Class:- BBA-1stSemester

MANAGERIAL ECONOMICS

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I.K.G. Punjab Technical University
BBA Batch 2018
BBA-GE 101 Managerial Economics- I

Course Objective: The primary objective of this course is to equip students with the necessary economic concepts, principles, theory and techniques and enhance their managerial decision making to address business problems in a globalized economic environment.

Course Outcomes (COs): After completion of the course, the students shall be able to:

CO1: Understand the basic concepts of managerial economics and apply the economic way of thinking to individual decisions and business decisions.

CO2: Measure price elasticity of demand, understand the determinants of elasticity and apply the concepts of price, cross and income elasticity of demand.

CO3: Understand and estimate production function and Law of Diminishing Marginal Utility.

CO4: Understand and explain four basic market models of perfect competition, monopoly, monopolistic competition, and oligopoly, and how price and quantity are determined in each model.

CO5: Understand the different costs of production and how they affect short and long run decisions.

Unit-I

Introduction to Managerial Economics: Managerial Economics: Meaning, Nature, Scope & Relationship with other disciplines, Role of managerial economics in decision Making, Opportunity Cost Principle, Production Possibility Curve, Incremental Concept, Scarcity Concept.
Demand and the Firm: Demand and its Determination: Demand function; Determinants of demand; Demand elasticity – Price, Income and cross elasticity. Use of elasticity for analyzing demand, Demand estimation, Demand forecasting, Demand forecasting of new product.

Indifference Curve Analysis: Meaning, Assumptions, Properties, Consumer Equilibrium, Importance of Indifference Analysis, Limitations of Indifference Theory.

Unit-II

Production Function : Production function Meaning, Concept of productivity and technology, Short Run and long run production function Isoquants; Least cost combination of inputs, Producer's equilibrium; Return to scale; Estimation of production function.

Theory of Cost: Cost Concepts and Determinants of cost, short run and long run cost theory.
Modern Theory of Cost, Relationship between cost and production function.

Unit-III

Revenue Curve: Concept of Revenue, Different Types of Revenues, concept and shapes of Total Revenue, Average revenue and marginal revenue, Relationship between Total Revenue, Average revenue and marginal revenue, Elasticity of Demand and Revenue relation.

Market Structure: Market Structure: Meaning, Assumptions and Equilibrium of Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly: Price and output determination under collusive oligopoly, Price and output determination under non-collusive oligopoly, Price leadership model.

Unit-IV

Pricing: Pricing practices**;** Commodity Pricing: Economics of advertisement costs; Types of pricing practices.

Factor Pricing: Demand and supply of factor of production; Collective bargaining, Concept of rent, profit, interest- Rate of return and interest rates; Real vs. Nominal interest rates. Basic capital theory–Interest rate and return on capital. Measurement of profit.

Note: Relevant Case Studies will be discussed in class.

Suggested Readings/ Books:-

1. K.K .Dewett, *Modern Economic Theory,* S. Chand Publication
2. D.M.Mithani, *Managerial Economics Theory and Applications,* Himalaya Publication
3. Peterson and Lewis, *Managerial Economic,* Prentice Hall of India
4. Gupta, *Managerial Economics,* TataMcGraw Hills
5. Geetika, Managerial Economics, Tata McGraw Hills
6. D.N.Dwivedi, Managerial Economic, Vikas Publications
7. Koutsoyiannis, A Modern Micro Economics, Palgrave Macmillan Publishers, New Delhi.
8. H. L Ahuja Advanced Economic Analysis, S. Chand & Co. Ltd, New Delhi. 7.
9. G.S Gupta, Managerial Economics, Tata McGraw Hill.

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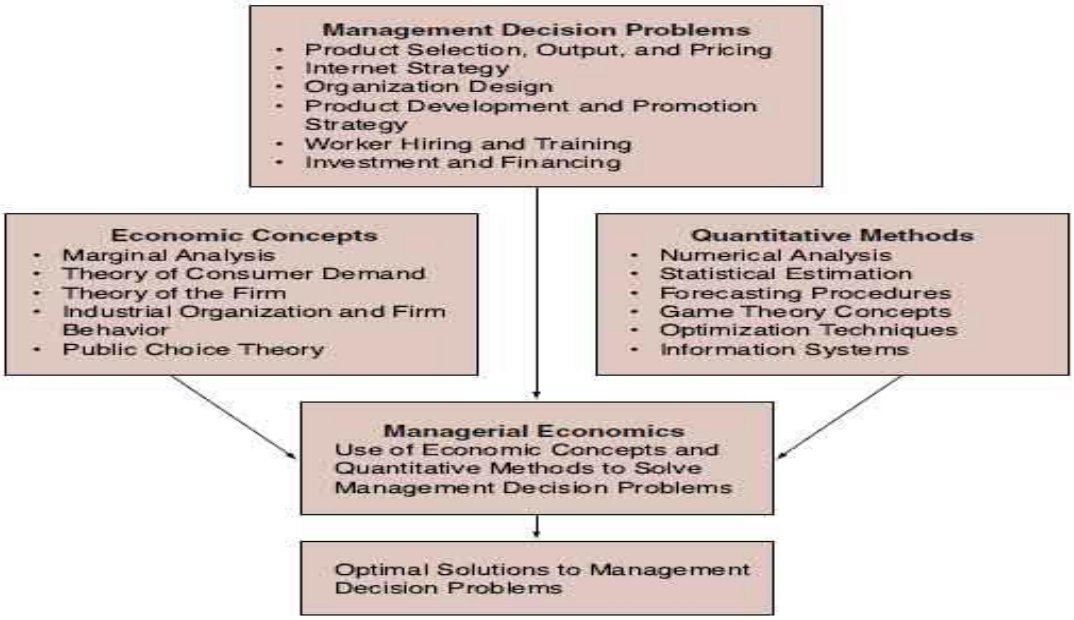
UNIT-I

MANAGERIAL ECONOMICS

INTRODUCTION OF MANAGERIAL ECONOMICS

Managerial Economics (also called Business Economics) a subject first introduced by Joel Dean in 1951, is essentially concerned with the economic decisions of business managers. It is a branch of Economics that applies microeconomic analysis to specific business decisions (i.e. Economics applied in business decision-making). Managerial Economics may be viewed as Economics applied to problem solving at the level of the firm. The problems of course relate to choices and allocation of resources, which are basically economic in nature and are faced by managers all the time. It is that branch of Economics, which serves as a link between abstract theory and managerial practice. It is based on economic analysis for identifying problems, organizing information and evaluating alternatives. In other words Managerial Economics involves analysis of allocation of the resources available to a firm or a unit of management among the activities of that unit. It is thus concerned with choice or selection among alternatives. Managerial Economics is by nature goal-oriented and prescriptive, and it aims at maximum achievement of objectives.



MEANING OF MANAGERIAL ECONOMICS

Managerial Economic is combination of two words **Managerial & Economics.** Managerial means management & relating to Management & Managers. Economics means Economic growth & relating to trade, industry, money.

Managerial economics is a discipline which deals with the application of economic theory to business management. It deals with the use of economic concepts and principles of business decision making. Formerly it was known as "Business Economics" but the term has now been discarded in favor of Managerial Economics.

Managerial Economics may be defined as the study of economic theories, logic and methodology which are generally applied to seek solution to the practical problems of business. Managerial Economics is thus constituted of that part of economic knowledge or economic theories which is used as a tool of analysing

business problems for rational business decisions. Managerial Economics is often called as Business Economics or Economic for Firms.

DEFINITION OF MANAGERIAL ECONOMICS

"Managerial Economics is economics applied in decision making. It is a special branch of economics bridging the gap between abstract theory and managerial practice." – ***Haynes, Mote* and *Paul*.**

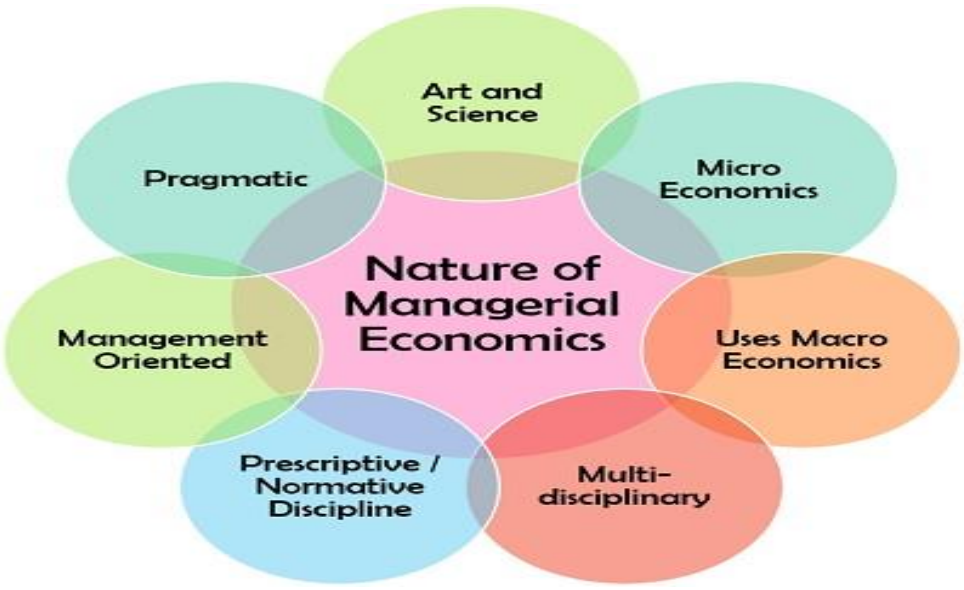
"Business Economics consists of the use of economic modes of thought to analyse business situations." - ***McNair* and *Meriam***

"Business Economics (Managerial Economics) is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management." - ***Spencer*and *Seegelman.***

"Managerial economics is concerned with application of economic concepts and economic analysis to the problems of formulating rational managerial decision." – ***Mansfield***

NATURE OF MANAGERIAL ECONOMICS

To know more about managerial economics, we must know about its various characteristics. Let us read about the nature of this concept in the following points:



1] Art and Science: Managerial economics requires a lot of logical thinking and creative skills for decision making or problem-solving. It is also considered to be a stream of science by some economist claiming that it involves the application of different economic principles, techniques and methods to solve business problems.

2] Micro Economics: In managerial economics, managers generally deal with the problems related to a particular organization instead of the whole economy. Therefore it is considered to be a part of microeconomics.

3] Uses Macro Economics: A business functions in an external environment, i.e. it serves the market which is a part of the economy as a whole. Therefore, it is essential for managers to analyze the different factors of macroeconomics such as market conditions, economic reforms, government policies, etc. and their impact on the organization.

4] Multi-disciplinary: It uses many tools and principles belonging to various disciplines such as accounting, finance, statistics, mathematics, production, operation research, human resource, marketing, etc.

5] Prescriptive / Normative Discipline: It aims at goal achievement and deals with practical situations or problems by implementing corrective measures. Management Oriented: It acts as a tool in the hands of managers to deal with business-related problems and uncertainties appropriately. It also provides for goal establishment, policy formulation and effective decision making.

6] Pragmatic: It is a practical and logical approach towards the day to day business problems.

SCOPE OF MANAGERIAL ECONOMICS

The scope of managerial economics is not yet clearly laid out because it is a developing science. Even then the following fields may be said to generally fall under Managerial Economics:

1. **Analysis and Forecasting:** A business firm is an economic organisation which is engaged in transforming productive resources into goods that are to be sold in the market. A major part of managerial decision making depends on accurate

estimates of demand. A forecast of future sales serves as a guide to management for preparing production schedules and employing resources. It will help management to maintain or strengthen its market position and profit base. Demand analysis also identifies a number of other factors influencing the demand for a product. Demand analysis and forecasting occupies a strategic place in Managerial Economics.

2. **Cost and production analysis**: A firm's profitability depends much on its cost of production. A wise manager would prepare cost estimates of a range of output, identify the factors causing are cause variations in cost estimates and choose the cost-minimising output level, taking also into consideration the degree of uncertainty in production and cost calculations. Production processes are under the charge of engineers but the business manager is supposed to carry out the production function analysis in order to avoid wastages of materials and time. Sound pricing practices depend much on cost control. The main topics discussed under cost and production analysis are: Cost concepts, cost-output relationships, Economics and Diseconomies of scale and cost control.

3. **Pricing decisions, policies and practices**: Pricing is a very important area of Managerial Economics. In fact, price is the genesis of the revenue of a firm ad as such the success of a business firm largely depends on the correctness of the price decisions taken by it. The important aspects dealt with this area are: Price determination in various market forms, pricing methods, differential pricing, product-line pricing and price forecasting.

4. **Profit management:** Business firms are generally organized for earning profit and in the long period, it is profit which provides the chief measure of success of a firm. Economics tells us that profits are the reward for uncertainty bearing and risk taking. A successful business manager is one who can form more or less correct estimates of costs and revenues likely to accrue to the firm at different levels of output. The more successful a manager is in reducing uncertainty, the higher are the profits earned by him. In fact, profit-planning and profit measurement constitute the most challenging area of Managerial Economics.

5. Capital management: The problems relating to firm's capital investments are perhaps the most complex and troublesome. Capital management implies planning and control of capital expenditure because it involves a large sum and moreover the problems in disposing the capital assets off are so complex that they require considerable time and labour. The main topics dealt with under capital management are cost of capital, rate of return and selection of projects.

6. Government Regulation:-There are endless implications of government regulations on the business firm and at times the legal environment of business is as important as the economic environment. So, it is necessary to examine law-related applications of economic principles.

7. Management of Public Sector Enterprises:-Managerial economics can also be applied to the decision making process of non-profit seeking and public sector enterprises. Economists in various government departments and public sector organizations are also concerned with project evaluation and cost-benefit analysis.

MANAGERIAL ECONOMICS IN RELATION WITH OTHER DISCIPLINES

Managerial economics has a close linkage with other disciplines and fields of study. The subject has gained by the interaction with Economics, Mathematics and Statistics and has drawn upon Management theory and Accounting concepts. Managerial economics integrates concepts and methods from these disciplines and brings them to bear on managerial problems.

1. Managerial Economics and Economics:

Managerial Economics is economics applied to decision making. It is a special branch of economics, bridging the gap between pure economic theory and managerial practice. Economics has two main branches—micro-economics and macro-economics.

Micro-economics:- 'Micro' means small. It studies the behaviour of the individual units and small groups of units. It is a study of particular firms,

particular households, individual prices, wages, incomes, individual industries and particular commodities. Thus micro-economics gives a microscopic view of the economy.

The roots of managerial economics spring from micro-economic theory. In price theory, demand concepts, elasticity of demand, marginal cost marginal revenue, the short and long runs and theories of market structure are sources of the elements of micro-economics which managerial economics draws upon. It makes use of well known models in price theory such as the model for monopoly price, the kinked demand theory and the model of price discrimination.

Macro-economics:-'Macro' means large. It deals with the behaviour of the large aggregates in the economy. The large aggregates are total saving, total consumption, total income, total employment, general price level, wage level, cost structure, etc. Thus macro-economics is aggregative economics.

It examines the interrelations among the various aggregates, and causes of fluctuations in them. Problems of determination of total income, total employment and general price level are the central problems in macro-economics.

Macro-economies is also related to managerial economics. The environment, in which a business operates, fluctuations in national income, changes in fiscal and monetary measures and variations in the level of business activity have relevance to business decisions. The understanding of the overall operation of the economic system is very useful to the managerial economist in the formulation of his policies.

Macro-economics contributes to business forecasting. The most widely used model in modern forecasting is the gross national product model.

2. Managerial Economics and Theory of Decision Making:

The theory of decision making is relatively a new subject that has a significance for managerial economics. In the process of management such as planning, organising, leading and controlling, decision making is always essential. Decision making is an integral part of today's business management. A manager

faces a number of problems connected with his/her business such as production, inventory, cost, marketing, pricing, investment and personnel.

Economist are interested in the efficient use of scarce resources hence they are naturally interested in business decision problems and they apply economics in management of business problems. Hence managerial economics is economics applied in decision making.

3. Managerial Economics and Operations Research:

Mathematicians, statisticians, engineers and others join together and developed models and analytical tools which have grown into a specialised subject known as operation research. The basic purpose of the approach is to develop a scientific model of the system which may be utilised for policy making.

The development of techniques and concepts such as Linear Programming, Dynamic Programming, Input-output Analysis, Inventory Theory, Information Theory, Probability Theory, Queuing Theory, Game Theory, Decision Theory and Symbolic Logic.

4. Managerial Economics and Statistics:

Statistics is important to managerial economics. It provides the basis for the empirical testing of theory. It provides the individual firm with measures of appropriate functional relationship involved in decision making. Statistics is a very useful science for business executives because a business runs on estimates and probabilities.

Statistics supplies many tools to managerial economics. Suppose forecasting has to be done. For this purpose, trend projections are used. Similarly, multiple regression technique is used. In managerial economics, measures of central tendency like the mean, median, mode, and measures of dispersion, correlation, regression, least square, estimators are widely used.

Statistical tools are widely used in the solution of managerial problems. **For example.** sampling is very useful in data collection. Managerial economics makes use of correlation and multiple regressions in business problems involving some kind of cause and effect relationship.

