertilizer, etc. the price charged is same.

d) **Auction Type pricing**: This type of pricing method is growing popular with the more usage of internet. Several online sites such as eBay, Quikr, OLX, etc. provides a platform to customers where they buy or sell the commodities. *There are three types of auctions:*

1. English Auctions-There is one seller and many buyers. The seller puts the item on sites such as Yahoo and bidders raise the price until the top best price is reached.

2. *Dutch Auctions*– There may be one seller and many buyers or one buyer and many sellers. In the first case, the top best price is announced and then slowly it comes down that suit the bidder whereas in the second kind buyer announces the product he wants to buy then potential sellers competes by offering the lowest price.

3. *Sealed-Bid Auctions*: This kind of method is very common in the case of Government or industrial purchases, wherein tenders are floated in the market, and potential suppliers submit their bids in a closed envelope, not disclosing the bid to anyone.

e) **Differential Pricing**: This pricing method is adopted when different prices have to be charged from the different group of customers. The prices can also vary with respect to time, area, and product form.

E.g. The best example of differential pricing is Mineral Water. The price of Mineral Water varies in hotels, railway stations, retail stores.

Thus, the companies can adopt either of these pricing methods depending on the type of a product it is offering and the ultimate objective for which the pricing is being done.

PRICING METHODS (in short):

To set the specific price level that achieves their pricing objectives, managers may make use of several pricing methods. These methods include:

- **Cost-plus pricing** - set the price at the production cost plus a certain profit margin.
- **Target return pricing** - set the price to achieve a target return-on-investment.
- **Value-based pricing** - base the price on the effective value to the customer relative to alternative products.
- **Psychological pricing** - base the price on factors such as signals of product quality, popular price points, and what the consumer perceives to be fair.

In addition to setting the price level, managers have the opportunity to design innovative pricing models that better meet the needs of both the firm and its customers. For example, software traditionally was purchased as a product in which customers made a one-time payment and then owned a perpetual license to the software.

Many software suppliers have changed their pricing to a subscription model in which the customer subscribes for a set period of time, such as one year. Afterwards, the subscription must be renewed or the software no longer will function. This model offers stability to both the supplier and the customer since it reduces the large swings in software investment cycles.

UNIT-III: ECONOMIC DECISION-MAKING

Concept of Required Rate of Return and Internal Rate of Return; Annual-cost and Annual-worth Comparisons; Present-worth analysis; Economic Life; Replacement Economy; Analysis of risk and uncertainty in capital expenditure decisions. Budgetary Control: Preparation of Cash Budgets, Purchase Budgets, Production Budgets and Flexible Budgets; Concept of Zero-Based Budgeting.

PRINCIPLES OF ECONOMIC DECISION MAKING

A business firm is always profit motivated. Profit seeking is the main guiding force of any business undertaking. The classical economists have opined that profit maximization is the sole objective of the business firm in a capitalist economy. But in real business, profit is not an end in itself. The survival of the business depends on the firm's ability to earn some profit so as to keep the business alive.

In this context, it is worth mentioning that the reasonable profit is the righteous reward of the entrepreneur for his entrepreneurial, organisaitonal risk taking activity. Hence, there is a need for rational profit policy and planning for a modern business firm. Most of the firms have many goals of primary importance other than profit. Hence the firms are interested in putting a limit on their profits.

Reasons for Limiting or Controlling Profits:

1. Maintaining Business Goodwill: A policy of limiting profit may be followed by a firm in order to win appreciation of consumers and earn business reputation and maintain business goodwill in the market. By keeping a low profit margin, the firm may create a good impression on the consumers and enjoy their patronage. Thus, the firm may be in a position to maintain a stable price for its product which will definitely fetch consumer's appreciation by restricting profit margin an inflationary situation.

2. Wage Consideration: Trade unions will demand high wages, if the firm maintains high profits which may inflate costs and further complicate the management of business problem. Profit control is also an important objective of running a business.

3. Avoiding Government's Intervention: High profits may attract high taxation. Again high profits may be taken as an index of monopoly power which may attract government's attention and investigation and its eventual control.

4. Minimisation Risk: The risk element tends to be high under profit maximization. Hence, it is imperative not to go in for maximation of profits but be satisfied with a reasonable profitability of the business venture for minimizing risk.

5. Reduction of Potential Competition: High profitability of the business may attract new competitors to enter the field and share the market. Only a fair profit may be earned by the concerned firm to discourage new entry in its production line.

6. Leadership in the Market: Firm may seek to maximize sales and capture the market rather than maximize its profits to dominate the market and acquire leadership.

7. Enlightened Self-interest of Survival: The firm in its own interest, for survival, would limit its profits and try to see that its existence becomes permanent in the market so that it can earn a regular flow of business income in the long term. It also implies considerations to prevent loss instead of maximum return.

8. Liquidity Preference: In banking business greater emphasis is placed on liquidity rather than profitability. A bank arranges its assets in the ascending order of liquidity and descending order of profitability.

Criteria for Rate of Profit:

Various criteria may be employed to determine the rate of return on investment and decide the most acceptable rate of profit. The main criteria of rate of profit are:

i. **Competitive rate of profits:** The firm in its profit policy may consider guiding principle of the rates of profits earned by other firms in the same industry.

ii. **Historical rate of profit:** The firm may look into its past earnings in normal times and determine the planned rate of return for the future course of operation.

iii. **Sufficient earning to protect the equity:** The rate of return on investment should adequately protect the interest of the present shareholders, so that it has no problem in raising new equity capital for further expansion.

iv. **Plough back of profit rate:** The rate of return may be such that it can adequately finance growth through internal resources.

EVALUATION OF INVESTMENT PROPOSALS - Economic Analysis For Project Appraisal

INTRODUCTION:

Economic Analysis is a systematic approach to determine the optimum use of scarce resources, involving comparison of two or more alternatives in achieving a specific objective under the given assumptions and constraints.

Economic analysis takes into account the opportunity costs of resources employed and attempts to measure in monetary terms the private and social costs and benefits of a project to the community or economy.

At each point of time a business firm has a number of proposals regarding various projects in which it can invest funds. But the funds available with the firm are always limited and it is not possible to invest funds in all the proposals at a time.

Hence, it is very essential to select from amongst the various competing proposals, those which give the highest benefits. The crux of the capital budgeting is the allocation of available resources to various proposals.

There are many considerations economic as well as noneconomic, which influence the capital budgeting decisions. The crucial factor that influences the capital budgeting decision is the profitability of the prospective investment.

Yet the risk involved in the proposal cannot be ignored because profitability and risk are directly related. i.e. Higher the profitability, the greater the risk and vice-versa.

The selection of project involves a firm's decision to commit or invest funds most efficiently in the long-turn projects in anticipation of an expected flow of future benefits over a series of years. Hence, selection of projects on the basis of their profitability becomes the essential task in the decision-making process for investing funds.

Some investments are complementary, while others are mutually exclusive, and still others are independent. Therefore, the projects have to be evaluated regarding their profitability and ranked. Complementary projects should be considered together as a single proposal.

If two or more projects are mutually exclusive, a choice should be made between them. The next stage is eliminating the unprofitable projects. Then the projects selected have to be ranked according to their profitability. If the funds are limited, the most profitable projects alone have to be selected.

Methods of appraising project profitability:

For evaluating the profitability of projects, some basic data about the project proposals related to the initial investment, the life of the project, the scrap value, annual earnings and cash flow etc.

The different methods of appraising the relative profitability of the alternative investment projects are as follows:

(A) Traditional methods:

(1) Pay-back Period method or Pay out or Pay off method.

(2) Rate of Return Method or Accounting Method.

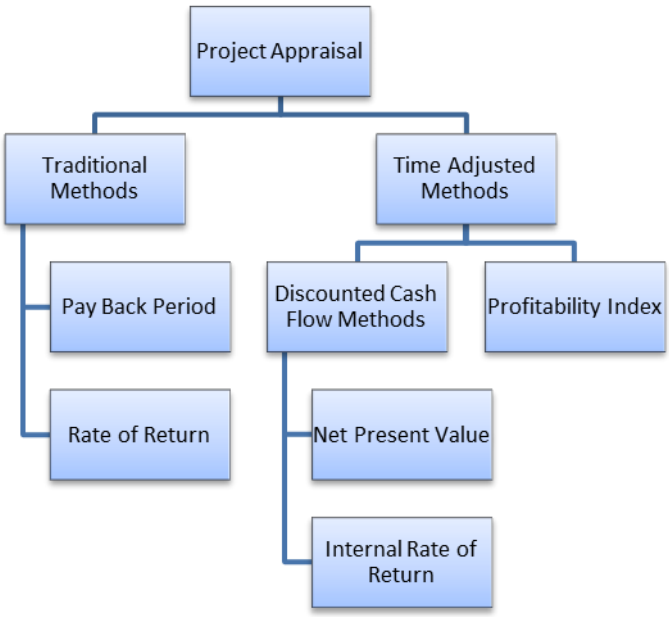
(B) Time -Adjusted Methods or Discounted Cash Flow Methods:

(3) Net present Value Method.

(4) Internal Rate of Return Method.

(5) Profitability Index Method.

Fig: Methods of appraising the Projects



1. PAY BACK METHOD:

The 'Pay back' sometimes called as pay out or pay off period method represents the period in which the total investment in permanent assets pays back itself. This method is based on the principle that every capital expenditure pays itself back within a certain period out of the additional earrings generated from the capital assets.

Thus, it measures the period of time for the original cost of a project to be recovered from the additional earnings of the project itself. Under this method, various investments are ranked according to the length of their pay back period in such a manner that the investment with a shorter pay back period is preferred to the one which has longer pay back period.

This is the simplest method of evaluating the investment proposals. Payback period is the period (i.e. number of years) necessary to recover the original cash outlay invested in a project. It is a period during which the initial outlay is recovered in the form of cash benefits. Hence this procedure is known as cash-to-cash concept. The payback period is calculated by dividing the initial investment by the annual cash-flows. The formula is:

Where P denotes payback period

C implies annual cash benefit

I shows the initial investment (Cash Outlay).

$$P = \frac{I}{C}$$

Procedure: The pay-back period can be ascertained in the following manner:

(1) Calculate annual net earnings (profits) before depreciation and after taxes; these are called annual cash inflows.

(2) Divide the initial outlay (cost) of the project by the annual cash in flow, where the project generates constant annual cash inflows. Thus, where the project generates constant cash inflows.

$$\text{Pay-back period} = \frac{\text{Cash Outlay of the project or Original cost of the Asset}}{\text{---}}$$

Annual Cash Inflows

(3) Where the annual cash inflows (Profit before depreciation and after taxes) are unequal, the pay-back period can be found by adding up the cash inflows until the total is equal to the initial cash outlay of project or original cost of the asset.

Illustrations:

1. A project costs Rs. 1, 00,000 and yields m annual cash inflow of Rs. 20,000 for 8 years. Calculate its pay-back period.

Solution:
The Pay-back period for the projects is as follows:
Pay back Period = Initial Outlay of the Project / Annual Cash Inflow
1, 00,000 / 20,000 = 5 years

2. Suppose a project requires a cash outlay of Rs.50,000 and the annual return (cash flow) expected isRs.10,000, the pay back period is $\frac{50,000}{10,000} = 5\ years$

The payback method measures the time period between investment and its recovery by a firm the returns are therefore referred to as cash benefits of revenues in excess of expenditure.

Significance:

- ❖ The payback method is the most widely used method for ranking investment proposals. Professional managers, prefer this method as a means to demonstrate their ability to generate a quick profit. Further, short payback period acts as a hedge against a poor decision and reduces the risk to some extent in the project appraisal.

Merits:

- ✓ This method is extremely simple and easy to understand.
- ✓ This method emphasises the quick cash return flow. This concept is useful where liquidity is an important consideration.
- ✓ This method is useful in industries subject to rapid technological advances, where the plant becomes obsolete before the end of its physical life
- ✓ During tight-money periods, the quick payback project may be preferred to one which may yield a higher rate of return, yet commit funds for a longer period.