5. Managerial Economics and Accounting:

Managerial economics is closely related to accounting. It is recording the financial operation of a business firm. A business is started with the main aim of earning profit. Capital is invested / employed for purchasing properties such as building, furniture, etc and for meeting the current expenses of the business.

Goods are bought and sold for cash as well as credit. Cash is paid to credit sellers. It is received from credit buyers. Expenses are met and incomes derived. This goes on the daily routine work of the business. The buying of goods, sale of goods, payment of cash, receipt of cash and similar dealings are called business transactions.

The business transactions are varied and multifarious. This has given rise to the necessity of recording business transaction in books. They are written in a set of books in a systematic manner so as to facilitate proper study of their results.

There are three classes of accounts:

(i) Personal account,

(ii) Property accounts, and

(iii) Nominal accounts.

Management accounting provides the accounting data for taking business decisions. The accounting techniques are very essential for the success of the firm because profit maximization is the major objective of the firm.

6. Managerial Economics and Mathematics:

Mathematics is another important subject closely related to managerial economics. For the derivation and exposition of economic analysis, we require a set of mathematical tools. Mathematics has helped in the development of economic theories and now mathematical economics has become a very important branch of economics.

Mathematical approach to economic theories makes them more precise and logical. For the estimation and prediction of economic factors for decision making and forward planning, mathematical method is very helpful. The important branches of mathematics generally used by a managerial economist are geometry, algebra and calculus.

The mathematical concepts used by the managerial economists are the logarithms and exponential, vectors and determinants, input-out tables. Operations research which is closely related to managerial economics is mathematical in character.

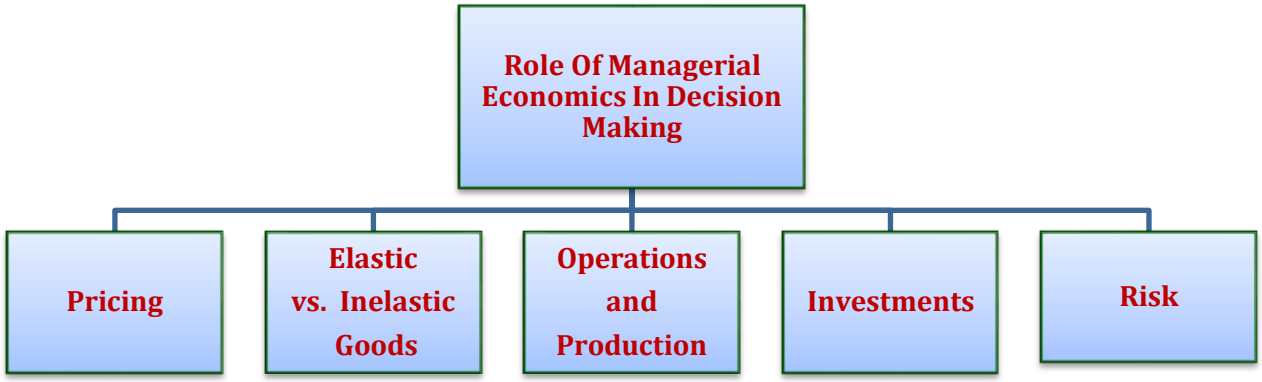
MANAGERIAL ECONOMICS IN DECISION MAKING

 # MEANING:-Managerial economics uses a wide variety of economic concepts, tools, and techniques in the decision-making process. These concepts can be placed in three broad categories:-

1. The theory of the firm, which describes how businesses make a variety of decisions.
2. The theory of consumer behavior, which describes decision making by consumers.
3. The theory of market structure and pricing, which describes the structure and characteristics of different market forms under which business firms operate.

ROLE OF MANAGERIAL ECONOMICS IN DECISION MAKING

Managerial economics, or business economics, is a division of microeconomics that focuses on applying economic theory directly to businesses. The application of economic theory through statistical methods helps businesses make decisions and determine strategy on pricing, operations, risk, investments and production. The overall role of managerial economics is to increase the efficiency of decision making in businesses to increase profit



1) Pricing:- Managerial economics assists businesses in determining pricing strategies and appropriate pricing levels for their products and services. Some common analysis methods are price discrimination, value-based pricing and cost-plus pricing.

2) Elastic vs. Inelastic Goods:-Economists can determine price sensitivity of products through a price elasticity analysis. Some products, such as milk, are consider a necessity rather than a luxury and will purchase at most price points. This type of product is considered inelastic. When a business knows they are selling an inelastic good, they can make marketing and pricing decisions easier

3) Operations and Production:- Managerial economics uses quantitative methods to analyze production and operational efficiency through schedule optimization, economies of scale and resource analyses. Additional analysis

methods include marginal cost, marginal revenue and operating leverage. Through tweaking the operations and production of a company, profits rise as costs decline.

4) Investments:- Many managerial economic tools and analysis models are used to help make investing decisions both for corporations and savvy individual investors. These tools are use to make stock market investing decisions and decisions on capital investments for a business. For example, managerial economic theory can be used to help a company decide between purchasing, building or leasing operational equipment.

5) Risk:- Uncertainty exits in every business and managerial economics can help reduce risk through uncertainty model analysis and decision-theory analysis. Heavy use of statistical probability theory helps provide potential scenarios for businesses to use when making decisions.

MANAGERIAL DECISION MAKING PROCESS (5 STEPS)

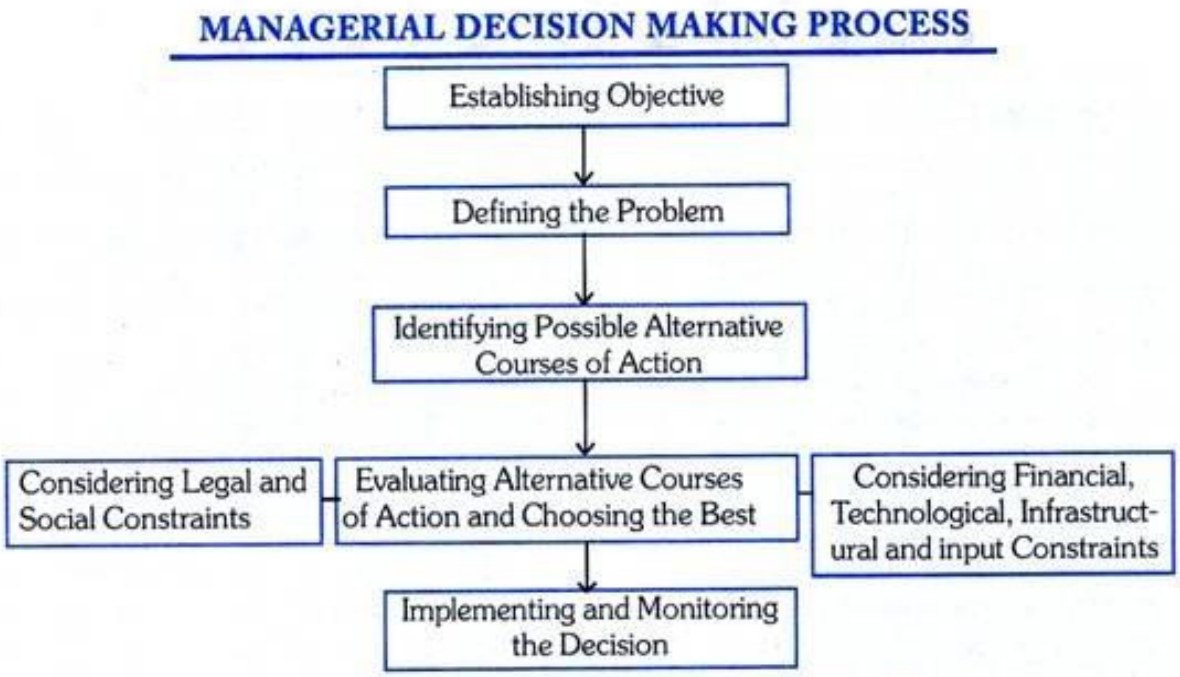


Fig. 1.2. *Managerial Decision Making Process : Various Steps*

Decision making is crucial for running a business enterprise which faces a large number of problems requiring decisions.

Which product to be produced, what price to be charged, what quantity of the product to be produced, what and how much advertisement expenditure to be made to promote the sales, how much investment expenditure to be incurred are some of the problems which require decisions to be made by managers.

The five steps involved in managerial decision making process are explained below:

1. Establishing the Objective:- The first step in the decision making process is to establish the objective of the business enterprise. The important objective of a private business enterprise is to maximize profits. However, a business firm may have some other objectives such as maximization of sales or growth of the firm.

But the objective of a public enterprise is normally not of maximization of profits but to follow benefit-cost criterion. According to this criterion, a public enterprise should evaluate all social costs and benefits when making a decision whether to build an airport, a power plant, a steel plant, etc.

2. Defining the Problem:- The second step in decision making process is one of defining or identifying the problem. Defining the nature of the problem is important because decision making is after all meant for solution of the problem. For instance, a cotton textile firm may find that its profits are declining.

It needs to be investigated what are the causes of the problem of decreasing profits. Whether it is the wrong pricing policy, bad labour-management relations or the use of outdated technology which is causing the problem of declining profits. Once the source or reason for falling profits has been found, the problem has been identified and defined.

3. Identifying Possible Alternative Solutions (i.e. Alternative Courses of Action): Once the problem has been identified, the next step is to find out alternative solutions to the problem. This will require considering the variables that have an impact on the problem. In this way, relationship among the variables and with the problems has to be established.

In regard to this, various hypotheses can be developed which will become alternative courses for the solution of the problem. For example, in case of the problem mentioned above, if it is identified that the problem of declining profits is due to be use of technologically inefficient and outdated machinery in production.

The two possible solutions of the problem are:

(1) Updating and replacing only the old machinery.

(2) Building entirely a new plant equipped with latest machinery.

The choice between these alternative courses of action depends on which will bring about larger increase in profits.

4. Evaluating Alternative Courses of Action:- The next step in business decision making is to evaluate the alternative courses of action. This requires, the collection and analysis of the relevant data. Some data will be available within the various departments of the firm itself, the other may be obtained from the industry and government.

The data and information so obtained can be used to evaluate the outcome or results expected from each possible course of action. Methods such as regression analysis, differential calculus, linear programming, cost- benefit analysis are used to arrive at the optimal course. The optimum solution will be one that helps to achieve the established objective of the firm. The course of action which is optimum will be actually chosen. It may be further noted that for the choice of an optimal solution to the problem, a manager works under certain constraints.

The constraints may be legal such as laws regarding pollution and disposal of harmful wastes; the way be financial (i.e. limited financial resources); they may relate to the availability of physical infrastructure and raw materials, and they may be technological in nature which set limits to the possible output to be produced per unit of time. The crucial role of a business manager is to

determine optimal course of action and he has to make a decision under these constraints.

5. Implementing the Decision:- After the alternative courses of action have been evaluated and optimal course of action selected, the final step is to implement the decision. The implementation of the decision requires constant monitoring so that expected results from the optimal course of action are obtained. Thus, if it is found that expected results are not forthcoming due to the wrong implementation of the decision, then corrective measures should be taken.

However, it should be noted that once a course of action is implemented to achieve the established objective, changes in it may become necessary from time to time in response in changes in conditions or firm's operating environment on the basis of which decisions were taken.

ROLE AND RESPONSIBILITIES OF MANAGERIAL ECONOMIST

1. To make a reasonable profit on capital employed: - He must have a strong conviction that profits are essential and his main obligation is to assist the management in earning reasonable profits on capital employed in the firm.

2. He must make successful forecasts by making in depth study of the internal and external factors:- This will have influence over the profitability or the working of the firm. He must aim at lessening if not fully eliminating the risks involved in uncertainties. He has a major responsibility to alert management at the earliest possible time in case he discovers any error in his forecast, so that the management can make necessary changes and adjustments in the policies and programmes of the firm.

3. He must inform the management of all the economic trends:- A managerial economist should keep himself in touch with the latest developments of national economy and business environment so that he can keep the management informed with these developments and expected trends of the economy

4. He must establish and maintain contacts with individuals and data sources:

(i) To establish and maintain contacts:-A managerial economist should establish and maintain contacts with individuals and data sources in order to collect relevant and valuable information in the field.

(ii) To develop personal relations:-To collect information he should develop personal relations with those having specialised knowledge of the field.

(iii) To join professional associations and should take active part in their activities:-The success of this lies in how quickly he gathers additional information in the best interest of the firm.

5. He must earn full status in the business and only then he can be helpful to the management in good and successful decision-making:

For this:

(i) He must receive continuous support for himself and his professional ideas by performing his function effectively.

(ii) He should express his ideas in simple and understandable language with the minimum use of technical words, while communicating with his management executives.

IMPORTANCE OF MANAGERIAL ECONOMICS

Business and industrial enterprises aim at earning maximum proceeds. In order to achieve this objective, a managerial executive has to take recourse in decision making, which is the process of selecting a specified course of action from a number of alternatives. A sound decision requires fair knowledge of the aspects of economic theory and the tools of economic analysis, which are directly involved in the process of decision-making. Since managerial economics is concerned with such aspects and tools of analysis, it is pertinent to the decision making process.

Spencer and Siegelman have described the importance of managerial economics in a business and industrial enterprise as follows:

(i) Accommodating traditional theoretical concepts to the actual business behavior and conditions:-Managerial economics amalgamates tools, techniques, models and theories of traditional economics with actual business practices and with the environment in which a firm has to operate. According to Edwin Mansfield, "Managerial Economics attempts to bridge the gap between purely analytical problems that intrigue many economic theories and the problems of policies that management must face".

(ii) Estimating economic relationships: Managerial economics estimates economic relationships between different business factors such as income, elasticity of demand, cost volume, profit analysis etc.

(iii) Predicting relevant economic quantities: Managerial economics assists the management in predicting various economic quantities such as cost, profit, demand, capital, production, price etc. As a business manager has to function in an environment of uncertainty, it is imperative to anticipate the future working environment in terms of the said quantities.

(iv) Understanding significant external forces: The management has to identify all the important factors that influence a firm. These factors can broadly be divided into two categories. Managerial economics plays an important role by assisting management in understanding these factors.

(a) External factors: A firm cannot exercise any control over these factors. The plans, policies and programs of the firm should be formulated in the light of these factors. Significant external factors impinging on the decision making process of a firm are economic system of the country, business cycles, fluctuations in national income and national production, industrial policy of the government, trade and fiscal policy of the government, taxation policy, licensing policy, trends in foreign trade of the country, general industrial relation in the country and so on.

(b) Internal factors: These factors fall under the control of a firm. These factors are associated with business operation. Knowledge of these factors aids the management in making sound business decisions.

(v) Basis of business policies: Managerial economics is the founding principle of business policies. Business policies are prepared based on studies and findings of managerial economics, which cautions the management against potential upheavals in national as well as international economy. Thus, managerial economics is helpful to the management in its decision-making process.

LIMITATIONS OF MANAGERIAL ECONOMICS

The limitations of managerial economics are as follows:-

(a)Managerial economics focus on management analysis based on financial and cost accounting data. Thus, the reliability of this data depends on the accuracy of the financial accounting information.

(b)Such analysis is based on past information. But if a new scheme is to be introduced, the circumstances change and the conclusions cannot be predicted using this past information.

(c)Managerial economics is subjected to the personal preferences of the individual manager which can influence the final decision of the manager to a certain extent.

(d)It is an expensive process as a business firm generally requires a certain number of managers to ensure proper functioning.

(e)The science of managerial economics is quite recent and is not fully developed. Thus, it is subjected to ambiguity in certain scenarios.

The manager is required to have extensive knowledge in a variety of fields in order to ensure that he completely comprehends the situation to be dealt with."

OPPORTUNITY COST PRINCIPLE

Opportunity cost principle is related and applied to scarce resource. When there are alternative uses of scarce resource, one should know which best alternative is and which is not. We should know what gain by best alternative is and what loss by left alternative is.

DEFINITIONS:-In the words of **Left witch,**"Opportunity cost of a particular product is the value of the foregone alternative products that resources used in its production, could have produced."

Opportunity cost is not what you choose when you make a choice —it is what you did not choose in making a choice. **Opportunity cost** is the value of the forgone alternative — what you gave up when you got something.

Example 1: If a person is having cash in hand Rs. 100000/-, he may think of two alternatives to increase cash.

Option 1: Investing in bank. We will get returns amount 10000/-

Option2: Investing in business. We get returns amount 17000/-

Generally we chose the option 2 because we will get more returns than the option 1. Here the option 1 is the opportunity cost, that what we have not chosen.

Example 2: I have a number of alternatives of how to spend my Friday night: I can go to the movies; I can stay home and watch the baseball game on TV, or go out for coffee with friends. If I choose to go to the movies, my opportunity cost of that action is what I would have chosen if I had not gone to the movies - either watching the baseball game or going out for coffee with friends. Note that an opportunity cost only considers the **next best** alternative to an action, not the entire set of alternatives.

The opportunity cost of a decision is based on what must be given up (the next best alternative) as a result of the decision. Any decision that involves a choice between two or more options has an opportunity cost.