Limitations:

- o This method fails to measure the profitability of investment projects and it over emphasises liquidity. Highly profitable projects do not necessarily pay off in the initial years although large gains may occur in later years.
- o Under this method, profits are restricted to the payback time. Any profits accruing after the pay pack period is not considered.

- This method ignores the time value of money.

2, ACCOUNTING METHOD OR RATE OF RETURN:

Accounting method is also known as the 'Financial Statement Method', or it may also be called as 'Book Return on Book Investment Method', or 'Average Book Method'.

According to this method, the profitability of investment proposal is measured on the basis of accounting information derived from the financial statement of the company. It is therefore, also known as the Accounting Rate of Return Method (ARR).

This method takes in to account the earnings expected from the investment over their whole life. According to this method, various projects are ranked in order of the rate of earnings or rate of return.

The project with the higher rate of return is selected as comported to the one with lower rate of return. This method can also be used to make decision as to accepting or rejecting a proposal.

The expected return is determined and the project which has a higher rate of return than the minimum rate specified by the firm called the cut off rate is accepted and the one which gives a lower expected rate of return than the minimum rate is rejected.

The return on investment method can be used in several ways as follows:

(a) Average Rate of Return Method. Under this method average profit after tax and depreciation is calculated and then it is vided by the total capital outlay or total investment in the project. In other words, it establishes the relationship between average annual profits to total investments. Thus:

$$\text{Average rate of return} = \frac{\textit{Total profits after depreciation \& Tax}}{\textit{Net investment in the project} \times \textit{No of years}} \times 100$$

Or

$$= \frac{\textit{Average Annual profits}}{\textit{Net investment in the project}} \times 100$$

(b) Return per unit of Investment Method. This method is small variation of the average rate of return method. In this method the total profit after tax and depreciation is divided by the total investment, i.e.

$$\text{Return per unit of Investment Method} = \frac{\textit{Total profits after depreciation \& taxes}}{\textit{Net investment in the project}} \textit{ X 100}$$

(c) Return on Average Investment Method- In this method the return on average investment is calculated. Using of average investment for the purpose of return on investment is preferred because the original investment is recovered over the life of the asset on account of depreciation charges.

(d) Average Return on Average Investment Method. This is the most appropriate method of rate or return on investment. Under this method, average profit after depreciation and taxes is divided by the average amount of investment; thus:

$$\text{Average Return on Average Investment} = \frac{\text{Average Annual Profits (after depreciation and taxes)}}{\text{Average investment over the life of the project}} \times 100$$

In short, the ARR is the ratio of the net average annual income from the project to the initial investment.

Calculating procedure:

1. Deduct initial investment from the gross total income over the life of the project
2. Divide the net income by the life-years of the project so as to get average income per year
3. Divide the average annual income by the initial investment and obtain the return on investment

Illustration:

Suppose a project with a life of 5 years requires an initial investment of Rs.20,000. The gross total income over the life of the project is Rs.25,000. Find out the ARR.

Initial investment	= Rs.20,000
Gross total inocome over the period of the project	= Rs.25,000
Income after deducting the initial investment	= Rs.5,000
Average income per year (life is 5 years)	= Rs.1,000

$$Rate\ of\ return = (1{,}000/20{,}000)x100 = 5\%$$

Merits:

It is easy to understand and very simple in application.
Since accounting data are used in this method, ARR can be readily calculated.

Limitations:

It does not take into account the time value of money.
Ignores cash-flows in appraising the project.
Proper weightage is not given to the length of the project life.

DISCOUNTED CASH FLOW METHOD:

The Discounted Cash Flow Technique (DCF) recognizes the changing value of money and it takes into account the fact that the same amount of money received today is more valuable than the one received after a year and so on.

Thus the present value of future cash flows is less than their face value. The later the payment is due, the lower is the present value. The process of adjusting the face value of future cash flows to their present value by means of an imputed interest rate is called '*discounting principles*'. The imputed interest rate will be the rate of return.

For investment projects stretching over several years, the company should take into account the cash-flows expected from the project over future years and discount them back to the present in order to determine the *'Net Present Worth'* of the investment.
The formula for doing this is derived from the general compound interest formula:

$$S = P\left(\frac{(1+i)}{100}\right)^n$$

Where S is the future value of the sum invested

P is the present amount invested

i is the rate of return per period and

n is the number of periods during which the sum invested.

To arrive at the present value of the future sum of money the same formula can be rearranged as follows:

$$P = \frac{S}{\frac{(1+i)^n}{100}}$$

For instance, at a 10% rate of interest, Rs.121 receivable in two years' time is worth only Rs.100 now, according to the above formula.

3. NET PRESENT VALUE METHOD:

The net present value method is a modern method of evaluating investment proposals. This method takes into consideration the time value of money and attempts to calculate the return on investments by introducing the factor of time element. It recognizes the fact that a rupee earned today is worth more than the same rupee earned tomorrow.

The net present values of all inflows and outflows of cash occurring during the entire life of the project is determined separately for each year by discounting these flows by the firm's cost of capital or a pre-determined rate.

Procedure of Net Present Value Method:

(i) First of all determine an appropriate rate of Interest that should be selected as the minimum require rate of return called cut -off rate or discount rate. The rate should be a minimum rate of return below which the investor considers that it does not pay him to invest. The discount rate should be either the actual rate of interest in the market on long-term loans or it should reflect the opportunity cost of capital of the investor.

(ii) Compute the present value of total investment outlay, i. e. cash outflows at the determined discount rate. If the total investment is to be made in the initial year, the present value shall be the same as the cost of investment.

(iii) Compute the present values of total investment proceeds, cash inflows, (profit before depreciation and after tax) at the above determined discount rate.

(iv) Calculate the present value of each project by subtracting the present value of cash inflows from the present value of cash outflows for each project.

(v) If the net present value is positive or zero, i.e., when present value of cash inflows either exceeds of is equal to the present values of cash outflows, the proposal may be accepted But in case the present value of inflows is less than the present value of cash outflows, the proposal should be rejected.

(vi) To select between mutually exclusive projects, projects should be ranked in order of net present values, i. e. the first preference should be given to the project having the maximum positive net present value.

This method under DCF attempts to compare the present value of the future benefits with the present value of the investment. This is done by discounting the cash flows by an appropriate rate of interest. When the present value of benefits does not exceed the present value of investment, the proposal for investment should be discarded.

An important advantage of this method is that it allows comparison of projects having different service lives. Even if the life span of the project differs, comparison is possible by just artificially extending the life of those projects which have short-span to the extent of other project lives.

The formula for finding out the total present value of all cash inflows generating out of an investment may be stated as follows:

$$V = \sum_{t=1}^{n} \frac{R_t + S}{(1+i)^t}$$

Where

V denotes the present value
i represents rate/cost of capital
R1, R2 indicate cash inflow after taxes in years 1,2,……n
n shows the life of asset
S implies salvage value of the asset in 'n' years (resale value)

From the above formula the Net Present Value (V) can be worked out and this should be compared with supply price or cost of the asset (C). The three conditions for making decisions are,

- The investment is worth undertaking if V>C
- The project can be considered if V=C
- The proposal has to be rejected if V<C

Merit:

- ✓ It recognizes the time value of money. It considers the cash flows over the entire life of the project.
- ✓ It takes into account the earnings over the entire life of the project and the true profitability of the investment proposal can be evaluated.

Drawbacks:

- Lack of simplicity
- Assumption is made as the discount rate is known which is untrue

- May not be suitable when projects with different amount of investments are compared

4. INTERNAL RATE OF RETURN:

This method also considers the time value of money. But it does not assume any interest rate. The idea is merely to find out the percentage return which equates the discounted cash flow with the cost of investment.

The Internal Rate of Return (IRR) is the rate at which the present value of cash inflows is equated with the present value of cash outflows of an investment. At this rate, NPV of investment is zero.

It is determined solely by outlay and proceeds associated with the project. It does not depend on any rate determined by outside investment. The formula for measuring IRR is:

$$C = \sum_{t=1}^{n} \frac{R_t + S}{(1+r)^t}$$

Where

C is the supply price of the asset

r shows the discounted rate of return or Marginal Efficiency of capital.

A firm should accept those projects whose IRR is higher than the cost of capital and reject such projects whose IRR is less than the cost of capital.

Procedure of IRR Method:

1. Determine the future net cash flows during the entire economic life of the project.
2. Ha cash inflows are estimated for future profits before depreciation but after taxes.
3. Determine the rate of discount at which the value of cash inflows is equal to the present value of cash outflows. This may be determined as explained after step (4).
4. Accept the proposal if the internal rate of return is higher than or equal to the minimum squired rate of return, i.e. the cost of capital or cut off rate and reject the proposal «f tie internal rate of return is lower than the cost of cut-off rate.
5. Incase of alternative proposals select the proposal with the highest rate of return as lag as the rates are higher than the cost of capital or cut-off-rate.

Advantages of Internal Rate of Return Method

i. Like the net present value method, it takes into account the turn value of money and be usefully applied in situations with even as well as un even cash flow at different periods of time.

ii. It considers the profitability of the project for its entire economic life and hence enables evaluation of true profitability.

iii. The determination of cost of capital is not a pre-requisite for the use of this method and hence it is better than net present value method where the cost of capital cannot be determined easily.

iv. It provides for uniform ranking of various proposals due to the percentage rate of return.
v. This method is also compatible with the objective of maximum profitability and is considered to be a more reliable technique of capital budgeting.

Disadvantages:

i. It is not widely used method as it involves cumbersome process of computational problems. And also this method may not solve problems under all situations.
ii. The results of NPV method and IRR method may differ when the projects under evaluation differ in their size, life and timings of cash flows.

5. PROFITABILITY INDEX METHOD OR BENEFIT COST RATIO (COST/BENEFIT ANALYSIS):

It is also a time -adjusted method of evaluating the investment proposals.

Profitability index also called as Benefit-Cost Ratio (B/C) or 'Desirability factor' is the relationship between present value of cash inflows and the present value of cash outflows.

Cost–benefit analysis (CBA), sometimes called benefit–cost analysis (BCA), is a systematic process for calculating and comparing benefits and costs of a project, decision or government policy. CBA has two purposes:

1. To determine if it is a sound investment/decision (justification/feasibility),
2. To provide a basis for comparing projects. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much.

Thus

$$\text{Profitability Index} = \frac{\text{Present Value of Cash inflows}}{\text{Present Value of Cash outflows}}$$

Or P.I = PV of Cash inflows / Initial Cash outlay

The profitability index may be found for net present values of inflows

$$\text{P.I (Net)} = \frac{\text{NPV (Net Present Value)}}{\text{Initial Cash Outlay}}$$

The net profitability index can also be found as Profitability Index (gross) minus one. The proposal is accepted if the profitability index is more than one and is rejected if index is less than one.

The various projects are ranked under this method in order of their profitability index, in such a manner that one with higher profitability index is ranked higher than the other with lower profitability index.

CBA is related to, but distinct from cost-effectiveness analysis. In CBA, benefits and costs are expressed in monetary terms, and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their "net present value."

Closely related, but slightly different, formal techniques include cost-effectiveness analysis, cost–utility analysis, economic impact analysis, fiscal impact analysis, and Social return on investment (SROI) analysis.

UNIT III

BUDGET AND BUDGETORY CONTROL

Budgetary control is a system whereby the budgets are used as a means of planning and controlling costs.
Budgeting lays down as to what is to be attained and how it is to be attained while control ensures that the objectives are realized and actual results do not deviate from the planned course more than necessary.

Introduction to Budget and Budgetary Control
Budgets are one of the most important aspects of any system – be it domestic life, a corporate house or a nation. At home, we often make yearly, monthly, weekly or even daily budgets that would influence our expenses and savings. Budget of any organisation will tell you about it's growth and expansion plans.