OPPORTUNITY COST FORMULA AND CALCULATION

$$\textbf{Opportunity Cost} = FO - CO$$

Where:-FO=Return on best foregone option,

CO=Return on chosen option

ASSUMPTIONS OF OPPORTUNITY COSTS

The concept of opportunity costs is based on the following assumptions:-

1) Factors of production are freely mobile.

2) Perfect competition prevails in the market.

3) All the units of factors of production are homogeneous.

4) There prevails full employment of resources.

5) Factors of production are not specific as they can be put to alternative uses.

ILLUSTRATION OF OPPORTUNITY COST

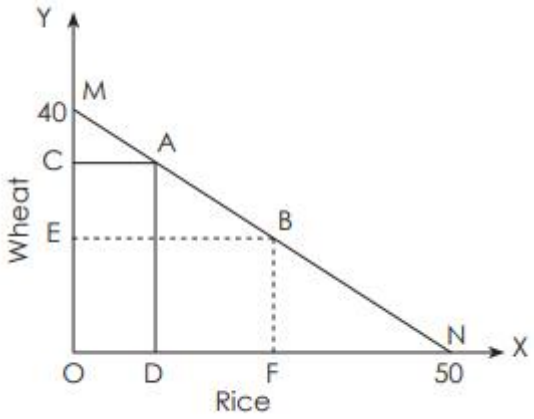
Let's understand these costs with the help of an illustration.

Let's say that a farmer has a piece of land on which he can grow wheat or rice.

Therefore, if he chooses to grow wheat, then he cannot grow rice and vice-versa.

Hence, the opportunity cost for rice is the wheat crop that he forgoes. The following diagram explains this:

Opportunity Cost Graph –



Let's assume that the farmer can produce either 50 quintals of rice (ON) or 40 quintals of wheat (OM) using this land. Now, if he produces rice, then he cannot produce wheat.

Therefore, the OC of 50 quintals of rice (ON) is 40 quintals of wheat (OM).

Further, the farmer can choose to produce any combination of the two crops along the curve MN (production possibility curve). Let's say that he chooses the point A as shown above.

Therefore, he produces OD amount of rice and OC amount of wheat. Subsequently, he decides to shift to point B. Now, he has to reduce the production of wheat from OC to OE in order to increase the production of rice from OD to OF.

Therefore, the OC of DF amount of rice is CE amount of wheat.

APPLICATIONS OF OPPORTUNITY COST

1. Determining factor prices:-The factors for production need a price equal to or greater than what they command for alternative uses. If the factor price is less than the factor's opportunity cost, then the said factor moves to the better-paying alternative.

2. Determining economic rent:-Many modern economists use this concept for determining economic rent. As per them, **economic rent = The factor's actual earning – Its opportunity cost or transfer earning**

3. Consumption pattern decisions:-According to this concept, if with a given amount of money a consumer chooses to have more of one thing, then he needs to have less of the other.

Further, he cannot increase the consumption of all the goods at the same time. Therefore, he decides his consumption pattern using the concept of opportunity cost.

4. Product plan decisions:- Let's say that a producer has fixed resources and technology. If he wants to produce a greater amount of one commodity, then he must sacrifice the quantity of another commodity.

Therefore, he uses this concept to make decisions about his production plan.

5. Decisions about national priorities:- Every country has certain resources at its command and needs to plan the production of a wide range of commodities. This decision depends on the national priorities which are based on opportunity costs.

For example, if a country is at war, then it will use its resources to produce more war-related goods as compared to civilian goods.

TYPES OF OPPORTUNITY COST IN PRODUCTION

1. Explicit Cost:-Explicit costs are the cost which includes the **monetary payment** from the producers.

For example, if the company is paying $1000 per month in food by providing free lunch and breakfast, then its explicit OC is $1000. The expenditure on food could have been used somewhere else.

2. Implicit Cost:-Implicit cost aka **national cost** can be defined as the OC which a company used in order to produce something.

For example, a company purchased small electronic devices to produce mobile phones, laptops, etc. This cost is used to produce something, the electronic devices are not sold or rented.

3. Marginal Cost:-Marginal opportunity cost is a cost required to produce something extra.

For example, currently a company is producing 1000 burgers per day, but due to heavy demand, they are running out of the burgers. So, the company decided to hire more people and cook more burgers.

Now marginal opportunity cost will include – payment of new employees, cost required for ingredients required to cook more burgers, profit company was missing before and many other extra costs required for producing additional burgers**.**

CONSIDERABLE FACTORS OF OPPORTUNITY COST

While investing money, time and effort, the person has to look for the option of giving the highest possible return on investment. Thus, giving up the value he would have yielded from the second-best alternative.

1. **The monetary value** invested in any opportunity must provide an adequate return to the investor. Therefore, money is an essential factor involved in opportunity cost.
2. **Time is a valuable asset**, and once invested, cannot be reversed. The benefit which a particular opportunity provides over the period must be the highest as compared to the other alternatives.
3. **The energy invested** in the chosen alternative is equally essential and requires a lot of skills and evaluation.

SIGNIFICANCE OF OPPORTUNITY COST

Opportunity cost is an inevitable part of any business activity since it triggers the process of decision making.

The primary reasons for which any business needs to determine the opportunity cost are as follows:

1) **Base for Decision Making**: Opportunity cost provides support for making an appropriate choice while selecting one out of many available alternatives.
2) **Price Determination**: Based on the expenses incurred in the procurement of any goods or services along with the cost which may have been committed to acquiring alternative options, the price of the products or services is determined.
3) **Efficient Resource Allocation**: It helps in investing the resources in the right opportunity by analyzing the opportunity cost of all the alternatives.
4) **Remuneration Decisions**: In organizations, it played a crucial role in determining the expected value an employee would create for the organization. It is acquired after his/her comparison to the other

alternatives available, and thus, personnel remuneration is considered accordingly.

CRITICISM OR LIMITATIONS OF OPPORTUNITY COSTS

The following are leveled against the concept of opportunity cost:-

1. Opportunity costs in the case of factors of production can't be calculated easily.

2. This concept is not useful for calculating the risks and pains undergone by the entrepreneur in production process.

3. This concept is applicable only when perfect competition prevails. But in actual practice perfect competition is a myth.

4. Factors of production are not freely mobile between different alternative employments. So opportunity cost of each factor can't be known.

5. This concept is not applicable in the case of specific factors.

6. This concept is based on the homogeneity of factors. But all the units of factors of production are not homogeneous in reality.

7. This concept assumes that resources are constant and do not change. So it is a static concept.

8. Factors of production influenced by elements like inertia may not move from one industry to the other.

9. This concept fails to take into consideration social costs like ill-health, environmental pollution etc. arising due to the expansion of industries.

PRODUCTION POSSIBILITY CURVE

 # MEANING:- A PPC shows all the combinations of two 'goods' which can be provided if all resources are being used efficiently

As there are limited resources available to produce any given item, an increase in the quantity produced of one item will lead to a corresponding decrease in the quantity produced of the comparison item.

Since human wants are unlimited and the means to satisfy them are limited, every society is faced with the fundamental problem of choosing and allocating its scarce resources among alternative uses. The production possibility curve or frontier is an analytical tool which is used to illustrate and explain this problem of choice.

Production Possibility Curve: Features, Schedule Representation and Assumptions!

The economic problem of scarcity and choice can be easily and clearly explained with production possibility frontier or curve.

Production possibility curve or production frontier refers graphically to all the possible combinations of maximum amounts of two goods which can be produced with the available productive resources of an economy.

In short, production possibility curve is a curve which shows all possible combinations of two goods that can be produced by making full use of given resources and technology in an economy.

We know that an economy always faces the problem of resource allocation i.e. making a choice of its resources. Again there is a maximum limit to the quantity of goods and services which an economy can produce with full use of its available resources and technology. We also know that an increase in the production of one commodity reduces the production of other commodity. In this way available resources can be used alternatively to produce different combinations of goods and services. This is known as production possibility. The curve that shows these alternatives is called production possibility curve.

Schedule Representation:

Let us assume that two commodities are to be produced say, cloth and wheat. If all the resources are put to produce cloth, then the maximum of cloth will be produced per year, depending on the quantitative and qualitative resources and the technological efficiency. Let us, now further suppose that within the

existing conditions only 5 million meters of cloth can be produced, with all the resources at our command.

Alternatively, if all the resources are used for the production of wheat, we can produce 15 million tonnes of food grains. In between these two extreme possibilities, there are many other alternatives. Thus we shall have to scarcities one for the other. This fact is clear from the Table No. 1.

Table 1

Production Possibilities (1)	Cloth in million metres) (2)	Wheat (in million quintals) (3)	Marginal opportunities cost of cloth (in wheat) (4)
A	0	15	—
B	1	14	1
C	2	12	2
D	3	9	3
E	4	5	4
F	5	0	5

Diagramme Representation:

With the help of above table, we can show production possibility curve in respect of cloth and wheat. Economy can produce maximum 5 million metres of cloth or 15 million quintals of wheat. In Fig. 1, on OX axis, we have measured cloth in million metres while on OY axis; we have taken wheat in million quintals.

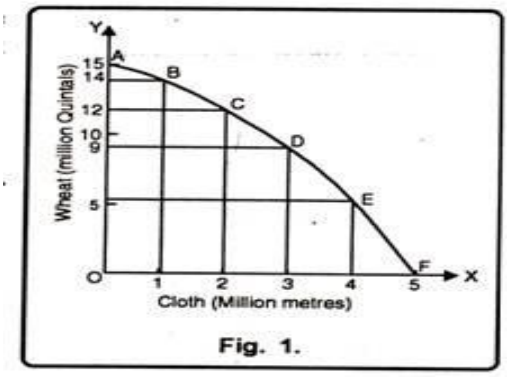


Fig. 1.

The concave curve AF shows the join of various possible combinations which gives a curve known as transformation curve or production possibility frontier. Each production possibility curve is the locus of output combination which is obtained from given factors or inputs. Similarly B, C, D and E show the different combinations for two different goods i.e. cloth and wheat. The economy has to choose out of these various combinations, which can be produced by existing resources and technology. They are also known as 'Technologically Efficient' or 'Optimum Product Mix'. Here we should remember that any combination beyond AF curve does not possess sufficient resources.

ASSUMPTIONS

The production possibility curve is based on certain assumptions:

(a) The economy produces two commodities only.

(b) The quantities and qualities of factors of production viz., land, labour capital etc. are fixed.

(c) The techniques of production are constant.

(d) There is full employment in the economy and

(e) The prices of factors of production are constant.

FEATURES OF PRODUCTION POSSIBILITY CURVE

Production possibility curve has two main features as explained under:

1. It Slopes Downwards to Right:- Production possibility curve slopes downwards to the right shows that economy has to forgo some quantity of one commodity to get more quantity of other commodity.

Example:-In figure when the economy moves from combination B to C, economy has to give up two million quintals of wheat to get one million meters of additional cloth.

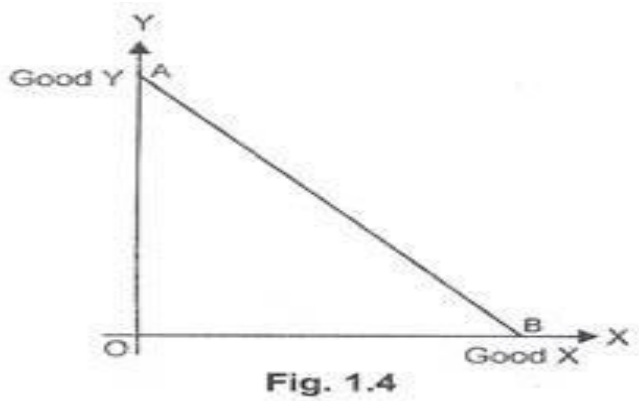


Fig. 1.4

2. Concave to the Origin:- Production possibility curve is concave to the origin. It shows the operation of the law of increasing opportunity cost.

In figure when we move from A to B, economy has to forgo one million quintals of wheat. Again when we move from B to C, economy is required to give up two million quintals of wheat to get one additional unit i.e. one million meters of cloth.

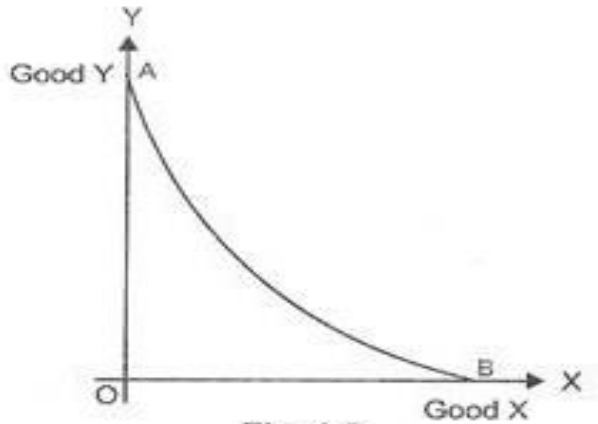


Fig. 1.5

Example:- XYZ Company, Ltd is known for producing and selling pens and pencils. Their resources for producing the two products are fixed**.**
The company can produce 2,000 pencils if it doesn't produce a single pen. Likewise, it can produce 1,500 pens if it doesn't produce a single pencil. Currently, it is producing 1,000 pencils and 800 pens.

The company has recently received more demand for pencils, so management decided to increase the production of pencils from 1,000 units to 1,500 units by reducing the output of pens from 800 units to 5oo units. The opportunity cost for producing 1,500 units of pencils becomes the 300 units of forgone pens.

SHIFT IN PRODUCTION POSSIBILITY CURVE (PPC)

Production Possibility Curve shift either downward or upward. PPC shift downward or upward due to following reasons: –

1. Change in capital.- Increase in capital increases the quantity of production due to which PPC shift upward. And if capital investment decreases, then the production will also decrease which causes downward shift in PPC.

2. Change in labour force.- If efficiency of labour force increases, then production of goods also increases, as a result, burden of labour force production will decrease. As a result, PPC shift downward.

3. Change in technology.- If the production technique is improved, then the production will increase which brings upward shift in PPC. If old technology is used in production process, production will decrease which brings downward shift in PPC.

4. Change in Time period.- PPC can shift due to the change in time period. In the long run, economy can gain efficiency which results increase in productivity. As a result, PPC shift upward, but the economy can't get efficiency in production, the production decreases and PPC shift downward.

Similarly, proper management of available resources, increase in economic growth, new raw materials, education, trainings to labour etc. increase the production which will shift the PPC upward. But mismanagement of available resources, decrease in economic growth, adequate raw materials, etc. decrease the production which will shift the PPC downward.

WHY PPC EXPANDS OUTWARDS?

PPC expands outwards due to different factors. Investment in new plants and machinery will increase the stock of capital. New raw materials may be discovered. Technological advances take place through new inventions; education and training make labour more productive. All these factors lead to

increase the production possibility of the country and while illustrating this growth of potential output in PPC, there will be an outward expansion of PPC.

INCREMENTAL CONCEPT

The incremental concept is probably the most important concept in economics and is certainly the most frequently used in Managerial Economics. Incremental concept is closely related to the mar-ginal cost and marginal revenues of economic theory.

The two major concepts in this analysis are incremental cost and incremental revenue. Incremental cost denotes change in total cost, whereas incremental revenue means change in total revenue resulting from a decision of the firm.

Incremental cost may be defined as the change in total cost as a result of change in the level of output, investment, etc.

Incremental Revenue is change in total revenue resulting from change in level of output , price etc.

Incremental cost is the total cost incurred due to an additional unit of product being produced. Incremental cost is calculated by analyzing the additional expenses involved in the production process, such as raw materials, for one additional unit of production. Understanding incremental costs can help companies boost production efficiency and profitability.

The incremental principle may be stated as follows:-

A decision is clearly a profitable one if

(i) It increases revenue more than costs.

(ii) It decreases some cost to a greater extent than it increases others.

(iii) It increases some revenues more than it decreases others.

(iv) It reduces costs more than revenues.

Example:- Suppose that you have a business that manufactures Smartphone's and expect to sell 20,000 units. It costs you $100 to manufacture each Smartphone's, and your selling price per Smartphone's is $300.

➢ Incremental cost

You calculate your incremental cost by multiplying the number of Smartphone's units with the manufacturing cost per Smartphone's unit.

So, in this case, you will have:

20,000 x 100 = 2,000,000

So, incremental cost is $2,000,000.

➢ Incremental revenue

You calculate your incremental revenue by multiplying the number of Smartphone's units with the selling price per smart phones unit.

So, you will have:

20,000 x 300 = 6,000,000

So, incremental revenue is $6,000,000.

When you compare the two, it is clear that the incremental revenue is higher than the incremental cost. By subtracting the incremental cost from the incremental revenue, you arrive at a profit of $4,000,000.

Illustration:- Some businessmen hold the view that to make an overall profit, they must make a profit on every job. The result is that they refuse orders that do not cover full costs plus a provision of profit. This will lead to rejection of an order which prevents short run profit. A simple problem will illustrate this point. Suppose a new order is estimated to bring in an additional revenue of Rs. 10,000. The costs are estimated as under:

Labour Rs. 3,000

Materials Rs. 4,000

Overhead charges Rs. 3,600

Selling and administrative expenses Rs. 1,400

Full Cost Rs.12, 000

The order appears to be unprofitable. For it results in a loss of Rs. 2,000. However, suppose there is idle capacity which can be utilised to execute this order. If order adds only Rs. 1,000 to overhead charges, and Rs. 2000 by way of labour cost because some of the idle workers already on the pay roll will be deployed without added pay and no extra selling and administrative costs, then the actual incremental cost is as follows:

Labour Rs. 2,000

Materials' Rs. 4,000

Overhead charges Rs. 1,000

Total Incremental Cost Rs. 7,000

Thus there is a profit of Rs. 3,000. The order can be accepted on the basis of incremental reasoning. Incremental reasoning does not mean that the firm should accept all orders at prices which cover merely their incremental costs.

LIMITATIONS OF INCREMENTAL COSTS.

The concept is mainly used by the progressive concerns. Even though it is a widely followed concept, it has certain limitations:

(a) The concept cannot be generalised because observed behaviour of the firm is always vari-able.

(b) The concept can be applied only when there is excess capacity in the concern.

(c) The concept is applicable only during the short period.

CONCEPTS OF SCARCITY

Scarcity means **"of limited availability".**

Example:-During Famine period, food is 'scarce' i.e. Scarcity of food.

Scarcity is a fundamental economic problem of having humans who have unlimited wants & needs in world of limited resources

Scarcity refers to the limited availability of a commodity, which may be in demand in the market.

The concept of scarcity was first given by Lionel Robbins. This explains an individual's capacity to buy all or some of the commodities as per the available resources with that individual.

Robbins is famous for his definition of economics: "*Economics* is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses."

Scarcity is the fundamental **economic problem** of having seemingly unlimited human wants in a world of limited resources. It states that society has insufficient productive resources to fulfill all human wants and needs.

Scarcity refers to the condition of insufficiency where the human beings are incapable to fulfill their wants in sufficient manner. In other words, it is a situation of fewer resources in comparison to unlimited human wants. Human wants are unlimited. We may satisfy some of our wants but soon new wants arise. It is impossible to produce goods and services so as to satisfy all wants of people. Thus scarcity explains this relationship between limited resources and unlimited wants and the problem there in.

Economic problems arise due to the scare goods. These scare goods have many alternative uses.

For example:- a land can be used to construct a factory building or to make a beautiful park or to raise agricultural crops. So, it is very essential to think how limited resources can be used alternatively to satisfy some wants of people to get maximum satisfaction as possible.

The problem of scarcity is present not only in developing countries but also in highly developed countries such as Japan, Canada, etc. Thus, scarcity is the heart of all economic problems.

When will a resource be consider as 'SCARCE'?

A resource is considered scarce when its availability is not enough to meet its demand.

For example:- When supply of onion in market is not enough to meet the demand, that condition can be referred as Scarcity of Onions.

In arid areas, like Rajasthan, there is lack of water i.e. supply of water≠ its demand. This condition is called scarcity of water.

Moreover, in institutions, when supply of internal marks is not enough to meet the demand of students, this condition is called scarcity of Internals.

FACTORS RESPONSIBLE FOR SCARCITY OF RESOURCES

1) Limited supply of resources (natural Scarcity)

for example,

- scarcity of water in arid areas like deserts,
- scarcity of food in famine prone areas.

2) Limited capabilities of technology or human skill (for example, those needed for enhanced production.)

3) Sometimes the insufficiencies are a result of poor planning & execution (Artificial scarcity).

Example In arid areas, proper planning is required for proper supply of water.

4) But the most important factor is imbalance b/w 'Wants' &'Have'.

According to Emerson:- "Want is a growing giant whom the coat of Have is never large enough to cover."

Every person needs more resources than he have. millionaire wants more money so that he can be counted as Billionaire

Is it Possible to Have no Scarcity?

1. If proper planning & techniques are used for utilization and supply of insufficient resource, then condition of its to be scarce 'minimizes'.
2. If 'needs'='have'
3. If through spiritual practice and detachment you had very few desires – **Example** a monk or sannyasin then you would not see scarcity – as you would be content with just your daily bread.
4. If you lived on an island with abundant resources and a small population, then the scarcity of resources would be less obvious.
5. But, in present society, most people desire more than just a loin cloth and a begging bowl.

How to manage the condition of Scarcity?

To manage the condition of Scarcity of resources, proper planning for supply & utilization of insufficient goods is required. This results in rise of three major economic issues:-

- What to produce?
- How to Produce?
- For whom to produce?

1) What to Produce?

When making decisions about what to produce or what to consume, there is inevitably an opportunity cost.

For Example:- GDP of country can be used for many purposes. However, option having highest opportunity cost will be favored.

2) How to produce?

Use of best possible technique & planning for production of a particular resource will result in better & huge production, hence minimizing the chance of Scarcity.

For Example:- Before, the introduction of Green Revolution in India, there was Scarcity of Food grains. But with the introduction of High Yielding varieties of seeds & better technique for production, production of Food grains almost doubled.

3) For whom to produce?

This means how the produced goods and services are to be distributed among different income groups of people that is who should get how much. This is the problem of sharing of the national product.

Impact of Scarcity on Market?

1) If something is scarce - it will have a market value.
2) It will result in inflation.
3) If the supply of a good or service is low, the market price will rise, providing there is sufficient demand from consumers. Whereas when there is excess supply in a market, we expect to see prices falling.

For example:- If we talk about services, IITians vs. Engineer from UPTU colleges.

DEMAND

MEANING OF DEMAND

Demand is a quantity of a commodity which a consumer wishes to purchase at a given level of price and during a specified period of time.

In other words, demand for a commodity refers to the desire to buy a commodity backed with sufficient purchasing power and the willingness to spend.

Desire is just a wish for a commodity and a person can desire a commodity even if he does not have the capacity to buy it from the market whereas demand is desire backed by purchasing power that is to say whatever an individual is willing to buy from the market in a given period of time at a given price.

Example:- A poor person can desire to own a car but that will not become a demand because he does not have the purchasing power to buy a car from the market.

Demand in terms of economics may be explained as the consumers' willingness and ability to purchase or consume a given item/good. Furthermore, the determinants of demand go a long way in explaining the demand for a particular good.

For instance, an increase in the price of a good will lead to a decrease in the quantity that may be demanded by consumers. Similarly, a decrease in the cost or selling price of a good will most likely lead to an increase in the demanded quantity of the goods.

This indicates the existence of an inverse relationship between the price of the article and the quantity demanded by consumers. This is commonly known as the law of demand and can be graphically represented by a line with a downward slope.

The graphical representation is known as the demand curve. The determinants of demand are factors that cause fluctuations in the economic demand for a product or a service.

Demand in economics means a desire to possess a good supported by willingness and ability to pay for it. If your have a desire to buy a certain commodity, say a car, but you do not have the adequate means to pay for it, it will simply be a wish, a desire or a want and not demand. Demand is an effective desire, i.e., a desire which is backed by willingness and ability to pay for a commodity in order to obtain it.

In the words of **Prof. Hibdon:** "Demand means the various quantities of goods that would be purchased per time period at different prices in a given market".

CHARACTERISTICS OF DEMAND

There are thus **three main characteristic's of demand in** economics.

(i) Willingness and ability to pay. Demand is the amount of a commodity for which a consumer has the willingness and also the ability to buy.

(ii) Demand is always at a price. If we talk of demand without reference to price, it will be meaningless. The consumer must know both the price and the commodity. He will then be able to tell the quantity demanded by him.

(iii) Demand is always per unit of time. The time may be a day, a week, a month, or a year.

TYPES OF DEMAND

The demand can be classified on the following basis:-

1. **Individual Demand and Market Demand:** The individual demand refers to the demand for goods and services by the single consumer, whereas the market demand is the demand for a product by all the consumers who buy that product. Thus, the market demand is the aggregate of the individual demand.
2. **Total Market Demand and Market Segment Demand:** The total market demand refers to the aggregate demand for a product by all the consumers in the market who purchase a specific kind of a product. Further, this aggregate demand can be sub-divided into the segments on the basis of geographical areas, price sensitivity, customer size, age, sex, etc. are called as the market segment demand.
3. **Derived Demand and Direct Demand:** When the demand for a product/outcome is associated with the demand for another product/outcome is called as the derived demand or induced demand. Such as the demand for

cotton yarn is derived from the demand for cotton cloth. Whereas, when the demand for the products/outcomes is independent of the demand for another product/outcome is called as the direct demand or autonomous demand. Such as, in the above example the demand for a cotton cloth is autonomous.

4. **Industry Demand and Company Demand:** The industry demand refers to the total aggregate demand for the products of a particular industry, such as demand for cement in the construction industry. While the company demand is a demand for the product which is particular to the company and is a part of that industry. Such as demand for tyres manufactured by the Goodyear. Thus, the company demand can be expressed as the percentage of the industry demand.
5. **Short-Run Demand and Long-Run Demand:** The short term demand is more elastic which means that the changes in price or income are reflected immediately on the quantity demanded. Whereas, the long run demand is inelastic, which shows that demand for commodity exists as a result of adjustments following changes in pricing, promotional strategies, consumption patterns, etc.
6. **Price Demand:** The demand is often studied in parlance to price, and is therefore called as a price demand. The price demand means the amount of commodity a person is willing to purchase at a given price. While studying the demand, we often assume that the other factors such as income of the consumer, their tastes, and preferences, the prices of other related goods remain unchanged. There is a negative relationship between the price and demand Viz. As the price increases the demand decreases and as the price decreases the demand increases.
7. **Income Demand:** The income demand refers to the willingness of an individual to buy a certain quantity at a given income level. Here the price of the product, customer's tastes and preferences and the price of the related goods are expected to remain unchanged. There is a positive relationship between the income and demand. As the income increases the demand for the commodity also increases and vice-versa.
8. **Cross Demand:** It is one of the important types of demand wherein the demand for a commodity depends not on its own price, but on the price of other related products is called as the cross demand. Such as with the increase in the price of coffee the consumption of tea increases, since tea and coffee are **substitutes** to each other. Also, when the price of cars increases the demand for petrol decreases, as the car and petrol are **complimentary** to each other.

DEMAND SCHEDULE

The demand schedule in economics is a table of quantity demanded of a good at different price levels. Given the price level, it is easy to determine the expected quantity demanded. This demand schedule can be graphed as a continuous demand curve on a chart where the Y-axis represents price and the X-axis represents the quantity.

According to PROF. ALFRED MARSHALL, "Demand schedule is a list of prices and quantities". In other words, a tabular statement of price-quantity relationship between two variables is known as the demand schedule.

The demand schedule in the table represents different quantities of commodities that are purchased at different prices during a certain specified period (it can be a day or a week or a month).

The demand schedule can be classified into two categories:

1. Individual demand schedule;

2. Market demand schedule.

1. Individual Demand Schedule:- It represents the demand of an individual' for a commodity at different prices at a particular time period. The adjoining table 7.1 shows a demand schedule for oranges on 7th July, 2009.

Table 7·1 : Individual Demand Schedule

Price of Oranges (₹ per kg.)	Quantity of Oranges Demanded (kg.)
15	2
12	3
9	4
6	5
3	6

2. Market Demand Schedule:- Market Demand Schedule is defined as the quantities of a given commodity which all consumers will buy at all possible prices at given moment of time. In a market, there are several consumers, and each has a different liking, taste, preference and income. Every consumer has a different demand.

The market demand actually represents the demand of all the consumers combined together. When a particular commodity has several brands or types of commodities, the market demand schedule becomes very complicated because of various factors. However, for a single item, the market demand schedule is rather simple. Study the market demand schedule for milk in table 7.2.

Table 7·2 : Market Demand Schedule

Price of Milk per litre (in ₹)	Demand of Mr. X. (in Litres)	Demand of Mr. Y. (in Litres)	Market Demand (in Litres)
5	1	2	1 + 2 = 3
4	2	3	2 + 3 = 5
3	3	4	3 + 4 = 7
2	4	5	4 + 5 = 9
1	5	6	5 + 6 = 11

 # DEMAND CURVES (DIAGRAM): - The demand curve is a graphic statement or presentation of the relationship between product price and the quantity of the product demanded. It is drawn with price on the vertical axis of the graph and quantity demanded on the horizontal axis.

Demand curve does not tell us the price. It only tells us how much quantity of goods would be purchased by the consumer at various possible prices.

Depending upon the demand schedule, the demand curve can be as follows:

1. Individual Demand Curve

2. Market Demand Curve

1. Individual Demand Curve:- An Individual Demand Curve is a graphical representation of the quantities of a commodity that an individual (a particular consumer) stands ready to take off the market at a given instant of time against different prices.

In Fig. 7.1, an Individual Demand Curve is drawn on the basis of Individual Demand Schedule given above in table 7.1.

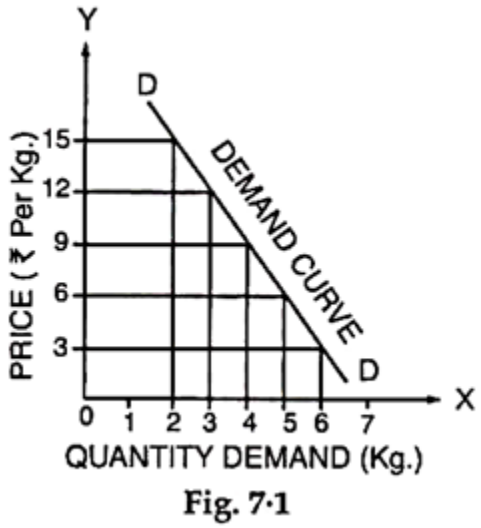


Fig. 7·1

2. Market Demand Curve:- A Market Demand Curve is a graphical representation of the quantities of a commodity which all the buyers in the market stand ready to take off at all possible prices at a given moment of time. In Figure 7.2 a Market Demand Curve is drawn on the basis of Market Demand Schedule given in Table 7.2.

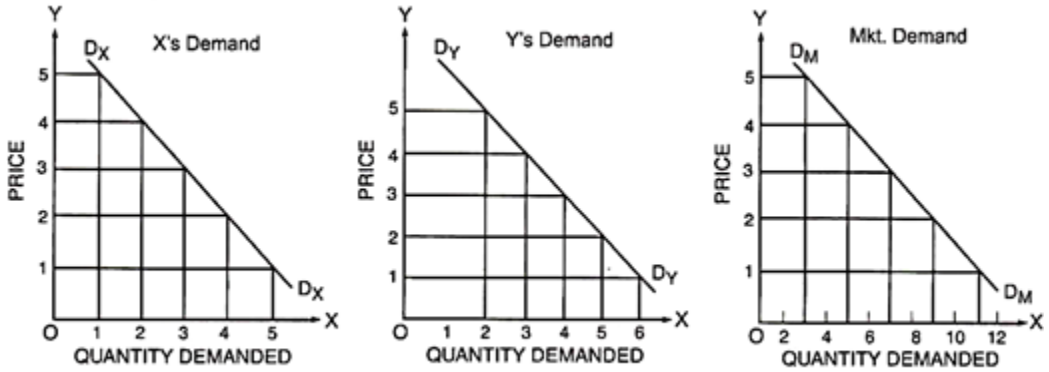


Fig. 7·2 Market Demand Curve

Both, the individual consumer's demand curve is a straight line. A demand curve will slope downward to the right.

It is not necessary, that the demand curve is a straight line. A demand curve may be a convex curve or a concave curve. It may take any shape provided it is negatively sloped.

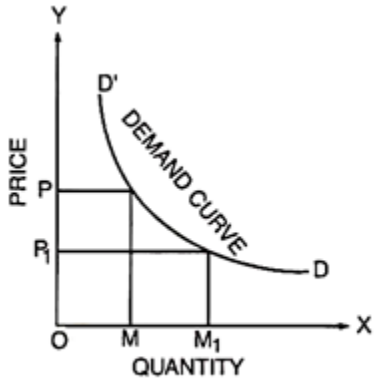


Fig. 7·3

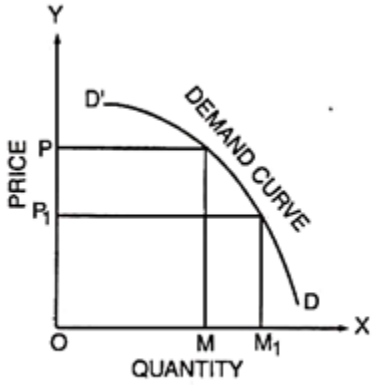


Fig. 7·4

DETERMINANTS OF DEMAND

Some of the important determinants of demand are as follows,

1] Price of the Product:- People use price as a parameter to make decisions if all other factors remain constant or equal. According to the law of demand, this implies an increase in demand follows a reduction in price and a decrease in demand follows an increase in the price of similar goods.

The demand curve and the demand schedule help determine the demand quantity at a price level. An elastic demand implies a robust change quantity accompanied by a change in price. Similarly, an inelastic demand implies that volume does not change much even when there is a change in price.

2] Income of the Consumers:- Rising incomes lead to a rise in the number of goods demanded by consumers. Similarly, a drop in income is accompanied by reduced consumption levels. This relationship between income and demand is not linear in nature. Marginal utility determines the proportion of change in the demand levels.