Budget Definition:

"A budget is a predetermined statement of management policy during a given period which provides a standard for comparison with the results actually achieved." —Brown and Howard

Budgetary Control Definitions:
According to J. Batty-"Budgetary Control is a system which uses budgets as a means of planning and controlling all aspects of producing and/or selling commodities or services."
Budgetary Control – Main Features
The main features of budgetary control are:
(i) Establishing budgets for each functional area e.g., sales, production, purchase, etc., the policies and various activities which might be adopted for achieving them.

(ii) Recording actual performance of each functional area.

(iii) Analysing the reasons of variances and identifying the persons responsible.

A budget may be expressed in relation to:
(a) Time – Short-term and Long-term Budget;

(b) Behaviour – Fixed and Flexible Budget; and

(c) Functions – Sales Budget, Production Budget, Cash Budget, etc.

Some of the other features are:
(i) Targets/Objectives –
To determine the targets / objectives to be achieved during the budget period, and the policy or policies that might be adopted for the achievement of these objectives.

(ii) Activities –
To determine the various activities that should be undertaken for achieving the objectives.

(iii) Plan for each activity –
To draw a plan or a scheme of operation for each class of activity in physical as well as monetary terms for the full budget period and its parts. The budgets prepared for various departments/ activities are consolidated to prepare a master budget consisting of the budgeted profit and loss account and the balance sheet.

(iv) Comparison / ascertain causes –
To lay a system of comparison of actual performance of each person, section or department with the relevant budget and to ascertain the causes for the variations / discrepancies, if any.

(v) Remedial action –
To ensure that corrective action is taken where the plan is not being achieved and, if that be not possible, the plan will be revised.

Features of a Budget
A budget is a blueprint for management action. It is a vital tool for carrying out effective short-term planning and control in firms.

The following are the features of a budget:
(a) One Year Duration –
Generally, budgets are prepared annually. However, for seasonal business, such as – fruit canning, ice-cream, apparels, etc., there may be biannual budgets – a slack season budget and a peak season budget.

(b) Estimation of Business Unit's Profit Potential –
It shows how much profit or loss a business unit is expected to make and thereby reveals its profit potential.

(c) Appraisal of Performance –
At the end of a specified period, actual performance is compared with the budget and deviations are ascertained. These deviations which are known as variances are analysed by causes and responsibility centres.

(d) Monetary Terms –
The figures in the budget are expressed in monetary terms. However, the monetary figures are supported by nonmonetary information, namely units purchased, units manufactured, units sold, etc.

(e) Alteration of Approved Budget Under Specified Conditions –
After the budget has been approved by the top management, the same cannot be altered except under specified conditions.

(f) Review and Approval by a Higher Authority –
The budget proposal which is prepared by the budgetee is reviewed and approved by an authority same or lower than the budgetee.

(g) Managerial Commitment –
The budget is essentially a commitment made by the manager of responsibility centres. They agree to shoulder responsibility for the purpose of achieving the budgeted objectives.

ESSENTIALS OF BUDGET Essential elements of a budget are as follows:

1. Organisational structure must be clearly defined and responsibility should be assigned to identifiable units within the organisation.

2. Setting of clear objectives and reasonable targets. Objectives should be in consonance with the long term plan of the organisation.

3. Objectives and degree of responsibility should be clearly stated and communicated to the management or person responsible for.

4. Budgets are prepared for the future periods based on expected course of actions.

5. Budgets are updated for the events that were not kept into the mind while establishing budgets. Hence, budgets should flexible enough for mid- term revision.

6. The entire organisation must be committed to budgeting.

7. Budgets should be quantifiable and master budget should be broken down into various functional budgets.

8. Budgets should be monitored periodically. Variances from the set yardsticks (standards) should be analysed and responsibility should be fixed.

9. Budgetary performance needs to be linked effectively to the reward system.

CHARACTERISTICS OF BUDGET

The main characteristics of budget are as follows:

1. A budget is concerned for a definite future period.

2. A budget is a written document.

3. A budget is a detailed plan of all the economic activities of a business.

4. All the departments of a business unit co-operate for the preparation of a business budget.

5. Budget is a mean to achieve business and it is not an end in itself.

6. Budget needs to be updated, corrected and controlled every time when circumstances change. Therefore, it is a continuous process.

7. Budget helps in planning, coordination and control.

8. Different types of budgets are prepared by industries according to business requirements.

9. A budget acts as a business barometer.

10. Budget is usually prepared in the light of past experiences.

11. Budget is a constant endeavor of the Management.

5 Main Objectives of Budget

The main objectives of budget are as follows:

1. One important objective of budget is planning. The existence of a budget forces managers to think for future, trying to anticipate possible problems and their solutions.

2. Another objective of budget is coordination. Without coordination the departmental heads may follow courses which are beneficial for their departments, but may not be beneficial for the organisation as a whole.

For example, the purchase manager could be interested in buying materials in large quantity for availing good discount. However, holding of large quantity of materials in stock will increase the loss of materials and ultimately the organisation may suffer.

3. Another objective of budget is to provide motivational impetus. The budget can be a useful device for motivating managers to perform in line with the objectives of the organisation.

4. Budget is a good device for communicating plans to various managers. With the help of budget, top management communicates its expectations to lower level management so that the goals of the organisation are achieved.

5. Budget is most widely known as a device for control. Control is exercised by comparing the actual cost or expenditure with the budgeted cost. Failure to meet expectations as shown by the budget, points immediately to the need for some corrective actions.

Budgetary Control Objectives:

The objectives of budgetary control system are usually summarised under five heads:

1. Planning,

2. Coordination,

3. Control,

4. Optimum employment of capital, and

5. Responsibility accounting.

1. Planning:
A budget is nothing but a plan. Budgeting involves drawing up detailed plans relating to different functions like production, sales, raw material requirements, labour requirements, research programmes, etc. When plans are made in advance, many problems are anticipated long before they arise and solutions can be sought through careful study.

2. Coordination:

Coordination is the process whereby different sections of a business work towards achievement of the common goal. Budgets provide a means of coordination for the business as a whole. While making budgets, various factors like production, sales, etc., are balanced and coordinated.

3. Control:
Control is the action necessary to ensure that planned objectives are being achieved. Budgetary control makes control possible by comparing the actual performance against planned performance and taking action on the basis of variations between the two.

4. Optimum employment of capital –
The resources required for achieving the firm's objectives are estimated and are made available.

5. Responsibility accounting –
Each individual is entrusted with well-defined responsibilities and they are made accountable.

Budgetary Control – Techniques
The technique of budgetary control involves the following:
i. Establishment of a budget for each activity or section of the organisation.

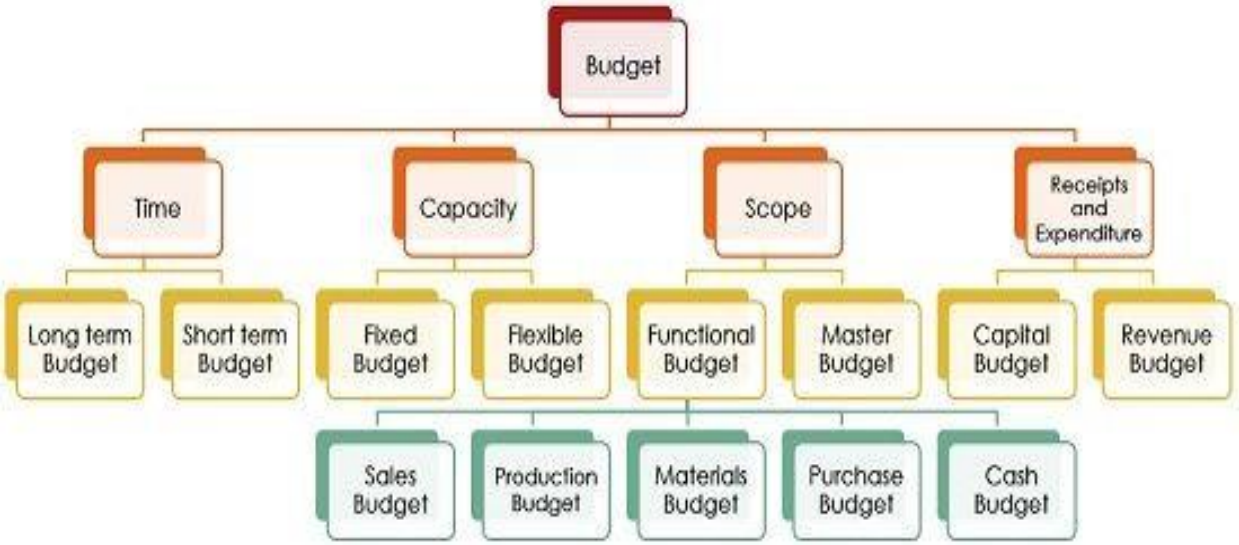
ii. Establishment of budgets for each function like sales, production, purchase, etc.

ii. Measurement of actual performance.

iii. Comparison of actual performance with budgeted performance to find out variations, if any.

iv. Ascertainment of the reasons for such variations and taking suitable remedial action.

Classification of Budgets:



1. **Based on time:**
    - Long-term Budget: The budget designed by the management for a long-term, i.e. three to ten years is called as long-term budget.
    - Short-term Budget: As the name suggests, the budget which is prepared for a period ranging from 1 to 2 years, is called short-term budget.
2. **Based on Capacity**
    - Fixed Budget: The budget created for a fixed activity level, i.e. the budget remains constant regardless of the level of activity, is called as fixed budget.
    - Flexible Budget: The budget which changes with the change in the level of activity is a flexible budget. It identifies the fixed cost, semi-variable cost and variable cost, to show the expected results at different volumes.
3. **Based on Scope:**

    Functional Budget: The budget which is concerned with the business functions is called as functional budget. It can be further classified as
    - **Sales Budget**: Sales budget is used to determine the quantity of anticipated sales and the expected selling price per unit.
    - **Production Budget**: It is prepared to indicate the production for the specified period and is expressed in the units of outputs produced.
    - **Materials Budget**: The budget prepared to show the quantities of direct material and raw material required to manufacture the finished product.
    - **Purchase Budget**: Purchase budget is designed to estimate the quantity and value of different items to be bought at different points of time, considering the production schedule and inventory required.
    - **Cash Budget**: The budget highlights the cash needed by the business in a specified period, taking into account all the receipts and payments of the business.

      Apart from those discussed above, there are other functional budgets also, i.e. plant utilization budget, direct material usage budget, factory overhead budget,

production cost budget, cost of goods sold budget, selling and distribution cost budget, administration expenses budget, etc.

- **Master Budget**: Once all the functional budgets are created, then the financial officer will prepare a master budget. It is an integrated budget that reflects the estimated profit and loss and financial position using Budgeted Profit & Loss Account and Budgeted Balance Sheet of the concern.

4. **Based on Receipts and Expenditure:**
   - **Capital Budget**: The budget takes into account the estimated capital receipts and expenditure of the business for a specified period.
   - **Revenue Budget:** The budget that covers all the revenue receipts and expenses of a particular financial year is a revenue budget.

Cash Budget: It represents expected future cash flow of organization over a defined period. Cash flow includes expected cash receipts, cash payments and resulting cash balance at the end of period. Note that, cash budget includes only the transactions where actual cash will come in or go out. So, it will not include credit sales for which cash is not yet received.

Importance of Cash Budget

1. Beneficial in Proper Planning

Having a cash budget helps company management make sound strategic choices. The company or organization would be aware of any potential cash surplus or deficit scenario in the near future. In both cases, it is possible to plan ahead of time to avoid an unexpected crisis or the setback of an investment opportunity.

A cash deficit, on the other hand, can serve as a warning to cut back on spending. It can also arrange funds timely through equity or debt.

2. Helpful in Dealing with Seasonal Variations

A cash budget may be desirable in the long run. However, due to the seasonal nature of businesses, they may still show cash deficits in certain months or periods. Management can carefully plan how to deal with seasonal variations ahead of time. For periods of stress or low sales, proposed cash outflows can be curtailed or avoided in a timely manner. It will aid the company in avoiding a cash deficit.