3] Prices of related goods or services:-

a) ***Complementary products*** **–** An increase in the price of one product will cause a decrease in the quantity demanded of a complementary product. **Example:** Rise in the price of bread will reduce the demand for butter. This arises because the products are complementary in nature.

b) ***Substitute Product*** **–** An increase in the price of one product will cause an increase in the demand for a substitute product.
Example: Rise in price of tea will increase the demand for coffee and decrease the demand for tea.

4] Consumer Expectations:- Expectations of a higher income or expecting an increase in prices of goods will lead to an increase the quantity demanded. Similarly, expectations of a reduced income or a lowering in prices of goods will decrease the quantity demanded.

5] Number of Buyers in the Market:- The number of buyers has a major effect on the total or net demand. As the number increases, the demand rises. Furthermore, this is true irrespective of changes in the price of commodities.

LAW OF DEMAND

There is an inverse relationship between quantity demanded and its price. The people know that when price of a commodity goes up its demand comes down. When there is decrease in price the demand for a commodity goes up. There is inverse relation between price and demand . The law refers to the direction in which quantity demanded changes due to change in price.

A consumer may demand one dozen oranges at $5 per dozen . He may demand two dozens when the price is $4 per dozen. A person generally buys more at a lower price. He buys less at higher price. It is not the case with one person but all people liken to buy more due to fall in price and vice versa. This is true for all commodities and under all conditions. The economists call it as **law of demand**. In simple words the law of demand states that other things being equal more will be demanded at lower price and lower will be demanded at higher price.

DEFINITION

Alfred Marshal says that the amount demanded increase with a fall in price, diminishes with a rise in price.

C.E. Ferguson says that according to law of demand, the quantity demanded varies inversely with price.

Paul A. Samuelson says that law of demand states that people will buy more at lower prices and buy less at higher prices, other things remaining the same.

ASSUMPTIONS OF THE LAW

1. There is no change in income of consumers.
2. There is no change in the price of product.
3. There is no change in quality of product.
4. There is no substitute of the commodity.
5. The prices of related commodities remain the same.
6. There is no change in customs.
7. There is no change in taste and preference of consumers.
8. The size of population remains the same.
9. The climate and weather conditions are same.
10. The tax rates and other fiscal measures remain the same.

Explanation of the law

The relationship between price of a commodity and its demand depends upon many factors. The most important factor is nature of commodity. The demand schedule shows response of quantity demanded to change in price of that commodity. This is the table that shows prices per unit of commodity ands amount demanded per period of time. The demand of one person is called individual demand. The demand of many persons is known as market demand. The experts are concerned with market demand schedule. The market demand schedule means 'quantities of given commodity which all consumers want to buy at all possible prices at a given moment of time'. The demand schedules of all individuals can be added up to find out market demand schedule.

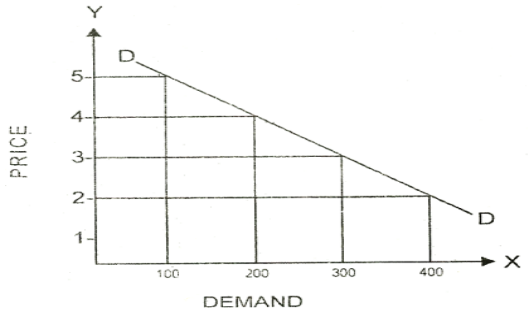
Demand schedule

Price in dollars.	Demand in Kg.
5	100
4	200

3	300
2	400

The table shows the demand of all the consumers in a market. When the price decreases there is increase in demand for goods and vice versa. When price is $5 demand is 100 kilograms. When the price is $4 demand is 200 kilograms. Thus the table shows the total amount demanded by all consumers various price levels.

Diagram



There is same price in the market. All consumers purchase commodity according to their needs. The market demand curve is the total amount demanded by all consumers at different prices. The market demand curve slopes from left down to the right.

TYPES OF DEMAND FUNCTION

Based on whether the demand function is in relation to an individual consumer or to all consumers in the market, the demand function cab be categorized as

1. Individual Demand Function
2. Market Demand Function

1. Individual Demand Function:- Individual demand function refers to the functional relationship between demand made by an individual consumer and

the factors affecting the individual demand. It shows how demand made by an individual in the market is related to its determinants.

Mathematically, individual demand function can be expressed as,

Dx= f (Px, Pr, Y, T, F)

Where,

Dx= Demand for commodity x;.

Px= Price of the given commodity x;

Pr= Price of related goods;

Y= Income of the individual consumer;

T= Tastes and preferences;

F= Expectation of change in price in the future.

1] Price of the given commodity:- Other things remaining constant, the rise in price of the commodity, the demand for the commodity contracts, and with the fall in price, its demand increases.

2] Price of related goods:- Demand for the given commodity is affected by price of the related goods, which is called cross price demand.

3] Income of the individual consumer:- Change in consumer's level of income also influences their demand for different commodities. Normally, the demand for certain goods increase with the increasing level of income and vice versa.

4] Tastes and preferences:- The taste and preferences of individuals also determine the demand made for certain goods and services. Factors such as climate, fashion, advertisement, innovation, etc. affect the taste and preference of the consumers.

5] Expectation of change in price in the future:- If the price of the commodity is expected to rise in the future, the consumer will be willing to purchase more

of the commodity at the existing price. However, if the future price is expected to fall, the demand for that commodity decreases at present.

6] Size and composition of population:- The market demand for a commodity increases with the increase in the size and composition of the total population. For instance, with the increase in total population size, there is an increase in the number of buyers. Likewise, with an increase in the male composition of the population, the demand for goods meant for male increases.

7] Season and weather:- The market demand for a certain commodity is also affected by the current weather conditions. For instance, the demand for cold beverages increase during summer season.

8] Distribution of income:- In case of equal distribution of income in the economy, the market demand for a commodity remains less. With an increase in the unequal distribution of income, the demand for certain goods increase as most people will have the ability to buy certain goods and commodities, especially luxury goods.

2. Market Demand Function:- Market demand function refers to the functional relationship between market demand and the factors affecting market demand. Market demand is affected by all the factors that affect an individual demand. In addition to this, it is also affected by size and composition of population, season and weather conditions, and distribution of income.

Mathematically, market demand function can be expressed as,

Dx= f (Px, Pr, Y, T, F, Po, S, D)

Where,

Dx= Demand for commodity x;

Px= Price of the given commodity x;

Pr= Price of related goods;

Y= Income of the individual consumer;

T= Tastes and preferences;

F= Expectation of change in price in the future;

Po= Size and composition of population;

S= Season and weather;

D= Distribution of income.

1. Pattern of Income Distribution:- If National income is equitably distributed, there will be more demand and vice-versa. If income distribution moves in favour of downtrodden people, then demand for such commodities, which are used by common people would increase. On the other hand, if the major part of National income is concentrated in the hands of only some rich people, the demand for luxury goods will increase.

2. Demographic Structure:- Market demand is influenced by change in size and composition of population. Increase in population leads to more demand for all types of goods and decrease in population means less demand for them. Composition of population also affects its demand. Composition refers to the number of children, adults, males, females etc., in the population.

When the composition changes, for example, when the number of females exceeds to that of the males, then there will be more demand for goods required by women folk.

3. Government Policy:- Government policy of a country can also affect the demand for a particular commodity or commodities through taxation. Reduction in the taxes and duties will allow more persons to enter a particular market and thus raising the demand for a particular product.

4. Season and Weather:- Demands for commodities also depend upon the climate of an area and weather. In cold hilly areas woolens are demanded. During summer and rainy season demand for umbrellas may rise. In winter ice is not so much demanded.

5. State of Business:- The levels of demand in a market for different goods depend upon the business condition of the country. If the country is passing through boom, the trade is active and brisk. The demand for all commodities tends to rise. But in the days of depression, when trade is dull and slow, demand tends to fall.

Why demand curve falls?

1] Marginal utility decreases:- When a consumer buys more units of a commodity, the marginal utility of such commodity continue to decline. The consumer can buy more units of commodity when its price falls and vice versa. The demand curve falls because demand is more at lower price.

2] Price effect:- When there is increase in price of commodity, the consumers reduce the consumption of such commodity. The result is that there is decrease in demand for that commodity. The consumers consume more or less of a commodity due to price effect. The demand curve slopes downward.

3] Income effect:- Real income of consumer rises due to fall in prices. The consumer can buy more quantity of same commodity. When there is increase in price, real income of consumer falls. This is income effect that the consumer can spend increased income on other commodities. The demand curve slopes downward due to positive income effect.

4] Same price of substitutes:- When the price of a commodity falls, the prices of substitutes remaining the same, consumer can buy more of the commodity and vice versa. The demand curve slopes downward due to substitution effect.

5] Demand of poor people:- The income of people is not the same, The rich people have money to buy same commodity at high prices. Large majority of people are poor, They buy more when price fall and vice versa. The demand curve slopes due to poor people.

6] Different uses of goods:- There are different uses of many goods. When prices of such goods increase these goods are put into uses that are more important and their demand falls. The demand curve slopes downward due to such goods.

Exceptions to the law

1] Inferior goods:- The law of demand does not apply in case of inferior goods. When price of inferior commodity decreases and its demand also decrease and amount so saved in spent on superior commodity. The wheat and rice are superior food grains while maize is inferior food grain.

2] Demonstration effect:- The law of demand does not apply in case of diamond and jewelry. There is more demand when prices are high. There is less demand due to low prices. The rich people like to demonstrate such items that only they have such commodities.

3] Ignorance of consumers: - The consumers usually judge the quality of a commodity from its price. A low priced commodity is considered as inferior and less quantity is purchased. A high priced commodity is treated as superior and more quantity is purchased. The law of demand does not apply in this case.

4] Less supply:- The law of demand does not work when there is less supply of commodity. The people buy more for stock purpose even at high price. They think that commodity will become short.

5] Depression:- The law of demand does not work during period of depression. The prices of commodities are low but there is increase in demand. it is due to low purchasing power of people.

6] Speculation:- The law does not apply in case of speculation. The speculators start buying share just to raise the price. Then they start selling large quantity of shares to avoid losses.

7] Out of fashion:- The law of demand is not applicable in case of goods out of fashion. The decrease in prices cannot raise the demand of such goods. The quantity purchased is less even though there is falls in prices.

IMPORTANCE OF THE LAW

1] Price determination:- A monopolist can determine price of a commodity on the basis of such law. He can know the effect on demand due to increase or decrease in price. The demand schedule can help him to determine the most suitable price level.

2] Tax on commodities:- The law of demand is important for tax authorities. The effect of tax on different commodities is checked. The commodity must be taxed if its demand is relatively inelastic. A commodity cannot be taxed if its sales fall to great extent.

3] Agricultural prices: - The law of demand is useful to determine agricultural prices. When there are good crops, the prices come down due to change in demand. In case of bad crops, the prices go up if demand remains the same. The poverty of farmers can be determined.

4] Planning:- Individual demand schedule is used in planning for individual goods and industries. There is need to know the effect of change in price on the demand of commodity at national and world level. The nature of demand schedule helps to know such effect.

$$EC = \frac{\text{Percentage change in quantity demanded of Good} - X}{\text{Percentage change in the price of Good} - Y}$$

$$= \frac{\dfrac{\text{Change in quantity demanded of X}}{\text{Original Quantity of X}}}{\dfrac{\text{Change in Price of Y}}{\text{Original Price of Y}} \times 100} \times 100$$

$$= \frac{\dfrac{\Delta Q_x}{Q_x}}{\dfrac{\Delta Q_y}{Q_y}} = \frac{\Delta Q_x}{Q_x} \times \frac{P_y}{\Delta P_y}$$

$$EC = \frac{P_y}{\Delta_n} \times \frac{\Delta Q_n}{\Delta P_y}$$

Where
Py = Original price of good-Y
ΔPy = Change in price of good-Y
Q_x = Original quantity demanded of X
ΔQ_x = Change in the quantity demanded of X

ELASTICITY OF DEMAND

MEANING OF ELASTICITY OF DEMAND

The Elasticity of Demand is a measure of change in the quantity demanded in response to the change in the price of the commodity. Simply, the effect of a change of price on the quantity demanded is called as the elasticity of demand.

Marshall, a renowned economist, has suggested a mathematical method to measure the elasticity of demand:-

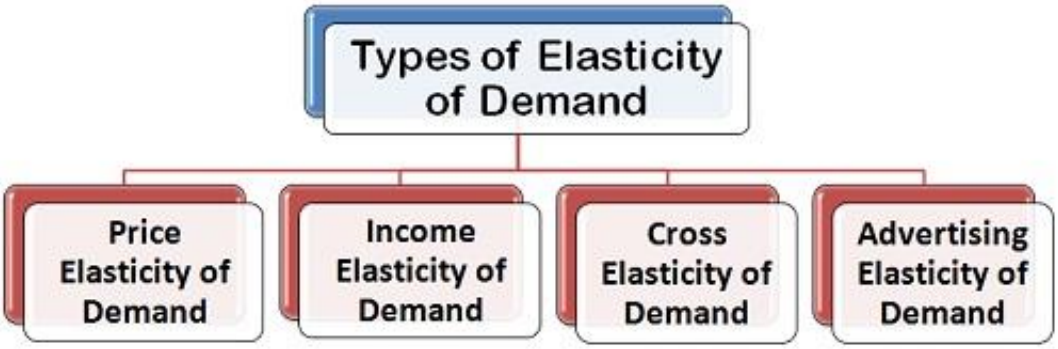
$$E = \frac{\text{Percentage change in demand for a product}}{\text{Percentage change in the price of the product}}$$

According to this Formula, the elasticity of demand can be defined as a percentage change in demand as a result of the percentage change in price. Numerically, it can be written as:-

$$E = \frac{\Delta Q}{\Delta P} X \frac{P}{Q}$$

Where,
$\Delta Q = Q_1 - Q_0$
$\Delta P = P_1 - P_0$
Q_1= New quantity
Q_2= Original quantity
P1 = New price
P0 = Original price

TYPES OF ELASTICITY OF DEMAND



1. **Price Elasticity of Demand:** The price elasticity of demand, commonly known as the elasticity of demand refers to the responsiveness and sensitiveness of demand for a product to the changes in its price. In other words, the price elasticity of demand is equal to

$$E_p = \frac{\text{Proportionate change in Quantity Demanded}}{\text{Proportionate change in Price}}$$

Numerically,

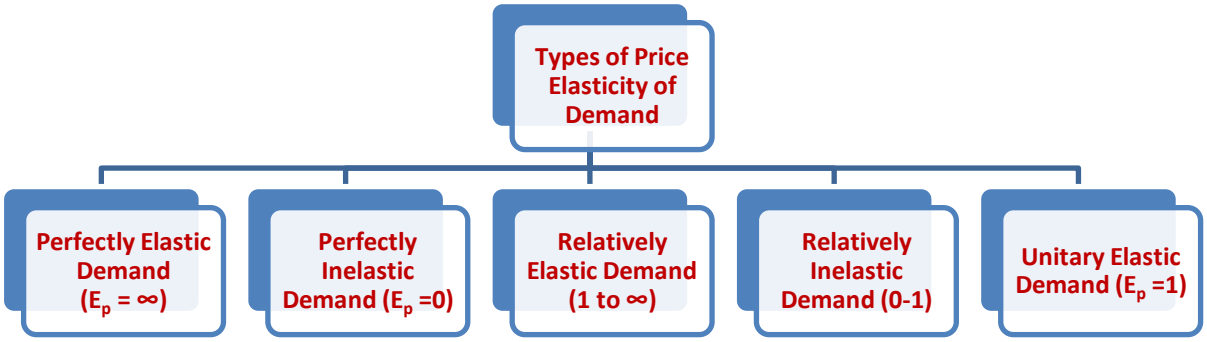
$$E_p = \frac{\Delta Q}{\Delta P} X \frac{P}{Q}$$

Where,

$\Delta Q = Q_1 - Q_0$,
$\Delta P = P_1 - P_0$,
Q_1= New quantity,
Q_2= Original quantity,
P1 = New price,
P0 = Original price

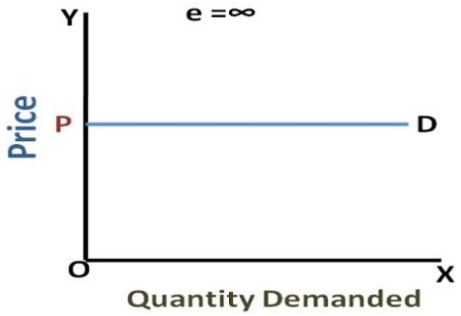
➢ Types of Price Elasticity of Demand

The following are the main types of price elasticity of demand:-

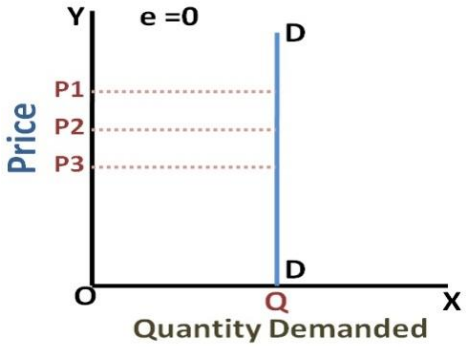


1. **Perfectly Elastic Demand ($E_p = \infty$):-** The demand is said to be perfectly elastic when a slight change in the price of a commodity causes a major change in its quantity demanded. Such as, even a small rise in the price of a commodity can result into fall in demand even to zero. Whereas a little fall in the price can result in the increase in demand to infinity.