Furthermore, managers can anticipate periods with a cash surplus. Sitting on idle cash can result in the loss of an investment opportunity. It may result in the company losing out on substantial profits.

3. Increasing the Value of the Brand

A cash budget is a tool for adequately timing the company's expenditures based on its cash resources. As previously stated, it also allows management time to prepare for using surplus cash when it becomes available. In addition, it aids in the timely payment of materials to suppliers, early debt repayment, timely salary disbursement, proper streamlining of production activities to ensure timely customer deliveries, and so on. As a result, the company's goodwill and brand value grow. This, in turn, aids the company's revenues and profits.

How is the Cash Budget Prepared?

A cash budget takes shape after the preparation of other budgets like sales, purchases, etc. These budgets give a clear picture of the cash drivers in the company and by how much. This budget mainly comprises of three parts: Cash Inflow Forecast, Cash Outflow Forecast Cash Balance Forecast.

Purchase Budgets:

A purchases budget report allows business owners to determine how much money and goods are needed to reach desired goals. This particular budget is used for companies that have products in stock or inventory, as the value of inventory plays a large role in a complete purchases budget.

Calculating Purchase Budget

A purchases budget provides a representation of what the business plans to buy for the inventory and how much inventory it plans to grow or hold over a given period of time.

The budget is created using a simple formula:

Purchase budget = The desired ending inventory + the cost of goods sold – the value of the beginning inventory.
This equation gives you the total purchases budget.

Cost of Goods Sold:

The cost of goods sold is a collected sum of all products or services offered by the company in terms of the production value. The sum is a total of products costs plus the means to get it ready for sale. The sum is a total of products costs plus the means to get it ready for sale.

Purchases Budget Purpose

- A purchases budget is created to keep track of the company's inventory value and the amount of goods sold.
- It also is used to help you keep track of your desired ending inventory value each month.
- The purchases budget is often just a partial budget for a business and is often found in a business master budget.

Production Budgets:

A budget is a financial plan for a defined period whether monthly, quarterly, or annually. It estimates a wide variety of parameters like sales, revenue, expenditure, etc. and is an essential exercise for every financial organization. The production budget is a plan or estimate of the quantum of products required for production by the organization over a period.

How to Create a Production Budget

A production budget has four components:

- Beginning Inventory
- Sales Forecast
- Ending Inventory
- Production Required in Units of the Product

How to Calculate a Production Budget

In simple equation form,

Production budget = the sales budget or forecast + Planned inventory to be maintained in the end – Inventory in the beginning.

Importance of Production Budget

- Basis for Planning of Future Production Process
- Helps in Taking Key Managerial Decisions

Limitations of Production Budget

- Based on Estimates
- Time-consuming Process

Fixed Budget:

According to CIMA, "a fixed budget, is a budget designed to remain unchanged irrespective of the level of activity actually attained".

Essential conditions:

1. When the nature of business is not seasonal.

2. There is no impact of external factors on the business activities.

3. The demand of the product is certain and stable.

4. Supply orders are issued regularly.

5. The market of the product should be domestic rather than foreign.

6. There is no need of special labour or material in the production of the products.

7. Supply of production inputs is regular.

8. There is a trend of price stability.

Merits:

1. Very simple to understand.

2. Less time consuming

Demerits:

1. It is misleading. A poor performance may remain undetected and a good performance may go unrealised.

2. It is not suitable for long period.

3. It is also found unsuitable particularly when the business conditions are changing constantly.

4. Accurate estimates are not possible

Flexible Budget:

According to CIMA, "a flexible budget is defined as a budget which, by recognizing the difference between fixed, semi-variable and variable costs is designed to change in relation to the level of activity attained."

Unlike static (fixed) budgets, flexible budgets show the expected results of a responsibility center for different activity levels. You can think of a flexible budget as a series of static budgets for different levels of activity. Such budgets are especially useful in estimating and controlling factory costs and operating expenses. It is more realistic and practicable because it gives due consideration to cost behaviour at different levels of activity. While preparing a flexible budget the expenses are classified into three categories viz.

(i) Fixed,

(ii) Variable, and

(iii) Semi-variable

Semi-variable expenses are further segregated into fixed and variable expenses. Flexible budgeting may be resorted to under the following situations:

(i) In the case of new business venture due to its typical nature it may be difficult to forecast the demand of a product accurately.

(ii) Where the business is dependent upon the mercy of nature e.g., a person dealing in wool trade may have enough market if temperature goes below the freezing point.

(iii) In the case of labour intensive industry where the production of the concern is dependent upon the availability of labour.

Merits:

1. With the help of flexible budget, the sales, costs and profit may be calculated easily by the business at various levels of production capacity.

2. In flexible budget, adjustment is very simple according to change in business conditions.

3. It also helps in determination of production level as it shows budgeted costs with classification at various levels of activity along with sales. Hence the management can easily select the level of production which shows the profit predetermined by the owners of the business.

4. It also shows the quantity of product to be produced to earn determined profit

Demerits:

1. The formulation of flexible budget is possible only when there is proper accounting system maintained, perfect knowledge about the factors of production and various business circumstances is available.

2. Flexible Budget also requires the system of standard costing in business.

3. It is very expensive and labour oriented.

Suitability for flexible budget:

1. Seasonal fluctuations in sales and/or production, for example in soft drinks industry;

2. a company which keeps on introducing new products or makes changes in the design of its products frequently;

3. industries engaged in make-to-order business like ship building;

4. an industry which is influenced by changes in fashion; and

5. general changes in sales.

Comparative table for fixed and flexible budget:

Bases of differences	Fixed budget	Flexible budget
1. Level of activity	Fixed budget is based on only one level of budget activity.	Under it, the budget is prepared at different levels of activity.
2. flexibility	It is fixed, and does not change with the actual volume of output achieved.	It is flexible and can be prepared at any level of activity to be attained.
3. comparison	Comparison of actual and budgeted performance cannot be made correctly if the actual volume of output differs.	Comparisons are realistic as the panned figures can be compared against the actual.
4. condition	It assumes that the working conditions always remain the static.	It assumes that the working conditions change according to the change in external environment.
5. Cost classification	Under this, there is no provision of cost classification.	Costs are classified according to their variability i.e. variable, flexed and semi variable.
6. Ascertainment of costs	It is not possible to ascertain the cost correctly if the working conditions change.	Cost can be easily ascertained at different levels of activity under these types of budget.
7. Cost control	It has a limit application and is ineffective as a tool for cost control.	It has more applications and can be used as a tool for effective cost control.
8. Fixation of prices	It the budget and actual activity level vary, the correct ascertainment of costs and fixation of prices becomes difficult.	It helps if fixation of price and submission of tenders due to correct ascertainment of costs.

Zero Base Budgeting (ZBB):

Zero Base Budgeting was developed to overcome the limitations of 'Traditional' Budgeting. At the time of preparing a 'Traditional Budget', the last year's figures are taken as – 'Base' and a percentage is added for inflation and making adjustment for any unusual factors or incremental changes.

Zero Base Budgeting (ZBB) starts from the position of zero previous expenditure and managers are required to justify all budgeted expenditures. The base line is zero rather than the previous year's budget. It takes the view that every item of expenditure incurred in any activity should be re-evaluated and re-assessed and fixed. Actual figures of the last year are virtually ignored.

Concept of Zero-Base Budgeting:

The concept of zero-base budgeting is of recent origin and was originally developed by Peter A. Pyhr in Texas Instruments of U.S.A. and later on introduced by Ex-President Jimmy Carter of U.S.A., then Governor of the State of Georgia, as a means of controlling state expenditure.

Peter A. Pyhrr has defined zero-base budgeting as "an operating planning and budgeting process, which requires each manager to justify his entire budget request in detail from scratch (hence zero base) and shifts the burden of proof to each manager to justify why he should spend any money at all."

The 'zero-base' refers to a "nil budget' as the starting point. As an activity is budgeted, costs are objectively budgeted. It starts with the premise that the budget for the next period is 'zero' so long as the demand for a function, process, project or activity is not justified.

The assumption is that without such justification no spending will be allowed. Each manager is responsible to justify why the money should be spent at all and to explain in detail as to what would happen if the proposed activity is not carried out and no money is spent.

Thus, each manager or functional head in the organisation, is required to make cost-benefit-analysis of each of the activities or projects under his control and for which he is responsible. Hence, 'Zero- base Budgeting' is a resource planning and redeployment process rather than a cost reduction control.

Areas where Zero-Base Budgeting is Applicable:

Zero-base Budgeting is more suitably applicable to discretionary cost areas. These costs may have no relation to volume or activity and generally arise as a result of management policies.

Where standards are determinable, those costs associated with the inputs should be controlled through the use of standard costing.

On the other hand, if output as a function of input cannot be specified. Zero-base Budgeting may be more suitably applied. Thus, service or support- type activities are more suitable for Z.B.B.

Process of Zero-Base Budgeting or Steps Involved in Zero-Base Budgeting:
The process of zero-base budgeting involves the following steps:
(i) Identification of 'Decision units.'

(ii) Preparation and development of decision packages.

(iii) Ranking of priority.

(iv) Approval and Funding.

(i) Identification of Decision Unit –
A decision unit refers to a tangible activity or group of activities for which a single manager has the responsibility for successful performance. Thus, decision unit is a programme or a project or a segment of the organisation for which separate budgets are to be prepared.

(ii) Preparation of Decision Packages –
Preparation of decision packages is a set of documents which identify and describe activities of the unit in such a way that the management can evaluate and rank them against others competing for resources (limited) and decide whether to approve or disapprove.

(iii) Ranking of Priority –
The third step involved in Z.B.B. is the ranking of proposed alternatives included in decision packages for various decision units or of various decision packages for the same decision unit.

(iv) Funding –
Funding involves the allocation of available resources of the organisation to various decision units keeping in mind the alternative which has been selected and approved through ranking process.

Some basic questions may need to be answered by each manager, such as:
(i) What is the need for this particular activity?

(ii) How much will it contribute towards achieving the objectives of the organisation?

(iii) How much expenditure will be needed?

(iv) Is there a more cost-effective way of carrying it out?

ZBB is popular with Not-for-Profit organisations, local authorities and government departments. Manufacturing organisations use ZBB for service and support activities.

Steps in Implementing ZBB:

The following steps are generally followed for implementing the ZBB:

Step 1 – Managers identify 'decision units', a unit may be a department, an area of activity (e.g., marketing), etc.

Step 2 – 'Decision packages' are developed based on 'decision unit'. Decision packages are evaluated using cost benefit analysis.

Step 3 – Decision packages are ranked based on cost benefit analysis. Uneconomical decision packages are excluded.

Step 4 – Budget resources are allocated according to the ranking.

Advantages of Zero Base Budgeting:

1. It helps to allocate scarce resources of the organisation in a more efficient and equitable manner.

2. It reduces the wasteful expenditure by eliminating inefficient operations.

3. The managers are forced to take budgeting more seriously.

4. It helps to identify activities that do not contribute towards organisational objectives.

5. It challenges the status quo and encourages a questioning approach to activities and expenditure.

6. It requires considerable documentation. It provides an in-depth appraisal of an organisation's activities.

Limitations of Zero Base Budgeting:

1. It is too time consuming and too costly for small organisations.

2. In a manufacturing organisation scope of implementing ZBB is very limited.

3. Wrong cost benefit analysis may hamper the future growth of the organisation. For example, cutting of present advertisement costs may affect future sales.

4. Conflict between departments may affect the overall profitability of the organisation.

MANAGERIAL ECONOMICS UNIT-IV

The Great Depression of 1920s and lessons learnt. Global recession of 2008 and its impact on Indian business.The Euro crisis.