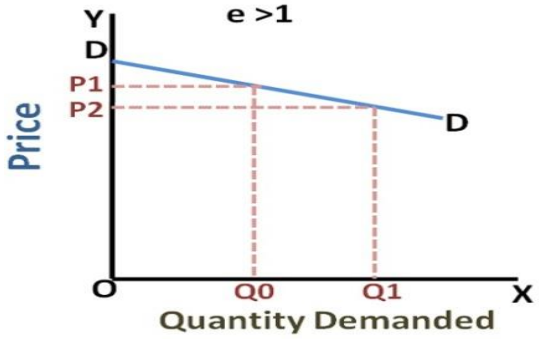
   In perfectly elastic demand the demand curve is a **straight horizontal line** which shows, the flatter the demand curve the higher is the elasticity of demand.



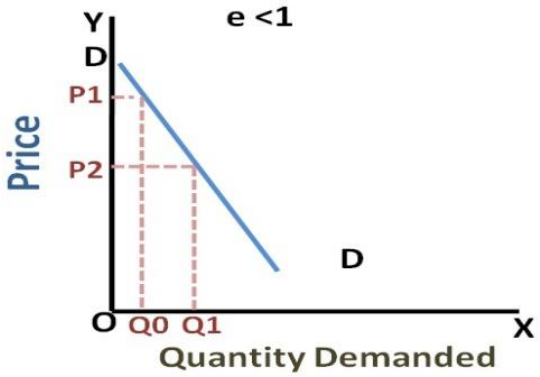
2. **Perfectly Inelastic Demand (E_p =0):-** When there is no change in the demand for a product due to the change in the price, then the demand is said to be perfectly inelastic. Here, the demand curve is a **straight vertical line** which shows that the demand remains unchanged irrespective of change in the price., i.e. quantity OQ remains unchanged at different prices, P_1, P_2, and P_3.



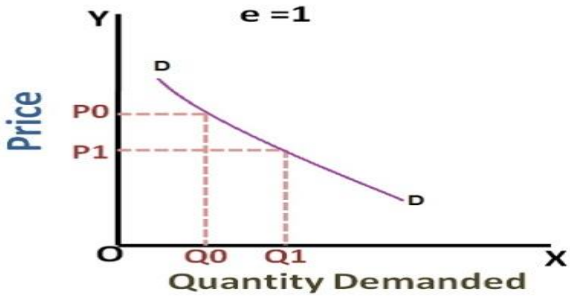
3. **Relatively Elastic Demand (1 to ∞):-** The demand is relatively elastic when the proportionate change in the demand for a commodity is greater than the proportionate change in its price. Here, the demand curve is **gradually sloping** which shows that a proportionate change in quantity from OQ_0 to OQ_1 is greater than the proportionate change in the price from OP_1 to Op_2.



4. **Relatively Inelastic Demand (0-1):-** When the proportionate change in the demand for a product is less than the proportionate change in the price, the demand is said to be relatively inelastic demand. It is also called as the elasticity less than unity, i.e. 1. Here the demand curve is **rapidly sloping**, which shows that the change in the quantity from OQ_0 to OQ_1 is relatively smaller than the change in the price from OP_1 to Op_2.



5. **Unitary Elastic Demand (E_p =1):-** The demand is unitary elastic when the proportionate change in the price of a product results in the same change in the quantity demanded. Here the shape of the demand curve is a **rectangular hyperbola**, which shows that area under the curve is equal to one.

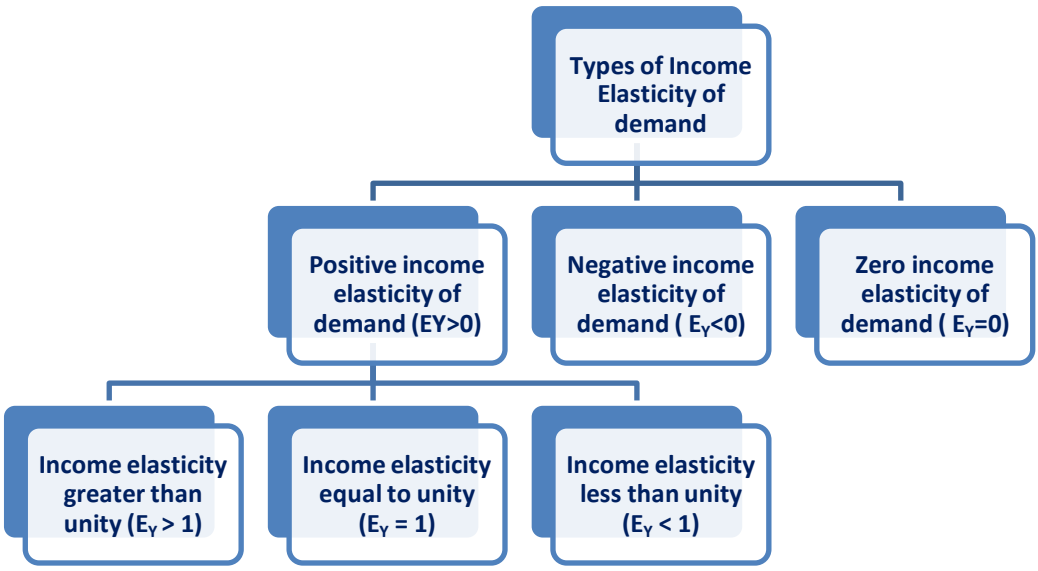


II. **Income Elasticity of Demand:** The income is the other factor that influences the demand for a product. Hence, the degree of responsiveness of a change in demand for a product due to the change in the income is known as income elasticity of demand. The formula to compute the income elasticity of demand is:-

$$E_y = \frac{\text{Percentage Change in Demand for a product}}{\text{Percentage Change in Income}}$$

For most of the goods, the income elasticity of demand is greater than one indicating that with the change in income the demand will also change and that too in the same direction, i.e. more income means more demand and vice-versa.

➢ Types of Income Elasticity of demand



1. Positive income elasticity of demand (EY>0)

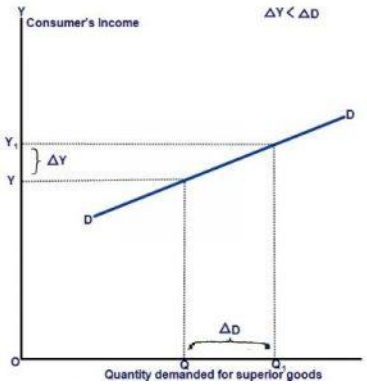
If there is direct relationship between income of the consumer and demand for the commodity, then income elasticity will be positive. That is, if the quantity demanded for a commodity increases with the rise in income of the consumer and vice versa, it is said to be positive income elasticity of demand. **For example:**as the income of consumer increases, they consume more of

superior (luxurious) goods. On the contrary, as the income of consumer decreases, they consume less of luxurious goods.

- **Positive income elasticity can be further classified into three types:-**

a) Income elasticity greater than unity ($E_Y > 1$)

If the percentage change in quantity demanded for a commodity is greater than percentage change in income of the consumer, it is said to be income greater than unity. **For example**: When the consumer's income rises by 3% and the demand rises by 7%, it is the case of income elasticity greater than unity.

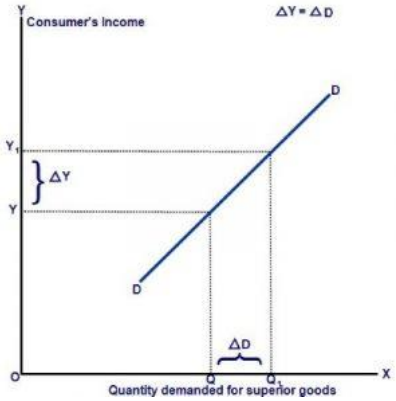


In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The small rise in income from **OY** to **OY_1** has caused greater rise in the quantity demanded from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows income elasticity greater than unity.

b) Income elasticity equal to unity ($E_Y = 1$)

If the percentage change in quantity demanded for a commodity is equal to percentage change in income of the consumer, it is said to be income elasticity equal to unity.

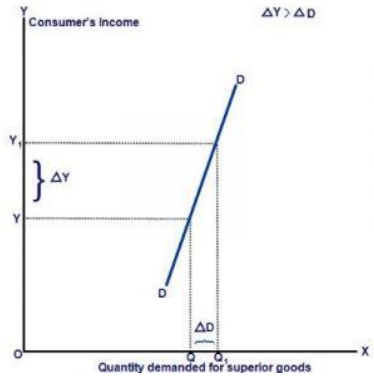
For example:- When the consumer's income rises by 5% and the demand rises by 5%, it is the case of income elasticity equal to unity.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The small rise in income from **OY** to **OY_1** has caused equal rise in the quantity demanded from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows income elasticity equal to unity.

c) Income elasticity less than unity ($E_Y < 1$)

If the percentage change in quantity demanded for a commodity is less than percentage change in income of the consumer, it is said to be income greater than unity. **For example:**When the consumer's income rises by 5% and the demand rises by 3%, it is the case of income elasticity less than unity.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The greater rise in income from **OY** to **OY_1** has caused small rise in the quantity demanded from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows income elasticity less than unity.

2. Negative income elasticity of demand ($E_Y<0$*)*

If there is inverse relationship between income of the consumer and demand for the commodity, then income elasticity will be negative. That is, if the

quantity demanded for a commodity decreases with the rise in income of the consumer and vice versa, it is said to be negative income elasticity of demand.
For example:-As the income of consumer increases, they either stop or consume less of **inferior goods.**

In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. When the consumer's income rises from **OY** to **OY1** the quantity demanded of inferior goods falls from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows negative income elasticity of demand.

3. Zero income elasticity of demand ($E_Y=0$)

If the quantity demanded for a commodity remains constant with any rise or fall in income of the consumer and, it is said to be zero income elasticity of demand. **For example:**In case of basic ***necessary goods***such as salt, kerosene, electricity, etc. there is zero income elasticity of demand.

In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The consumer's income may fall to **OY_1** or rise to **OY_2** from **OY**, the quantity demanded remains the same at **OQ**. Thus, the demand curve **DD**, which is vertical straight line parallel to Y-axis shows zero income elasticity of demand.

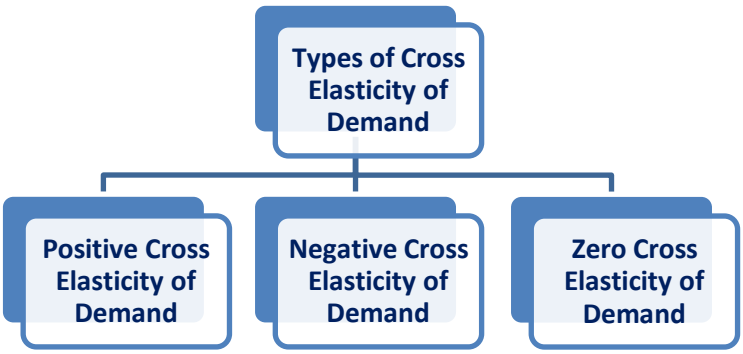
d) Cross Elasticity of Demand: The cross elasticity of demand refers to the change in quantity demanded for one commodity as a result of the change in the price of another commodity. This type of elasticity usually arises in the case of the **interrelated goods**such as substitutes and complementary goods. The cross elasticity of demand for goods X and Y can be expressed as:

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

The two commodities are said to be complementary, if the price of one commodity falls, then the demand for other increases, on the contrary, if the price of one commodity rises the demand for another commodity decreases. **For example,**petrol and car are complementary goods.

While the two commodities are said to be substitutes for each other if the price of one commodity falls, the demand for another commodity also decreases, on the other hand, if the price of one commodity rises the demand for the other commodity also increases. For example, tea and coffee are substitute goods.

- **Types of Cross Elasticity of Demand:**



1. Positive Cross Elasticity of Demand

When goods are substitute of each other than cross elasticity of demand is positive. In other words, when an increase in the price of Y leads to an increase in the demand of X. **For instance, with the increase in price of tea, demand of coffee will increase.**

In fig. 21 quantity has been measured on OX-axis and price on OY-axis. At price OP of Y-commodity, demand of X-commodity is OM. Now as price of Y commodity increases to OP_1 demand of X-commodity increases to OM_1 Thus, cross elasticity of demand is positive.

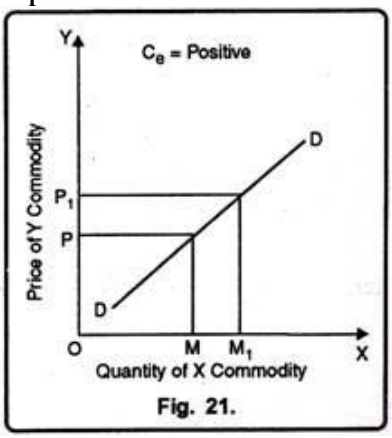


Fig. 21.

2. Negative Cross Elasticity of Demand

In case of complementary goods, cross elasticity of demand is negative. A proportionate increase in price of one commodity leads to a proportionate fall in the demand of another commodity **because both are demanded jointly. For Example:- Car & Petrol.**

In fig. 22 quantity has been measured on OX-axis while price has been measured on OY-axis. When the price of commodity increases from OP to OP_1 quantity demanded falls from OM to OM_1. Thus, cross elasticity of demand is negative.

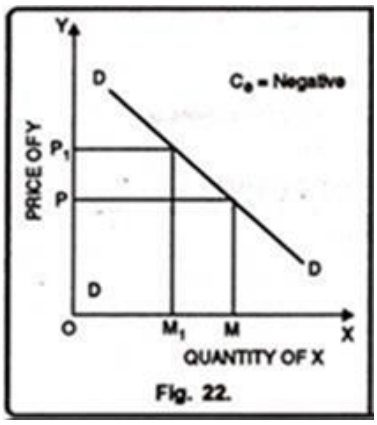


Fig. 22.

3. Zero Cross Elasticity of Demand

Cross elasticity of demand is zero when two goods are not related to each other. **For instance, increase in price of car does not effect the demand of cloth.** Thus, cross elasticity of demand is zero. It has been shown in fig. 23.

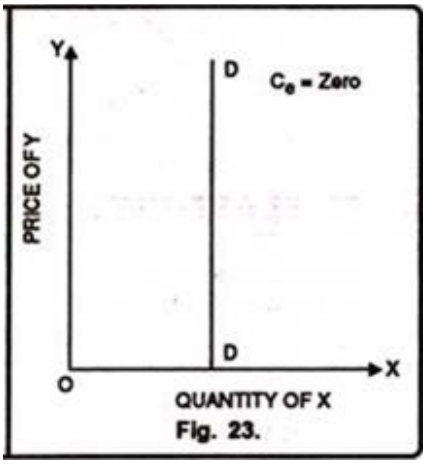


Fig. 23.

Therefore, it depends upon substitutability of goods. If substitutability is perfect, cross elasticity is infinite; if on the other hand, substitutability does not exist, cross elasticity is zero. In the case of complementary goods like jointly demanded goods cross elasticity is negative. A rise in the price of one commodity X will mean not only decrease in the quantity of X but also decrease in the quantity demanded of Y because both are demanded together.

e) Advertising Elasticity of Demand: The responsiveness of the change in demand to the change in advertising or rather promotional expenses, is known as advertising elasticity of demand. In other words, the change in the demand as a result of the change in advertisement and other promotional expenses is called as the advertising elasticity of demand. It can be expressed as:

$$E_a = \frac{\text{Proportionate change in Demand}}{\text{Proportionate change in Advertising Expenditure}}$$

Numerically,

$$E_a = \frac{\frac{Q_2 - Q_1}{Q_2 + Q_1}}{\frac{A_2 - A_1}{A_2 + A_1}}$$

Where,
Q1 = Original Demand

Q2= New Demand
A1= Original Advertisement Outlay
A2 = New Advertisement Outlay

FACTORS AFFECTING OF ELASTICITY OF DEMAND

1. Nature of commodity:- Elasticity of demand of a commodity is influenced by its nature. A commodity for a person may be a necessity, a comfort or a luxury.
i. When a commodity is a necessity **like food grains, vegetables, medicines, etc.,** its demand is generally inelastic as it is required for human survival and its demand does not fluctuate much with change in price.

ii. When a commodity is a comfort **like fan, refrigerator, etc.,** its demand is generally elastic as consumer can postpone its consumption.

iii. When a commodity is a luxury **like AC, DVD player, etc.**, its demand is generally more elastic as compared to demand for comforts.

iv. The term 'luxury' is a relative term as any item (like AC), may be a luxury for a poor person but a necessity for a rich person.

2. Availability of substitutes:- Demand for a commodity with large number of substitutes will be more elastic. The reason is that even a small rise in its prices will induce the buyers to go for its substitutes.
For example, a rise in the price of Pepsi encourages buyers to buy Coke and vice-versa.
Thus, availability of close substitutes makes the demand sensitive to change in the prices. On the other hand, commodities with few or no substitutes **like wheat and salt** have less price elasticity of demand.