DEPRESSION OF 1920–21

The Depression of 1920–21 was a sharp deflationary recession in the United States and other countries, 14 months after the end of World War I. It lasted from January 1920 to July 1921. The extent of the deflation was not only large, but large relative to the accompanying decline in real product. There was a brief post–World War I recession immediately following the end of the war which lasted for 2 years. The economy started to grow, though it had not yet completed all the adjustments in shifting from a wartime to a peacetime economy.

Factors identified as potentially contributing to the downturn include:

- Returning troops which created a surge in the civilian labour force,
- A decline in labour union strife,
- Changes in fiscal and monetary policy, and
- Changes in price expectations.

OVERVIEW:

The recession lasted from January 1920 to July 1921, or 18 months, according to the National Bureau of Economic Research. This was longer than most post–World War I recessions, but was shorter than recessions of 1910–12 and 1913–1914 (24 and 23 months respectively) and significantly shorter than the Great Depression (132 months). Estimates for the decline in Gross National Product also vary. The U.S. Department of Commerce estimates GNP declined 6.9%, There is no formal definition of economic depression, but two informal rules are a 10% decline in GDP or a recession lasting more than three years, and the unemployment rate climbing above 10%.

The recession of 1920–21 was characterized by extreme deflation—the largest one-year percentage decline in around 140 years of data. The Department of Commerce estimates 18% deflation. The drop in wholesale prices was even more severe, falling by 36.8%, the most severe drop since the American Revolutionary War. This is worse than any year during the Great Depression (adding all the years of the Great Depression together, however, yields more severe deflation). The deflation of 1920–21 was extreme in absolute terms, and also unusually extreme given the relatively small decline in gross domestic product.

Economic data for 1920–21 recession[1]

Estimate	Production	Prices	Ratio
1920–21 (Commerce)	−6.9%	−18%	2.6
1920–21 (Balke& Gordon)	−3.5%	−13%	3.7
1920–21 (Romer)	−2.4%	−14.8%	6.3
1929–30	−8.6%	−2.5%	0.3
1930–31	−6.5%	−8.8%	1.4
1931–32	−13.1%	−10.3%	0.8

Unemployment rose sharply during the recession. Estimations say a rise to 8.7% from 5.2% and an olderestimate says unemployment rose from 5.2% to 11.7%. But the unemployment quickly fell after the recession, and by 1923 had returned to a level consistent with full employment. The recession also saw an extremely sharp decline in industrial production. From May 1920 to July 1921, automobile production declined by 60% and total industrial production by 30%.

Unemployment rate[8]

Year	Lebergott	Romer
1919	1.4%	3.0%
1920	5.2%	5.2%
1921	11.7%	8.7%
1922	6.7	6.9%
1923	2.4	4.8%

At the end of the recession, production quickly rebounded. Industrial production returned to its peak levels by October 1922. The AT&T Index of Industrial Productivity showed a decline of 29.4%, followed by an increase of 60.1%—by this measure, the recession of 1920–21 had the most severe decline and most robust recovery of any recession between 1899 and the Great Depression.

Using a variety of indexes, it was found that the recession of 1920–21 to have the largest drop in business activity of any recession between 1873 and the Great Depression. (By this measure, it is found that the recession was only slightly larger than the Recession of 1873–79, Recession of 1882–85, Recession of 1893–94, and the recession of 1907–08).

Stocks fell dramatically during the recession. The Dow Jones Industrial Average reached a peak of 119.6 on November 3, 1919, two months before the recession began. The market bottomed on August 24, 1921, at 63.9, a decline of 47% (by comparison, the Dow fell 44% during the Panic of 1907 and 89% during the Great Depression).

The climate was terrible for businesses—from 1919 to 1922 the rate of business failures tripled, climbing from 37 failures to 120 failures per every 10,000 businesses. Businesses that avoided bankruptcy saw a 75% decline in profits.

The Dow Jones Industrial Average from January 1918 to January 1923. The index peaked at 119.6 on November 3, 1919 and bottomed at 63.9 on August 24, 1921, a decline of 47%.

CAUSES:

Factors that economists have pointed to as potentially causing or contributing to the downturn include:

- Troops returning from the war which created a surge in the civilian labour force and more unemployment and wage stagnation,
- A decline in agricultural commodity prices because of the post-war recovery of European agricultural output which increased supply,
- Tighter monetary policy to combat the post-war inflation of 1919, and
- Expectations of future deflation that led to reduced investment.

INTERPRETATIONS OF THE END

The recession of 1920–21 was the result of an unnecessary contractionary monetary policy of the Federal Reserve. High interest rates due to inflation fighting of the Fed caused the problem.

This did not cause a deficiency in aggregate demand but in aggregate supply. Once the Fed relaxed its monetary policy the economy did rapidly recover.

Since the U.S. was on the Gold standard the flight of gold from hyper-inflationary Europe to the U.S. raised the nominal stock of high-powered base money. This ended the deflation and contributed to the economic recovery.

The depression of 1920-1921 was relatively short compared to the economic recession and the following economic downturn that started in 2007 because, "The essential point about the long ago downturn of 1920-1921 is that it was kind of a last demonstration of how a price mechanism works and the last governmentally un-medicated business cycle downturn, meaning it was the last one that the government didn't attempt to treat with fiscal intervention war with much lower interest rates. In fact the FED, then still wet behind the ears it only had been founded in 1914, actually raised rates in the face of a truly brutal deflation."

President Harding's laissez-faire economic policies during the 1920–21 recession, combined with a coordinated aggressive policy of rapid government downsizing, had a direct influence on the rapid and widespread private-sector recovery. As there existed massive distortions in private markets due to government economic influence related to World War I, an equally massive correction to the distortions needed to occur as quickly as possible to realign investment and consumption with the new peace-time economic environment.

THE GREAT DEPRESSION – 1929

The Great Depression was a severe worldwide economic depression that took place during the 1930s. The timing of the Great Depression varied across nations; however, in most countries it started in 1929 and lasted until the late 1930s. It was the longest, deepest, and most widespread depression of the 20th century. In the 21st century, the Great Depression is commonly used as an example of how far the world's economy can decline.

The depression originated in the United States, after a fall in stock prices that began around September 4, 1929, and became worldwide news with the stock market crash of October 29, 1929 (known as Black Tuesday). Between 1929 and 1932, worldwide GDP fell by an estimated 15%. By comparison, worldwide GDP fell by less than 1% from 2008 to 2009 during the Great Recession. Some economies started to recover by the mid-1930s. However, in many countries, the negative effects of the Great Depression lasted until the beginning of World War II.

The Great Depression had devastating effects in countries both rich and poor. Personal income, tax revenue, profits and prices dropped, while international trade plunged by more than 50%. Unemployment in the U.S. rose to 25% and in some countries rose as high as 33%.

Cities all around the world were hit hard, especially those dependent on heavy industry. Construction was virtually halted in many countries. Farming communities and rural areas suffered as crop prices fell by approximately 60%. Facing plummeting demand with few alternate sources of jobs, areas dependent on primary sector industries such as mining and logging suffered the most.

START:

Economic historians usually attribute the start of the Great Depression to the sudden devastating collapse of U.S. stock market prices on October 29, 1929, known as Black Tuesday, However, some dispute this conclusion and see the stock crash as a symptom, rather than a cause, of the Great Depression.

Even after the Wall Street Crash of 1929 optimism persisted for some time,the stock market turned upward in early 1930, returning to early 1929 levels by April. This was still almost 30% below the peak of September 1929.

Together, government and business spent more in the first half of 1930 than in the corresponding period of the previous year. On the other hand, consumers, many of whom had suffered severe losses in the stock market the previous year, cut back their expenditures by 10%. In addition, beginning in the mid-1930s, a severe drought ravaged the agricultural heartland of the U.S.

By mid-1930, interest rates had dropped to low levels, but expected deflation and the continuing reluctance of people to borrow meant that consumer spending and investment were depressed. By May 1930, automobile sales had declined to below the levels of 1928. Prices in general began to decline, although wages held steady in 1930. Then a deflationary spiral started in 1931. Conditions were worse in farming areas, where commodity prices plunged and in mining and logging areas, where unemployment was high and there were few other jobs.

The decline in the U.S. economy was the factor that pulled down most other countries at first; then, internal weaknesses or strengths in each country made conditions worse or better. By late 1930, a steady decline in the world economy had set in, which did not reach bottom until 1933.

Economic indicators: **Change in economic indicators 1929–32**

	United States	Great Britain	France	Germany
Industrial production	–46%	–23%	–24%	–41%
Wholesale prices	–32%	–33%	–34%	–29%
Foreign trade	–70%	–60%	–54%	–61%
Unemployment	+607%	+129%	+214%	+232%

CAUSES:

The two classical competing theories of the Great Depression are the Keynesian (demand-driven) and the monetarist explanation. There are also various heterodox theories that downplay or reject the explanations of the Keynesians and monetarists.

The consensus among demand-driven theories is that a large-scale loss of confidence led to a sudden reduction in consumption and investment spending. Once panic and deflation set in, many people believed they could avoid further losses by keeping clear of the markets.

Holding money became profitable as prices dropped lower and a given amount of money bought ever more goods, exacerbating the drop in demand. Monetarists believe that the Great Depression started as an ordinary recession, but the shrinking of the money supply greatly exacerbated the economic situation, causing a recession to descend into the Great Depression.

Economists and economic historians are almost evenly split as to whether the traditional monetary explanation that monetary forces were the primary cause of the Great Depression is right, or the traditional Keynesian explanation that a fall in autonomous spending, particularly investment, is the primary explanation for the onset of the Great Depression.

There is consensus that the Federal Reserve System should have cut short the process of monetary deflation and banking collapse. If the Fed had done that the economic downturn would have been far less severe and much shorter.

LESSONS LEARNT FROM THE GREAT DEPRESSION OF 1920s:

1. That once about every 7 to 10 years there is a period of excessive general speculation culminating in a severe panic or depression when the man that is borrowing money is at a great disadvantage and he who has cash ready stands like a tower, four square to the ill winds that blow.

2. Extreme situations do not last, no matter what the apparent justification. No ladder is high enough to reach to Heaven. While we may have “new eras,” old laws will still operate.

3. Avoid commitments, particularly of the delayed variety, they are more insidious. These birds may be depended upon to come home to roost when they are least welcome. Also, be definite about commitments made by to you by others. When the storm comes, misunderstandings are so easy and so natural. What a joy a good clear record is in such a predicament!

4. Both in 1920 and 1929 the so-called “big fellows” in general said everything was o.k. But if the big fellows in general thought otherwise the stage could not be set for the unexpected. Panics occur because the leaders themselves have lost their way. And panics on Wall Street are notoriously periodic.

5. Never borrow money without continuously reviewing and questioning your ability to pay it back under the worst conditions. Never borrow short-term money on unmarkable collateral.

6. It’s right to be an optimist, but be prepared for the worst.

7. Make a practice of not giving GRATUITOUS ADVICE ABOUT THE PURCHASE OF SECURITIES.

8. People borrow money in good times and pay it back in bad times — just the opposite of what they should do.

9. The public are just as blind to recognizing the bottom of a depression as they are in recognizing the top of a boom. While there is no ladder that reaches Heaven, the ladder that reaches all the way down to Hell in a country like America is just as fantastic.

GLOBAL RECESSION OF 2008 AND ITS IMPACT ON INDIAN BUSINESS

The economic slowdown of the advanced countries which started around mid 2007, as a result of sub-prime crisis in USA and within no time engulfed the whole world and has affected each and every individual across the globe. World over, companies are biting dust including lions of financial world like, Lehman Brothers, Bear Sterns, AIG, Merill Lynch etc. Many banks are almost on the verge of collapse and frantic steps are undertaken by the respective governments to prop them up. The contagion has traversed from the financial to the real sector and the recession will be deeper and the recovery appears to be longer than earlier anticipated. Many economists are now predicting that this 'Great Recession' of 2008-09 will be the worst global recession since the 1930s.

The global financial crisis was rooted in the subprime crisis in the United States of America. During the boom years, mortgage brokers attracted by the big commissions, encouraged buyers with poor credit to accept housing mortgages with little or no down payment and without credit checks.