3. Income Level:- Elasticity of demand for any commodity is generally less for higher income level groups in comparison to people with low incomes. It happens because rich people are not influenced much by changes in the price of goods. But, poor people are highly affected by increase or decrease in the price of goods. As a result, demand for lower income group is highly elastic.

4. Level of price:- Level of price also affects the price elasticity of demand. Costly goods **like laptop, Plasma TV, etc.** have highly elastic demand as their demand is very sensitive to changes in their prices. However, demand for inexpensive goods like needle, match box, etc. is inelastic as change in prices of such goods do not change their demand by a considerable amount.

5. Postponement of Consumption:- Commodities like biscuits, soft drinks, etc. whose demand is not urgent, have highly elastic demand as their consumption can be postponed in case of an increase in their prices. However, commodities with urgent demand **like lifesaving drugs,** have inelastic demand because of their immediate requirement**.**

6. Number of Uses:- If the commodity under consideration has several uses, then its demand will be elastic. When price of such a commodity increases, then it is generally put to only more urgent uses and, as a result, its demand falls. When the prices fall, then it is used for satisfying even less urgent needs and demand rises.
For example, electricity is a multiple-use commodity. Fall in its price will result in substantial increase in its demand, particularly in those uses **(like AC, Heat convector, etc.),** where it was not employed formerly due to its high price. On the other hand, a commodity with no or few alternative uses has less elastic demand.

7. Share in Total Expenditure:- Proportion of consumer's income that is spent on a particular commodity also influences the elasticity of demand for it. Greater the proportion of income spent on the commodity, more is the elasticity of demand for it and vice-versa.
Demand for goods **like salt, needle, soap, match box, etc.** tends to be inelastic as consumers spend a small proportion of their income on such goods. When prices of such goods change, consumers continue to purchase almost the same quantity of these goods. However, if the proportion of income spent on a commodity is large, then demand for such a commodity will be elastic.

8. Time Period:- Price elasticity of demand is always related to a period of time. It can be a day, a week, a month, a year or a period of several years. Elasticity of demand varies directly with the time period. Demand is generally inelastic in the short period.

It happens because consumers find it difficult to change their habits, in the short period, in order to respond to a change in the price of the given commodity. However, demand is more elastic in long rim as it is comparatively easier to shift to other substitutes, if the price of the given commodity rises.

9. Habits:- Commodities, which have become habitual necessities for the consumers, have less elastic demand. It happens because such a commodity becomes a necessity for the consumer and he continues to purchase it even if its price rises. **Alcohol, tobacco, cigarettes, etc. are some examples of habit forming commodities.**

IMPORTANCE OF ELASTICITY OF DEMAND

1. The concept of demand elasticity helps in understanding the price determination by the monopolist. A monopoly is the market structure wherein there is only one seller whose main objective is to maximize the profits. The price he chooses for his product depends on the elasticity of demand. Such as, if the demand for a commodity is high he can choose the higher price as the consumers will buy the product even when the prices rise. But however, if the demand is elastic, he will choose the lower prices.
2. The determination of the price depends on demand for and supply of the commodity. But however, the demand is governed by the demand elasticity and the supply too is governed by the elasticity of supply. Therefore, the price of a commodity depends on both the demand and supply elasticity.
3. The concept of demand elasticity also helps in understanding other types of prices, such as exchange rates, i.e. a rate at which currency unit of one country is exchanged for the currency unit of another country. Also, the terms of trade, i.e. the rate at which the exports are changed for imports can be easily understood through this concept.
4. The concept of elasticity of demand also helps the government in its taxation policies. This helps the government to have a fair idea about the demand elasticity of goods which are being taxed.
5. This concept also helps in the determination of wages, such as if the demand for labour is inelastic the union can demand higher wages and conversely if the labour demand is elastic the demand for higher wages could not be raised.

DEMAND ESTIMATION

INTRODUCTION OF DEMAND ESTIMATION

Demand estimation or forecasting occupies a crucial place in a business activity. This view may be optimistic or pessimistic based on hunches. Estimation can be both physical as well as financial in nature and is used mostly for planning.

MEANING OF DEMAND ESTIMATION

Demand estimation are predicting future demand for the product. In other words, it refers to the prediction of probable demand for a product or a service based on the past events.

Demand Estimation means to model. How consumer behaviour changes due to change in price of commodity, consumer income or any other variable which impact demand.

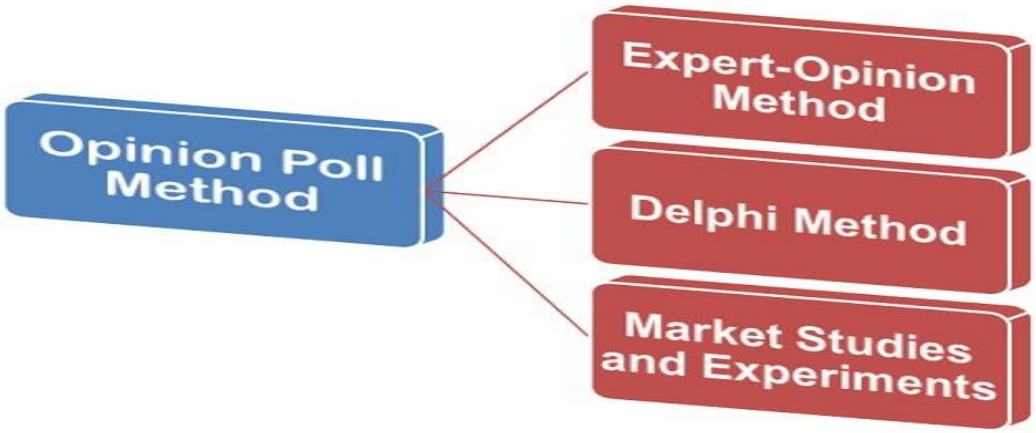
Demand estimation provide information about price and respective quantitates that consumers are willing and able to demand.

According to evan j. donglas, "demand estimation may be defined as the process of finding values for demand in future time periods."

METHODS OF DEMAND ESTIMATION

(A) OPINION POLLING METHODS:-The Opinion Poll Methods are used to collect opinions of those who possess the knowledge about the market, such as sales representatives, professional marketing experts, sales executives and marketing consultants.

The Opinion poll methods include the following survey methods:-



1. Expert-Opinion Method: Companies with an adequate network **of sales representatives can capitalize on them in assessing the demand** for a target product in a particular region or locality that they represent. Since sales representatives are in direct touch with the customer, are supposed to know the future purchase plans of their customers, their preference for the product, their reaction to the introduction of a new product, their reactions to the market changes and the demand for rival products.

Thus, sales representatives are likely to provide an approximate, if not accurate, estimation of demand for a target product in their respective regions or areas. In the case of firms, which lack in sales representatives can collect information regarding the demand for a product through **professional market experts or consultants,** who can predict the future demand on the basis of their expertise and experience.

Although the expert opinion method is too simple and inexpensive, it suffers from serious limitations.

First, The extent to which the estimates provided by the sales representatives or professionals are reliable depends on their skill and expertise to analyze the market and their experience.

Secondly, There are chances of over or under-estimation of demand due to the subjective judgment of the assessor.

Thirdly, the evaluation of market demand is often based on inadequate information available to the sales representatives since they have a narrow view of the market.

2. Delphi Method:-The Delphi method is the extension of the expert opinion method wherein the **divergent expert opinions are consolidated to estimate a future demand.** The process of the Delphi technique is very simple. Under this method, the experts are provided with the information related to estimates of forecasts of other experts along with the underlying assumptions. The experts can revise their estimates in the light of demand forecasts made by the other group of experts. The consensus of experts regarding the forecast results in a final forecast.

Market Studies and Experiments: Another alternative method to collect information regarding the current as well as future demand for a product is to conduct market studies and experiments on the consumer behaviour under actual, but controlled market conditions. This method is commonly known as **Market Experiment Method.**

Under this method, firms select some areas of representative markets, such as three or four cities having the similar characteristics in terms of the population income levels, social and cultural background, choices and preferences of consumers and occupational distribution. Then the market experiments are carried out by changing the prices, advertisement expenditure and all other controllable factors under demand function, other things remaining the same. Once these changes are introduced in the market, the consequent changes in the demand for a product are recorded. On the basis of these recorded estimates, the elasticity coefficients are calculated. These computed coefficients along with the demand function variables are used to assess the future demand for a product.

The alternative method to market experiments is the **Consumer Clinics or Controlled Laboratory Method** wherein the consumers are given some money to make purchases in stipulated store goods with different prices, packages, displays, etc. This experiment displays the responsiveness towards the changes made in the prices, packaging and a display of the product.

One of the major limitations of market experiment method is that it is too expensive and cannot be afforded by small firms. Also, this method is based on short-term controlled conditions which might not exist in the uncontrolled market. Therefore, the results may not be applicable in the long term uncontrolled conditions.

(B) CONSUMER SURVEY:-Consumer Survey Method is one of the techniques of demand forecasting that involves direct interview of the potential consumers.

Consumer Survey Method includes the further three methods that can be used to interview the consumer:

These are two types:-

(1) Complete enumeration:-Under this method, a forecaster contact almost all the potential users of the product and ask them about their future purchase plan. The probable demand for a product can be obtained by adding all the quantities indicated by the consumers. Such as the majority of children in city report the quantity of chocolate (Q) they are willing to purchase, then total probable demand (Dp) for chocolate can be determined as:

$$Dp = Q1+Q2+Q3+Q4+\ldots\ldots+Qn$$

Where,

Q1, Q2, Q3 denote the demand indicated by children 1, 2,3 and so on.

One of the major limitations of this method is that it can only be applied where the consumers are concentrated in a certain region or locality. And if the population is widely dispersed, then it can turn out to be very costly. Besides this, the other limitation is that the consumers might not know their actual demand in future. Due to this, they may give a hypothetical answer that may be biased according to their own expectations regarding the market conditions.

(2) Sample survey:-The sample survey method is often used when the target population under study is large. Only the sample of potential consumers is selected for the interview. A sample of consumers is selected through a

sampling method. Here, the method of survey may be a direct interview or mailed questionnaires to the selected sample-consumers.

The probable demand, indicating the response of the consumers can be estimated by using the following formula:

$$D_p = \frac{H_R}{H_S}(H \cdot A_D)$$

Where

Dp =probable demand forecast;

H =Census number of households from the relevant market;

Hs =number of households surveyed or sample households;

HR =Number of households reporting demand for a product;

AD=Average Expected consumption by the reporting households (total quantity consumed by the reporting households/ Number of households.

This method is simple, less costly and even less time-consuming as compared to the comprehensive survey methods. The sample Survey method is often used to estimate a short-run demand of business firms, households, government agencies who plan their future purchases.

However, **the major limitation of this method** is that a forecaster cannot attribute more reliability to the forecast than warranted.

(C) STATISTICAL METHOD:- This method have proved to be very useful in estimating demand. There are several Analytical and Statistical methods of sales forecasting, that a firm can employ on the basis of its forecasting needs. These methods are listed below:-

(1) Trend projection method:-Time Series Analysis: The time series analysis is yet another most extensively used sales forecasting method wherein the sales of several continuous years are chronologically ordered, and the pattern is

studied thereafter. **The time series method helps in analysing the following:-**

- **The Seasonal Variation,** i.e. the change in the sales due to the seasonal variations.
- **The Cyclical Patterns,** i.e. the sales pattern that repeat itself after every year.
- **Trends in Data**
- **The Growth Rate,** i.e. the rate at which the sales grow with each year.

This method is based on the assumption that the factors affecting the sales do not change much over a period of time and hence the future is derived from the past.

(2) Regression Analysis: This method is adopted to study the functional relation of those factors that influence sales. The sale is the dependent variable while the factors that influences sales are explanatory or causal variables. Thus, in this method, the relationship between the dependent variable (sales forecast) and the causal variable is measured. The following regression equation shows the different relationships between the sales and the factors influencing the sales:

$$Y = a+b1x1+b2x2+.....+bnxn$$

Where, Y = sales,

x1,x2 .....xn represents the causal factors

b1,b2....bn are the constants that show the extent to which the causal factors contribute towards the sales. This method also known as time series method. Time series refer to the data over a period of time, during which time fluctuation may occur.

(3) Simple Projection Method: Under this method, the firm forecast the current year's sales by simply adding up the expected growth rate to the last year's sales. This growth rate can be determined by either considering the industry's growth rate or by taking the growth rate achieved by the top

company (leader) in the industry. Often the companies use the following formula to arrive at the sales projection:

Next year's sales = (Current Year's Sales)2 / Last Year's Sales

This method proves to be fruitful for only those firms whose sales are relatively stable or show an increasing trend.

(4)Extrapolation Method: The extrapolation method is again a project/trend method, but is quite complex than the simple projection method. Here, the sales figures of past several years are plotted on graph paper and the points are connected via a line which is further stretched to obtain the future sales figures.

It is assumed that the future sales will follow the same pattern as followed by the past sales trend and observes the same curve on a graph. This method can be applied effectively where the firms have the steady past sales and expect no abrupt disruptions in the future.

(5)Moving Averages Method: The moving averages method is used to predict future sales more accurately by eliminating the effects of seasonality and other irregular trends in sales. This method provides the time series of moving averages.

Here, each time series point is the arithmetical or the weighted average of a number of preceding consecutive points. Minimum two years past sales data are required in case the seasonal effects on the sales persists.

(6) Exponential Smoothing: The exponential smoothing is yet another projection method and works on the similar guidelines of the moving averages methods. Here also, each point of time series is the arithmetical average of preceding consecutive points and where the heaviest weight is assigned to the most recent data.

This method is often used in the situation where the data under forecast is large. The exponential smoothing has the stable response to change, and the response can be changed accordingly.

CRITERIA OF A GOOD ESTIMATION METHOD

There is a practical difficulty in selecting the appropriate method for demand estimation:

1. Accuracy:- It is necessary to check the accuracy of past estimates against present performance and of present estimates against future performance.

2. Simplicity:- Firms must be able to understand and have the confidence in the techniques used.

3. Economy:- A firm has to strike a balance between the benefits from increased accuracy and the extra cost of providing the improved estimation.

4. Timeliness:- There is a time gap between the occurrence of an event and its estimate-known as 'lead time'.

5. Effective:- It is quite easy to judge the existing trends

DEMAND FORECASTING

MEANING & DEFINITION OF DEMAND FORECASTING

Demand forecasting is a systematic process that involves anticipating the demand for the product and services of an organization in future under a set of uncontrollable and competitive forces.

Accurate demand forecasting is essential for a firm to enable it to produce the required quantities at the right time and arrange well in advance for various inputs.

In the words of Cundiff and Still, "Demand forecasting is an estimate of sales during a specified future period based on proposed marketing plan and a set of particular uncontrollable and competitive forces**."**

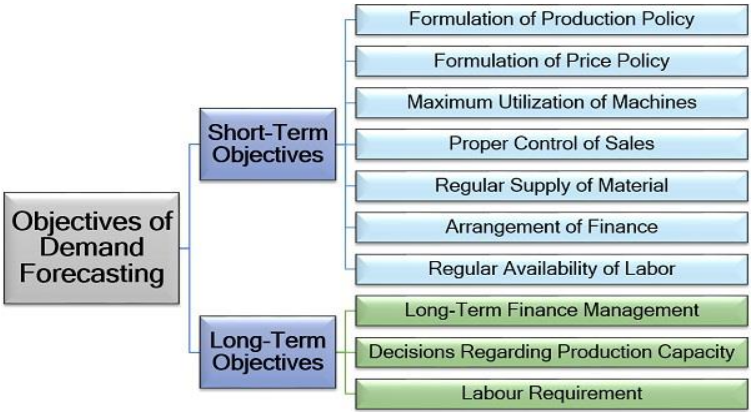
Demand forecasting enables an organization to take various business decisions, such as planning the production process, purchasing raw materials, managing funds, and deciding the price of the product. An organization can forecast demand by making own estimates called guess estimate or taking the help of specialized consultants or market research agencies.

For Example: -A printing press owner forecasts high demand for notebooks in June and July due to the new session. Therefore, he plans for a large-scale production during this time and arranges for the raw material, workforce, finance and machinery accordingly.

OBJECTIVES OF DEMAND FORECASTING

Demand forecasting is one of the major components in the success of any business. All organizational activities, whether they are short-term business operations or long-term strategic decisions are dependent on it.

These objectives are illustrated under the following categories further sub-divided into points:-



I. Short-Term Objectives: - To ensure the effective working of the organisation, estimation of sales for the past six months is done. Let us now go through the following purpose of demand forecasting in the short run:

1) **Formulation of Production Policy**: Demand forecasting aims at meeting the demand by ensuring uninterrupted production and supply of goods and services.
2) **Formulation of Price Policy**: It helps in formulating an effective price mechanism to deal with the market fluctuations and conditions like inflation.
3) **Maximum Utilization of Machines**: It streamlines the production process and operations such that there is the optimum utilisation of machines.