A combination of low interest rates and large inflow of foreign funds during the booming years helped the banks to create easy credit conditions for many years. Banks lent money on the assumption that housing prices would continue to rise. Also the real estate bubble encouraged the demand for houses as financial assets.

Banks and financial institutions later repackaged these debts with other high-risk debts and sold them to world- wide investors creating financial instruments called CDOs or Collateralized Debt Obligations (Sadhu2008). In this way risk was passed on multi-fold through derivatives trade.

RECESSION

Recession can be defined as "***a period of general economic decline; typically defined as a decline in GDP for two or more consecutive quarters***." A recession is typically accompanied by a drop in the stock market, an increase in unemployment, and a decline in the housing market.

A recession is generally considered less severe than a depression, and if a recession continues long enough it is often then classified as a depression. Recessions are generally believed to be caused by a widespread drop in spending. Governments usually respond to recessions by adopting expansionary macroeconomic policies, such as increasing money supply, increasing government spending and decreasing taxation.

CAUSES OF RECESSION

An economy which grows over a period of time tends to slow down as a part of the normal economic cycle. An economy typically expands for 6-10 years and tends to go into a recession for about six months to 2 years. A recession normally takes place when consumers lose confidence in the growth of the economy and spend less. This leads to a decreased demand for goods and services, which in turn leads to a decrease in production, lay-offs and a sharp rise in unemployment. Investors spend less as they fear stock values will fall and thus stock markets fall on negative sentiment.

Sub-prime Mortgage:

The current global economic crisis has originated in the sub-prime mortgage crisis in USA in 2007. With easy availability of credit at low interest rates, real estate prices in US had been rising rapidly since the late 1990s and investment in housing had assured financial return. US home-ownership rates rose over the period 1997-2005 for all regions, all age groups, all racial groups, and all income groups. The boom in housing sector made both banks and home buyers believe that the price of a real estate would keep going up. Housing finance seemed a very safe bet. Banks went out of their way to lend to sub-prime borrowers who had no collateral assets. Low income individuals who took out risky sub-prime mortgages were often unaware of the known risks inherent in such mortgages.

While on the one hand, they were ever keen to become house-owners, on the other, they were offered easy loans without having any regard to the fact that they were not in a position to refinance their mortgages in the event of the crisis. All this was fine as long as housing prices were rising. But the housing bubble burst in 2007. Home prices fell between 20 per cent and 35 per cent from their peak and in some areas more than 40 per cent; mortgage rates also rose. Sub-prime borrowers started defaulting in large numbers. The banks had to report huge losses.

US RECESSION-2008

The financial crisis of 2008–present was a crisis triggered by an insolvent United States banking system. It resulted in the collapse of large financial institutions, the bailout of banks by national governments and downturns in stock markets around the world. In many areas, the housing market has also suffered, resulting in numerous evictions, foreclosures and prolonged vacancies.

It is considered by many economists to be the worst financial crisis since the Great Depression of the 1930s. It contributed to the failure of key businesses, declines in consumer Wealth estimated in the trillions of U.S. dollars, substantial financial commitments incurred by governments, and a significant decline in economic activity. The collapse of a global housing bubble, which peaked in the U.S. in 2006, caused the values of securities tied to real estate pricing to plummet thereafter, damaging financial institutions globally.

Questions regarding bank solvency, declines in credit availability, and damaged investor confidence had an impact on global stock markets, where securities suffered large losses during late 2008 and early 2009. Economies worldwide slowed during this period as credit tightened and international trade declined.

IMPACT ON INDIAN ECONOMY

Since US is one of the major super powers, a recession–mild or deeper will have eventual global consequences. The crisis rapidly developed and spread into a global economic shock, resulting in a number of European bank failures, declines in various stock indices, and large reductions in the market value of equities and commodities.

A slowdown in the US economy was definitely a bad news for India because Indian companies have major outsourcing deals from the US. India's exports to the US have also grown substantially over the years. But in spite of all this India has successfully weathered the great financial crisis of September 2008. Indian gross domestic product (GDP) has grown around 6% in every quarter of the most difficult 12 months in recent history.

Slowing Gross Domestic Product: In the past 5 years, the economy has grown at an average rate of 8-9 per cent. Services which contribute more than half of GDP have grown fastest along with manufacturing which has also done well. But this impressive run of GDP ended in the first quarter of 2008 and is gradually reduced and now it is projected at 6 per cent for 2009-10. Hence, the slowdown in Indian economy is evident from the low GDP growth with deceleration in the industrial activity, particularly in the manufacturing and infrastructure sectors and moderation in the services sector mainly in the construction, transport and communication, trade, hotels and restaurants.

Reduction in Employment: The recession had a dual impact on the outsourcing industry. Appreciating rupee along with poor performance of US companies affected the bottom line of the BPOs, which were operating at a net margin of 7-8 per cent, found it difficult to survive.

Taxation: The economic slowdown has severely dented the Center's tax collections with indirect taxes bearing the brunt. The tax-GDP ratio registered a steady increase from 8.97 per cent to 12.56 per cent between 2000-01 and 2007-08. But this trend has been reversed as the tax-GDP ratio has fallen to 10.95 per cent during current fiscal year mainly on account of reduction in Customs and Excise Tax due to effect of economic slowdown.

Reduction in Exports: The growth in exports was robust till August 2008, however, export growth evinced a sharp dip and remained negative till the end of the financial year on account of major outsourcing deals with US companies, which were effected in the crisis.

Forex Market: The current economic crisis was largely insulated by the reversal of foreign institutional investment (FII), external commercial borrowings (ECB) and trade credit. Its spillovers became visible in September-October 2008 with overseas investors pulling out a record USD 13.3 billion and fall in the nominal value of the rupee 21.2 per cent depreciation during the fiscal 2008-09.

Money Market: The money market consists of credit market, debt market and government securities market. All these markets are in some or other way related to the soundness of banking system as they are regulated by the Reserve Bank of India. NPAs of banks may indeed rise due to slowdown but given the strength of the banks' balance sheets, that rise is not likely to pose any systemic risks.

Stock Market: Indian stock market crashed from the high of 20000 to a low of around 8000 points during the year 2008-2009. Corporate performance of most of the companies remained subdued, and the impact of moderation in demand was visible in the substantial deceleration during the said years. Corporate profitability also exhibited negative growth, which has led to the bearish trend in the stock market. Recession has effected the investments made by Foreign Institutional Investors (FIIs) in the Indian Stock Market as FIIs started disinvesting to meet their commitments abroad. This is putting lot of pressure on domestic financial system, which has led to liquidity crunch in all major sectors of the country.

Reasons for Lesser Impact for Indian Business:

There were many factors that saved the Indian economy from dire consequences of the global recession. Indian banks and financial institutions had almost entirely avoided buying the mortgage-backed securities and credit default swaps that turned toxic and felled western Financial institutions.

India's merchandise exports were indeed hit by the Great Recession but Service exports did not fall - computer software and BPO exports held up well. Foreign direct investment remained high in 2008-09 despite the global financial crisis. Financiers reversed Flows into India, but long-term investors in plant and factories completed their on-going projects. Monetary policy was accommodating in 2008. The RBI lowered interest rates and expanded Credit. The government cut excise duties to stoke demand. All these factors cushioned the shock to the economy.

The impact of the crisis is deeper than estimated by our policy makers although it is less severe than in other emerging market economies. Further, the Indian banking system is one of the least affected in the whole world and has been praised by many of the economists and financial experts. The banks were saved from this downturn because of the financial policies which were very well formulated that acted as an insulator for the Indian banks.

The extent of impact has been restricted due to several reasons such as-

- ✓ Indian financial sector particularly our banks have no direct exposure to tainted assets and its off-balance sheet activities have been limited. The credit derivatives market is in nascent stage and there are restrictions on investments by residents in such products issued abroad.
- ✓ India’s growth process has been largely Domestic Demand Driven and its reliance on foreign savings has remained around 1.5 per cent in recent period.
- ✓ India’s comfortable Foreign Exchange Reserves provide confidence in our ability to manage our balance of payments notwithstanding lower export demand and dampened capital flows.
- ✓ Rural demand continues to be robust due to mandated agricultural lending and social safety & Rural Employment Generated programs.
- ✓ India’s Merchandise Exports are around 15 per cent of GDP, which is relatively modest.
- ✓ Despite these mitigating factors, India too has to weather the negative impact of the crisis due to rising two-way trade in goods and services and financial integration with the rest of the world. Indian economy is experiencing the following incidental effects of the Global Crisis.

THE EURO CRISIS

The European debt crisis (often also referred to as the Eurozone crisis or the European sovereign debt crisis) is a multi-year debt crisis that has been taking place in the European Union since the end of 2009. Several euro-zone member states (Greece, Portugal, Ireland, Spain and Cyprus) were unable to repay or refinance their government debt or to bail out over-indebted banks under their national supervision without the assistance of third parties like other Eurozone countries, the European Central Bank (ECB), or the International Monetary Fund (IMF).

The detailed causes of the debt crisis varied. In several countries, private debts arising from a property bubble were transferred to sovereign debt as a result of banking system bailouts and government responses to slowing economies post-bubble. The structure of the euro-zone as a currency union (i.e., one currency) without fiscal union (e.g., different tax and public pension rules) contributed to the crisis and limited the ability of European leaders to respond. European banks own a significant amount of sovereign debt, such that concerns regarding the solvency of banking systems or sovereigns are negatively reinforcing.

As concerns intensified in early 2010 and thereafter, leading European nations implemented a series of financial support measures such as the European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM). The ECB also contributed to solve the crisis by lowering interest rates and providing cheap loans of more than one trillion euro in order to maintain money flows between European banks. On 6 September 2012, the ECB calmed financial markets by announcing free unlimited support for all euro-zone countries involved in a sovereign state bailout/precautionary programme from EFSF/ESM, through some yield lowering Outright Monetary Transactions (OMT).

The crisis had significant adverse economic effects and labour market effects, with unemployment rates in Greece and Spain reaching 27%, and was blamed for subdued economic growth, not only for the entire euro-zone, but for the entire European Union. As such, it can be argued to have had a major political impact on the ruling governments in 10 out of 19 eurozone countries, contributing to power shifts in Greece, Ireland, France, Italy, Portugal, Spain, Slovenia, Slovakia, Belgium and the Netherlands, as well as outside of the eurozone, in the United Kingdom.

Causes:

The crisis had significant adverse economic effects and labour market effects, with unemployment rates in Greece and Spain reaching 27%, and was blamed for subdued economic growth, not only for the entire eurozone, but for the entire European Union. As such, it can be argued to have had a major political impact on the ruling governments in 10 out of 19 eurozone countries, contributing to power shifts in Greece, Ireland, France, Italy, Portugal, Spain, Slovenia, Slovakia, Belgium and the Netherlands, as well as outside of the eurozone, in the United Kingdom.

EU emergency measures:

The table below provides an overview of the financial composition of all bailout programs being initiated for EU member states, since the Global Financial Crisis erupted in September 2008. EU member states outside the eurozone have no access to the funds provided by EFSF/ESM, but can be covered with rescue loans from EU's Balance of Payments programme (BoP), IMF and bilateral loans.

European Financial Stability Facility (EFSF):

On 9 May 2010, the 27 EU member states agreed to create the European Financial Stability Facility, a legal instrument aiming at preserving financial stability in Europe by providing financial assistance to eurozone states in difficulty. The EFSF can issue bonds or other debt instruments on the market with the support of the German Debt Management Office to raise the funds needed to provide loans to eurozone countries in financial troubles, recapitalise banks or buy sovereign debt.

Reception by financial markets:

Stocks surged worldwide after the EU announced the EFSF's creation. The facility eased fears that the Greek debt crisis would spread, and this led to some stocks rising to the highest level in a year or more. The euro made its biggest gain in 18 months, before falling to a new four-year low a week later. Shortly after the euro rose again as hedge funds and other short-term traders unwound short positions and carry trades in the currency. Commodity prices also rose following the announcement.

European Financial Stabilisation Mechanism (EFSM):

On January 2011, the European Union created the European Financial Stabilisation Mechanism (EFSM), an emergency funding programme reliant upon funds raised on the financial markets and guaranteed by the European Commission using the budget of the European Union as collateral. It runs under the supervision of the Commission and aims at preserving financial stability in Europe by providing financial assistance to EU member states in economic difficulty.

European Central Bank:

The European Central Bank (ECB) has taken a series of measures aimed at reducing volatility in the financial markets and at improving liquidity.*In May 2010 it took the following actions:*

- ✓ It began open market operations buying government and private debt securities, reaching €219.5 billion in February 2012, though it simultaneously absorbed the same amount of liquidity to prevent a rise in inflation.
- ✓ It reactivated the dollar swap lines with Federal Reserve support.
- ✓ It changed its policy regarding the necessary credit rating for loan deposits, accepting as collateral all outstanding and new debt instruments issued or guaranteed by the Greek government, regardless of the nation's credit rating.

European Stability Mechanism (ESM):

The European Stability Mechanism (ESM) is a permanent rescue funding programme to succeed the temporary European Financial Stability Facility and European Financial Stabilisation Mechanism in July 2012 but it had to be postponed until after the Federal Constitutional Court of Germany had confirmed the legality of the measures on 12 September 2012. The permanent bailout fund entered into force for 16 signatories on 27 September 2012. It became effective in Estonia on 4 October 2012 after the completion of their ratification process.

On 16 December 2010 the European Council agreed a two line amendment to the EU Lisbon Treaty to allow for a permanent bail-out mechanism to be established including stronger sanctions. In March 2011, the European Parliament approved the treaty amendment after receiving assurances that the European Commission, rather than EU states, would play 'a central role' in running the ESM.

Such a mechanism serves as a "financial firewall". Instead of a default by one country rippling through the entire interconnected financial system, the firewall mechanism can ensure that downstream nations and banking systems are protected by guaranteeing some or all of their obligations. Then the single default can be managed while limiting financial contagion.

Business Economics UNIT-5

Introduction to National Income and Methods of Estimating National Income

What is National Income?

National Income of any country means the complete value of the goods and services produced by any country during its financial year. It is thus the consequence of all economic activities that are running in any country during the period of one year. It is valued in terms of money. In short one can say that the national income of any country is the total amount of income that is accrued by it through various economic activities in one year. It is also helpful in determining the progress of the country.

It includes wages, interest, and rent, profit, received by factors of production like labour, capital, land and entrepreneurship of a nation.

National Income: Concept

There are various concepts of National Income including GDP, GNP, NNP, NI, PI, DI, and PCI which explain the facts of economic activities.

a. GDP at market price: Is money value of all goods and services produced within the domestic domain with the available resources during a year.

GDP = (P*Q)

Where,

GDP = gross domestic product

P = Price of goods and services

Q= Quantity of goods and services

GDP is made up of 4 Components

Consumption

Investment

Government expenditure

Net foreign exports of a country

GDP = C+I+G+(X-M)

Where,

C=Consumption

I=Investment

G=Government expenditure

(X-M) =Export minus import

b. Gross National Product (GNP): Is market value of final goods and services produced in a year by the residents of the country within the domestic territory as well as abroad. GNP is the value of goods and services that the country's citizens produce regardless of their location.

GNP=GDP+NFIA or,

GNP=C+I+G+(X-M) +NFIA

Where,

C=Consumption

I=Investment

G=Government expenditure

(X-M) =Export minus import

NFIA= Net factor income from abroad.

c. Net National Product (NNP) at MP: Is market value of net output of final goods and services produced by an economy during a year and net factor income from abroad.

NNP=GNP-Depreciation or, NNP=C+I+G+(X-M) +NFIA- IT-Depreciation

Where,

C=Consumption

I=Investment

G=Government expenditure

(X-M) =Export minus import

NFIA= Net factor income from abroad.

IT= Indirect Taxes

d. National Income (NI): Is also known as National Income at factor cost which means total income earned by resources for their contribution of land, labour, capital and organisational

ability. Hence, the sum of the income received by factors of production in the form of rent, wages, interest and profit is called National Income.

Symbolically or as per the formula

NI=NNP +Subsidies-Interest Taxes

or, GNP-Depreciation +Subsidies-Indirect Taxes or, NI=C+G+I+(X-M) +NFIA-Depreciation-Indirect Taxes +Subsidies

e. Personal Income (PI): Is the total money income received by individuals and households of a country from all possible sources before direct taxes. Therefore, personal income can be expressed as follows:

PI=NI-Corporate Income Taxes-Undistributed Corporate Profits- Social Security Contribution +Transfer Payments.

f. Disposable Income (DI) : It is the income left with the individuals after the payment of direct taxes from personal income. It is the actual income left for disposal or that can be spent for consumption by individuals.

Thus, it can be expressed as:

DI=PI-Direct Taxes

g. Per Capita Income (PCI): It is calculated by dividing the national income of the country by the total population of a country.

Thus, PCI=Total National Income/Total National Population

Also Read| Why is stock market important for any country?

Measurement of National Income

There are three methods to calculate National Income:

Income Method

Product/ Value Added Method

Expenditure Method

Income Method

In this National Income is measured as flow of income.

We can calculate NI as:

Net National Income = Compensation of Employees+ Operating surplus mixed (w +R +P +I) + Net income + Net factor income from abroad.

Where,

W = Wages and salaries

R = Rental Income

P = Profit

I = Mixed Income

Product/ Value Added Method

In this National Income is measured as flow of goods and services.

We can calculate NI as:

NATIONAL INCOME = G.N.P – COST OF CAPITAL – DEPRECIATION – INDIRECT TAXES

Expenditure Method

In this National Income is measured as flow of expenditure.

We can calculate NI through Expenditure method as:

National Income=National Product=National Expenditure.

DIFFICULTIES INTHE MEASUREMENT OF NATIONAL INCOME

There are certain difficulties in the measurement of National Income.

They are given below:

1. The National Income must be calculated in monetary terms. There are certain nonmonetary transactions which are not included in the value of product. For example the unpaid personal services of a house wife cannot be included in the national product.

2. The Government services such as justice, administration and defense should be treated as equivalent to any other capital formation.

3. The treatment of profits of foreign firms as income of the parent country is another difficulty in measurement, because the foreign firms production is taking place in India while the profits of the firm is not considered in the income calculation of the country.

4. In underdeveloped countries like lndia, the major part of the output does not come to the market due to nonmonitised transaction. This results in the underestimation of the National Income.

5. Due to illiteracy, regular accounts are not kept by the producers. This also makes the national income calculation more difficult.

6. The agriculture and industrial sectors are unorganized and scattered in India.

7. Finally the lack of statistical data and unreliability of statistics is the major difficulties in measuring the National Income.

8. A greatest difficulty in calculating the national income is of double counting which arises from the failure to distinguish properly between a final and intermediate product.

9. Income earned through illegal activities such as gambling or illicit extraction of wine etc. is not included in national income. Such goods and services do have value and meet the needs of consumers. But by leaving them out national income works out to less than actual.

10. There arises difficulty of including transfer payments in the national income. Individuals get pension, unemployment allowance and interest on loans. But whether these should be included on the national income in a difficult problem.

11. Another difficulty in calculating national income is that of price changes which fail to keep stable the measuring rod of money for national income. When the price level in the country rises the national income also shows an increase even though production might have fallen. Thus the above difficulties involved in National Income analysis are both statistical and conceptual. Therefore the National Income cannot be calculated accurately.

NATIONAL INCOME AND ECONOMIC WELFARE

National Income of the country shows the importance of different sectors and their inter-sectoral relationship. National Income is used to estimate the level of business activity in an economy. It is also useful in giving a correct picture of the structure of economy. National Income is used in fiscal measures such as allocation of resources and grants to different parts of the country. For economic planning, national income data play an important role. The development plans are based on the appraisal of the National Income. Thus the National Income is used to measure the economic welfare of a country. The greater the national income larger will be the wellbeing of the people. Thus the national Income is very useful in measuring the welfare of the people. However there are some limitations of national income as a measure of economic welfare as it does not include certain services and production activities which affect welfare. Some of the factors which affect human welfare are not included. Of the GNP estimates the factors like leisure, quality of life, Non-market transactions, standard of living etc. are outside the preview of GNP which measures the welfare.

Sectoral Linkages Macro Aggregates and Policy Interrelationships

The economy is conceived as a network of five sectors, viz.; output (GDP and its components), prices (WPI and its components), monetary (money supply and interest rates), government finance (government expenditure and receipts) and the external sector (trade, capital flows and exchange rate).

The set of equations together portrays a detailed transmission network from monetary policy instruments/ rates to money market rate to a broader spectrum of deposit and lending rates. Through deposit and credit aggregates, effect on the broader real economy in terms of GDP growth and WPI inflation is also reflected. Fiscal condition impacts lending rates through lower private sector borrowings. The impact of credit cost on private investments is prominent.

Monetary policy variables like money growth and interest rate affect non-food manufacturing inflation. Global integration and exchange rates have notable impact on several components of WPI inflation. Exchange rate affects prices directly through imported goods and has an indirect impact through net exports and real GDP.

The growth of real GDP and prices impact many other variables in the fiscal and external sectors. The revenue growth of government as also government's capital expenditure shows pro-cyclicality. Revenue expenditure on the other hand is relatively sticky, while government's ability to spend depends on its cost of borrowings to a large extent.

India's services sector output growth shows a far greater influence on India's services exports as against the impact of manufacturing growth over merchandise exports. With respect to global income elasticity of India's exports, services exports exhibit relative resilience to the global growth cycle as opposed to merchandise exports showing large movements in response to the same. India's imports of goods and services also show high elasticity in response of domestic activities. The impact of real exchange rates on both exports and imports is relatively small.

GDP and its components

GDP at market price: Is money value of all goods and services produced within the domestic domain with the available resources during a year.

GDP = (P*Q)

Where,

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GDP = C+I+G+(X-M)

WPI index and its components

The first component involves Manufactured Goods. This category involves goods such as chemical and related products, metal products, raw metals, alloys, machinery, etc

The second component focuses on the division of Primary Articles.

Non-Food- Non-Food Primary articles include minerals, cooking oil, fibers, cotton, and jute. Food- Food Primary Articles involve food materials like pulses, cereals, fruits and vegetables, dairy products, spices, and tea and coffee.

The third component focuses on Fuel and Power. It accommodates goods such as kerosene, diesel, LPG, coal, and electricity

Fiscal and Monetary Policies.

Monetary policy refers to central bank activities that are directed toward influencing the quantity of money and credit in an economy. By contrast, fiscal policy refers to the government's decisions about taxation and spending. Both monetary and fiscal policies are used to regulate economic activity over time.

Fiscal Policy	Monetary Policy
Change in government spending and tax rates	Change in interest rates / money supply.
Set by the Government	Set by a Central bank
No specific target	Target inflation
Side effect on government budget / borrowing	Side effect on exchange rate and housing market
Strong political dimension to changing tax rates	Mostly independent from the political process

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Business and Government

Business:

Broad term encompassing a range of actions and institutions.

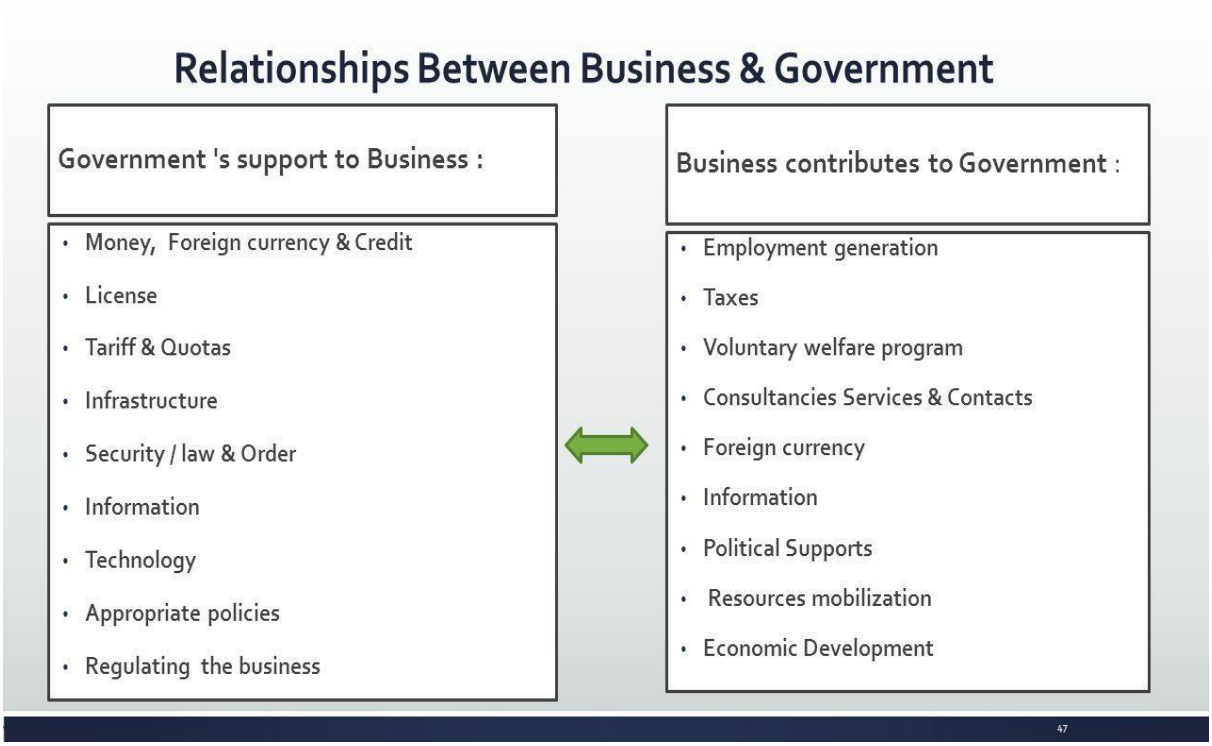
Government:

Refers to structures and processes in societies that authoritatively makes and apply policies and rules.

Society:

A network of human relations that includes three interacting elements

Ideas, Institutions, Material things.



Economic Indicators

The level of economic development of a country there are a different indicators which are used.These indicators help in understanding the level of development, comparisons with other countries, or different time periods.

These indicators help in better planning towards achieving economic development.

The indicators of economic development are:

Growth rate of National Income:

In this indicator real income is calculated on constant prices

If there is rise in national income, this indicates economic development.

When there is high rate of national income, development rate is high and vice versa

Per Capita Income (PCI):

The average income of the people living in the country is the per capita income.

A rise in PCI is an important indicator of economic development

The rise in PCI indicates economic welfare of the country

Per Capita Consumption (PCC):

The increase in consumption of goods and services by the people is measured in PCC.

Example clothing, food, education, health etc

An increase in PCC shows better quality of life of people and higher economic development of the country.

Physical Quality Life Index (PQLI) and Human Development Index (HDI):

PQLI is the overall welfare of the people in life expectancy, infant mortality rate, standard of living.

HDI measures life expectancy, education and standard of living.

A rise in PQLI and HDI shows an improvement in quality of life of people and therefore economic development.

Industrial progress:

Industrial progress is an important indicator of the economic development of a country. It helps to increase per capita income and the national output of the country.

Capital formation:

It means investing in transport, irrigation, roads, electricity, technology etc. higher capital formation will lead to higher economic development.

The indicators under economic development are more towards the qualitative improvement of people in the country. A higher rate of these indicators shows a higher level of economic development.

Barometric or Indicator Approach

In this approach to economic forecasting, various types of indicators are studied to find out how the economy is likely to perform in the future. These indicators are time series data of certain economic variables. The indicators are classified into leading, coincidental and lagging indicators.

The leading indicators are those time series data that reach their high points (peaks) or their low points (troughs) in advance of the high points and low points of total economic activity. The coincidental indicators reach their peaks and troughs at approximately the same time as the

economy, while the lagging indicators reach their turning points after the economy has already reached its own turning points. In this method, the indicators1 act as barometers to indicate the future level of economic activity. However, careful examination of historical data of economic series is necessary to ascertain which economic variables have led, lagged behind or moved together with the economy.

Technology, Employment and Poverty-Issues and Challenges Industrial Finance

Introduction:

The principal objective of development planning is human development and the attainment of higher standard of living for the people. This requires a more equitable distribution of benefits of development and opportunities, better living environment and empowerment of the poor and marginalized. There is special need to empower women who can act as catalysts for change. In making the development process inclusive, the challenge is to formulate policies and programmes to bridge regional, social and economic disparities in as effective and sustainable a manner as possible.

The projected increase in total labour force during 11th Plan was 45 million. As against this, 58 million employment opportunities are targeted to be created during the Eleventh Plan. This is expected to reduce unemployment rate to below 5 per cent. The Eleventh Plan emphasizes that the growth in various sectors of the economy can be achieved only if supported by appropriate skill development programmes at various levels. The Eleventh Plan document has spelt out certain deficiencies in the skill development scenario in the country as it exists presently. The thrust of the plan therefore will be on creating a pool of skilled manpower in appropriate number with adequate skills, in line with the requirements of the ultimate users of manpower such as the industry, trade and service sector. Such an effort is necessary to support the employment expansion through inclusive growth including in particular a shift of surplus labour from agriculture to non-agriculture. The basic weakness in our employment performance is the failure of the Indian economy to create a sufficient volume of additional high quality employment to absorb the new entrants into the labour force while also facilitating the absorption of surplus labour that currently exists in the agricultural sector, into higher wage, non-agricultural employment. A successful transition to inclusive growth requires migration of such surplus workers to other areas for productive and gainful employment in the organized or unorganized sector. Women agricultural workers in families where the male head has migrated, also require special attention ,given the need for credit and other inputs if they are self-employed in agriculture or for wage employment if they do not have land.

As a manager it is essential to understand the concepts related to employment and unemployment. Let us see the basic definitions.

Employment:

When persons are holding a job and they perform for any paid work. Also if workers hold jobs because of illness, strike or vacation, they are considered as employed.

Full Employment:

When 94-95% of them are employed or highest sustainable level of employment over the long run is called as full employment.

Under Employment:

Less than full employment is called as under employment.

Unemployment:

When people are not working and are actively looking for work or waiting to return to work, such a situation may be called as unemployment.

Types Of Unemployment

1. Frictional unemployment: unemployment that occurs naturally during the normal working of an economy. Temporarily caused by inefficient movement of people between regions and jobs, as it takes time for new workers to search and decide for a job. Voluntary switching of jobs, fired or seeking re employment

2. Structural unemployment: The change in industrial structure of a country, change in Demand and technology, change in requirement of skills. Mismatch between demand and supply.

3. Cyclical unemployment: unemployment is more at a particular time that is due to economic recession, depression and others.

4. Technological unemployment: due to change in technology, new production and process leads to reduction in work requirement.

5. Seasonal unemployment: in some industries the work cannot be there throughout the years as it is seasonal in nature.

6. Disguised unemployment: lack of work of the type which would fully utilize the degree of skill possessed by the workers. Various categories like, 'workers', 'unemployed', 'labour force', 'out of labour force' are as explained below:

(a) Workers (or employed): Persons who are engaged in any economic activity or who, despite their attachment to economic activity, have abstained from work for reasons of illness, injury or other physical disability, bad weather, festivals, social or religious functions or other contingencies necessitating temporary absence from work constitute workers. Unpaid helpers who assist in the operation of an economic activity in the household, farm or non-farm activities

are also considered as workers. All the workers are assigned one of the detailed activity status under the broad activity category 'working or being engaged in economic activity'.

(b) Seeking or available for work (or unemployed): Persons, who, owing to lack of work, had not worked but either sought work through employment exchanges, intermediaries, friends or relatives or by making applications to prospective employers or expressed their willingness or availability for work under the prevailing condition of work and remuneration are considered as those who are 'seeking or available for work' (or unemployed).

(c) Labour force: Persons who are either 'working' (or employed) or 'seeking or available for work' (or unemployed) during the reference period together constitute the labour force.

(d) Out of labour force: Persons who are neither 'working' and at the same time nor 'seeking or available for work' for various reasons during the reference period are considered to be 'out of labour force'. The persons under this category are students, those engaged in domestic duties, renters, pensioners, recipients of remittances, those living on alms, infirm or disabled persons, too young or too old persons, prostitutes, etc. Workers have been further categorized as self-employed, regular salaried/wage employee and casual wage labourers. These categories are defined in the following paragraphs.

Self-Employed:

Persons who operate their own farm or non-farm enterprises or are engaged independently in a profession or trade on own-account or with one or a few partners are self-employed in household enterprises. The essential feature of the self-employed is that they have autonomy (i.e., regarding how, where and when to produce) and economic independence (i.e., regarding market, scale of operation and money) for carrying out operation. The fee or remuneration received by them consists of two parts - the share of their labour and profit of the enterprise. In other words, their remuneration is determined wholly or mainly by sales or profits of the goods or services which are produced by themselves.

Technology and Employment

The forecasted demand for IT and IT enabled services are going to grow to the extent of 5.3 million in 2022 which indicates that the technology is going to play a major role in creating employment opportunities in the future. The technology based human requirement of the world is also growing at a faster way. The developing countries like India and other Asian countries have more population particularly; India has the highest young population. India produces more engineers every year therefore the opportunities can be optimally utilized by our country. In the recent past, the BPO organizations mushroomed in India but due to political and economic crisis of USA it has changed now. Therefore the change in economic activities of the world has an impact in determining the employment generation of a country.

Money Market and Capital market

The money market and capital market are two major components of the Indian financial system. The money market caters to short term liquidity needs, while the capital market provides a platform for long term investing. The instruments of the money market have a maturity of less than one year**.**

Call Money-The call money market is an essential part of the Indian Money Market, where the day-to-day surplus funds (mostly of banks) are traded. The money that is lent for one day in this market is known as "Call Money", and if it exceeds one day (but less than 15 days) it is referred to as "Notice Money".

Treasury Bill- The Treasury bill market is **the market that deals in treasury bills**. These bills are short-term (91-day) liability of the Government of India. In theory, they are issued to meet temporary needs for funds of the government, arising from temporary excess of expenditure over receipts.

Certificate of Deposit- a certificate issued by a bank to a person depositing money for a specified length of time at a specified rate of interest.

Commercial paper -Commercial paper is a commonly used type of unsecured, short-term debt instrument issued by corporations, typically used for the financing of payroll, accounts payable and inventories, and meeting other short-term liabilities. Maturities on commercial paper typically last several days, and rarely range longer than 270 days

Commercial Bill- Bills of exchange are negotiable instruments, drawn by the seller (drawer) of the goods on the buyer (drawee) of the goods for the value of the goods delivered. These bills are known as trade bills. Trade bills are called commercial bills (30-60-90) days.

Share- A Company's capital is divided into small equal units of a finite number. Each unit is known as a share. In simple terms, a share is a percentage of ownership in a company or a financial asset. Investors who hold shares of any company are known as shareholders.

Debentures- a long-term security yielding a fixed rate of interest, issued by a company and secured against assets.

Commodity- A commodity market is a marketplace for buying, selling, and trading raw materials or primary products.

Commodities are often split into two broad categories: hard and soft commodities. Hard commodities include natural resources that must be mined or extracted—such as gold, rubber, and oil, whereas soft commodities are agricultural products or livestock—such as corn, wheat, coffee, sugar, soybeans, and pork.

Derivative- The derivatives market refers to The financial market for financial instruments such as futures contracts or options that are based on the values of their underlying assets.