4) **Proper Control of Sales**: Forecasting the regional sales of a particular product or service provides a base for setting a sales target and evaluating the performance.
5) **Regular Supply of Material**: Sales forecast determines the level of production leading to the estimation of raw material. Thus, a continuous supply of raw material and inventory management can be done.
6) **Arrangement of Finance**: To maintain short-term cash in the organisation it is essential to forecast the sales as well as liquidity requirement accordingly.
7) **Regular Availability of Labour**: Estimation of the production capacity provides for the acquisition of suitable skilled and unskilled labour.

II. Long-Term Objectives: - Demand forecasting is inevitable for the long-term existence of an organisation. Following objectives justify the statement:-

1) **Long-Term Finance Management**: Forecasting sales for the long-term contributes to long-term financial planning and acquisition of funds at reasonable rates and suitable terms and conditions.
2) **Decisions Regarding Production Capacity**: Demand forecast determines the production level which provides a base for decisions related to the expansion of the production unit or size of the plant.
3) **Labour Requirement**: Demand forecasting initiate's expansion of business thus leading to the estimation of required human resource to accomplish business goals and objectives.

NATURE & SCOPE OF DEMAND FORECASTING

1. Period of forecasting: -As a first step, one has to decide about the length of period for the forecast. The time periods usually divided three parts

(a) Short run forecasting: -It refers to a period of up to 3 months. These factor include weather conditions, tastes, fashion etc.

(b) Medium-term forecasting:-It covers a period between 3 months and one year. In case of medium-term forecasts, experience and sound judgement are more than important statistical estimation.

(c) Long run forecasting: -It refers to period more than one year. In this we include like structural changes, socio-economic changes, government fiscal and monetary policy etc.

2. Level of forecasting

(a) Macro-economic forecasting: -It is concerned with business conditions over the whole economy. These business conditions are measured with the help of some indicators like those relating to national income, industrial production and wholesale prices etc.

(b) Industry Demand forecasting:-The firm may use such estimates for its output, sale, capacity etc.

(c) Firm demand forecasting: -A big firm like **Tata and Birla**, will like to do forecasting of its own products independent of the rest of the firms in the industry.

(d) Product-line forecasting: -It helps the firm decide which of the product or products should have priority in the allocation of firm's limited resources.

(e) International level forecasting: -International events influence national economy through international trade.

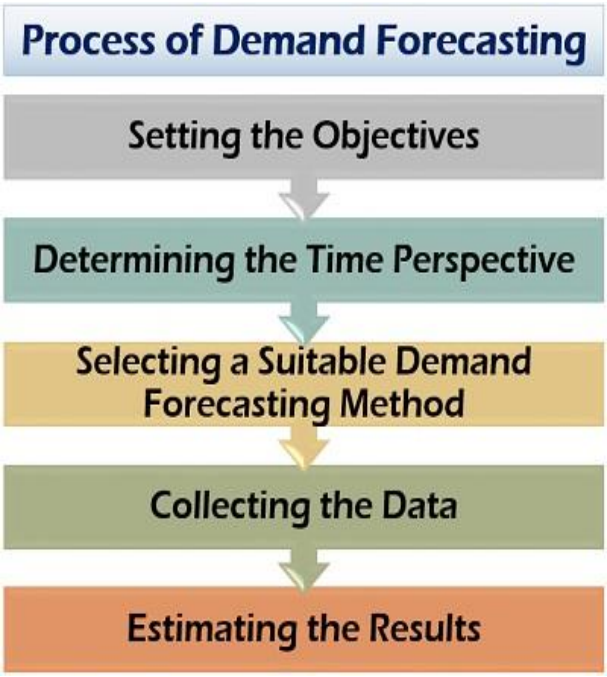
3. General purpose forecasting: -It will helpful if the general estimate is broken down into specific estimate with respect to commodities, area of sale, domestic and export market etc.

4. Forecast of established market: -Problems and methods of estimation differ in these two cases. For the establish products, past sale trend and competitive condition are known, while this is not so for the 'new' product.

PROCESS OF DEMAND FORECASTING

Demand forecasting is not based on assumptions but is a systematic and scientific process of estimating future sales and performance as well as directing the resources accordingly.

The steps involved in a standard demand forecasting process are as follows:



1) **Setting the Objectives**: - The purpose for which the demand forecasting is being done, must be clear. Whether it is for short-term or long-term, the market share of the product, the market share of the organisation, competitors share, etc. By all these aspects, the objectives for forecasting are framed.
2) **Determining the Time Perspective**: - The defined objectives are supported by the period for which the forecasting is being done. The demand for a commodity varies with the change in its determinants over the period. There is a negligible change in price, income or other factors in the short run. But, the organisation may notice a considerable difference in these determinants over a long-term, affecting the demand of a commodity.
3) **Selecting a Suitable Demand Forecasting Method**: - Demand forecasting is based on specific evidence and is determined using a particular technique or method. The method of prediction must be selected wisely. It is dependent on the information available, the purpose of predicting and the period it is done for.
4) **Collecting the Data**: - Forecasting is based on past experiences and data. This data or information can be primary or secondary. Primary data comprises of the information directly collected by the analysts and researchers; whereas secondary data includes the physical evidence of the past performance, sales trend in the past years, financial reports, etc.

5) **Estimating the Results: -** The data so collected is arranged in a systematic and meaningful manner. The past performance of a product in the market is analysed on this basis. Accordingly, future sales prediction and demand estimation are done. The results so drew must be in a format which is easy to understand and apply by the management.

FACTORS AFFECTING DEMAND FORECASTING

Demand is never constant and fluctuates with the change in certain factors related to the commodity and the market in which the business operates. With the changing demand, it's forecasting also varies.

Following are some of the factors which influence the demand forecasting of a commodity:-

1) **Price of Goods**:- Demand estimation is highly dependent on the price of goods or services. The pricing policy and fluctuation in the present price can give an idea of change in demand for that particular commodity.
2) **Type of Goods**: - The type of commodity, its features and usability determines the customer base it is going to cater. The demand for existing goods can be easily estimated by following the previous sales trend, competitors' analysis and substitutes available. Whereas, the demand for a new product on the market is difficult to predict.
3) **Competition**: - The level of competition in the market supports the process of demand forecasting. It is easy to predict sales in a less competitive market whereas the same becomes difficult in a market where the new firms can freely enter.

4) **Technology**: - The demand for any product or service changes drastically with the advancement in technology. Therefore, it is essential for an organisation to be aware of technological development while forecasting the demand for any commodity.
5) **Economic Perspective**: - Being updated with economic changes and growth is necessary for demand forecasting. It assists the organisation in preparing for future possibilities and analysing the impact of economic development on sales.

IMPORTANCE OF DEMAND FORECASTING

1) Production Planning:- Expansion of output of the firm should be based on the estimates of likely demand, otherwise there may be overproduction and consequent losses may have to be faced.

2) Sales Forecasting:- Sales forecasting is based on the demand forecasting. Promotional efforts of the firm should be based on the sales forecasting.

3) Control of Business:- For controlling the business, it is essential to have a well-conceived budgeting of costs and profits that is based on the forecast of annual demand.

4) Inventory Control:- A satisfactory control of business inventories, raw materials, intermediate goods, finished product, etc. requires satisfactory estimates of the future requirements which can be traced through demand forecasting.

5) Economic Planning and Policy Making:- The government can determine its import and export policies in view of the long-term demand forecasting for various goods in the country.

6) Growth and Long- term Investment Programs:- Demand forecasting is necessary for determining the growth rate of the firm and its long-term investment programs and planning.

INDIFFERENCE CURVE

An indifference curve is a locus of all combinations of two goods which yield the same level of satisfaction (utility) to the consumers.

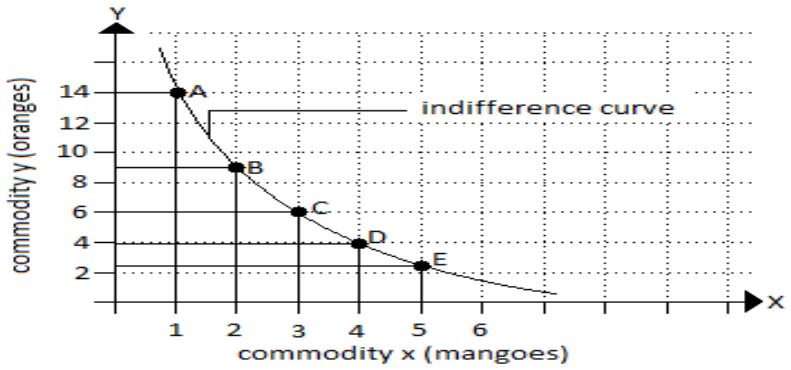
Since any combination of the two goods on an indifference curve gives equal level of satisfaction, the consumer is indifferent to any combination he consumes. Thus, an indifference curve is also known as 'equal satisfaction curve' or 'iso-utility curve'.

On a graph, an indifference curve is a link between the combinations of quantities which the consumer regards to yield equal utility. Simply, an indifference curve is a graphical representation of indifference schedule.

The table given below is an example of indifference schedule and the graph that follows is the illustration of that schedule.

Table: Indifference schedule		
Combination	**Mangoes**	**Oranges**
A	**1**	**14**
B	**2**	**9**
C	**3**	**6**
D	**4**	**4**
E	**5**	**2.5**

Figure: Graphical representation of indifference curve



ASSUMPTIONS OF INDIFFERENCE CURVE

The indifference curve theory is based on few assumptions. These assumptions are

1] Two commodities:- It is assumed that the consumer has fixed amount of money, all of which is to be spent only on two goods. It is also assumed that prices of both the commodities are constant.

2] Non satiety:- Satiety means saturation. And, indifference curve theory assumes that the consumer has not reached the point of satiety. It implies that the consumer still has the willingness to consume more of both the goods. The consumer always tends to move to a higher indifference curve seeking for higher satisfaction.

3] Ordinal utility:- According to this theory, utility is a psychological phenomenon and thus it is unquantifiable. However, the theory assumes that a consumer can express utility in terms of rank. Consumer can rank his/her preferences on the basis of satisfaction yielded from each combination of goods.

4] Diminishing marginal rate of substitution:- Marginal rate of substitution may be defined as the amount of a commodity that a consumer is willing to trade off for another commodity, as long as the second commodity provides same level of utility as the first one.

And, diminishing marginal rate of substitution states that the rate by which a person substitutes X for Y diminishes more and more with each successive substitution of X for Y.

As indifference curve theory is based on the concept of diminishing marginal rate of substitution, an indifference curve is convex to the origin.

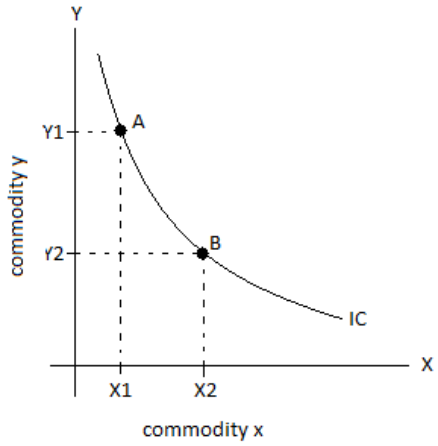
5] Rational consumers:- According to this theory, a consumer always behaves in a rational manner, i.e. a consumer always aims to maximize his total satisfaction or total utility.

PROPERTIES OF INDIFFERENCE CURVE

There are four basic properties of an indifference curve. These properties are

1] Indifference curve slope downwards to right:- An indifference curve can neither be horizontal line nor an upward sloping curve. This is an important feature of an indifference curve.

When a consumer wants to have more of a commodity, he/she will have to give up some of the other commodity, given that the consumer remains on the same level of utility at constant income. As a result, the indifference curve slopes downward from left to right.



In the above diagram, IC is an indifference curve, and A and B are two points which represent combination of goods yielding same level of satisfaction.

We can see that when X1 amount of commodity X was consumed, Y1 amount of commodity Y was also consumed. When the consumer increased the consumption of commodity X to X2, the amount of commodity Y fell to Y2. And, thus the curve is sloping downward from left to right.

2] Indifference curve is convex to the origin:- As mentioned previously, the concept of indifference curve is based on the properties of diminishing marginal rate of substitution.

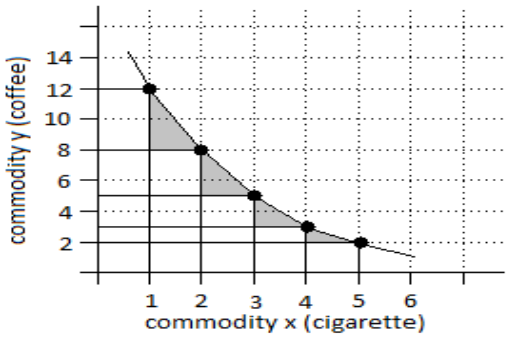
According to diminishing marginal rate of substitution, the rate of substitution of commodity X for Y decreases more and more with each successive substitution of X for Y.

Also, two goods can never perfectly substitute each other. Therefore, the rate of decrease in a commodity cannot be equal to the rate of increase in another commodity.

Table: Indifference schedule

Combination	Cigarette	Coffee
A	1	12
B	2	8
C	3	5
D	4	3
E	5	2

The above table represents various combination of coffee and cigarette that gives a man same level of utility. When the man drinks 12 cup of coffee, he consumes 1 cigarette every day. When he started consuming two cigarettes a day, his coffee consumption dropped to 8 cups a day. In the same way, we can see other combinations as 3 cigarettes + 5 cup coffee, 4 cigarettes + 3 cup coffee and 5 cigarettes + 2 cup coffee.



We can clearly see that the rate of decrease in consumption of coffee is not the same as rate of increase in consumption of cigarette. Similarly, rate of decrease

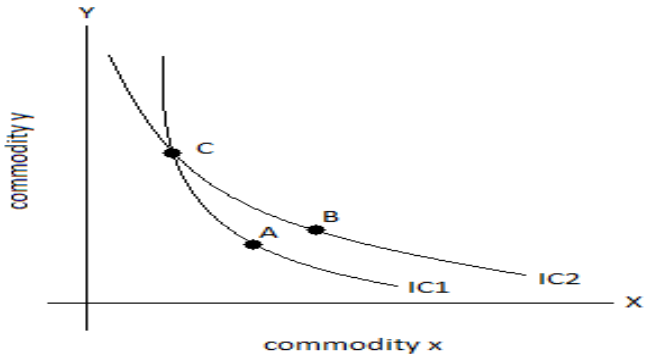
in consumption of coffee has gradually decreased even with constant increase in consumption of cigarette.

Thus, indifference curve is always convex (neither concave nor straight).

3] Indifference curve cannot intersect each other:- Each indifference curve is a representation of particular level of satisfaction.

The level of satisfaction of consumer for any given combination of two commodities is same for a consumer throughout the curve. Thus, indifference curves cannot intersect each other.

The following diagram will help you understand this property clearer.



In the above image, IC1 and IC2 are two indifference curves and C is the point where both the curves intersect.

According to indifference curve theory, satisfaction at point C = satisfaction at point A

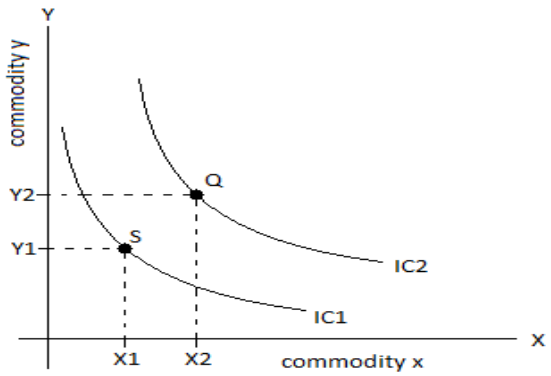
Also, satisfaction at point C = satisfaction at point B

But, satisfaction at point B ≠ satisfaction at point A.

Therefore, two indifference curves cannot intersect. Yet, two indifference curves need not be parallel to each other.

4] Higher indifference curve represents higher level of satisfaction

Higher the indifference curves, higher will be the level of satisfaction. This means, any combination of two goods on the higher curve give higher level of satisfaction to the consumer than the combination of goods on the lower curve.



In the above figure, IC1 and IC2 are two indifference curves, and IC2 is higher than IC1. We can also see that Q is a point on IC2 and S is a point on IC2.

Combination at point Q contains more of both the goods (X and Y) than that of the combination at point S. We know that total utility of commodity tends to increase with increase in stock of the commodity. Thus, utility at point Q is greater than utility at point S, i.e. satisfaction yielded from higher curve is greater than satisfaction yielded from lower curve.

USES OF THE INDIFFERENCE CURVE APPROACH

Indifference curve techniques were not developed just to confuse students of economics. They do offer a more penetrating analysis of consumer demand than simple demand curves and they are of considerable importance in the study of advanced economic theory. So, it is worthwhile to make the effort and really try to understand them. It is convenient at this point to examine two uses, other than the analysis of effects of changing prices and incomes, that may be made of the curves.

(a) Inflation:- Indifference curves demonstrate the effects of inflation or the situation in which prices and incomes are rising. When prices rise consumers must secure a rise in money incomes in order to maintain their real income and their standard of living. A 10 per cent rise in prices has to be accompanied by a

10 per cent rise in money income if consumers are not to suffer a fall in real income. Fig.16 reveals a more subtle change.

With his original income OA the consumer had a budget line AB and chose to buy OW units of clothes and spend OV on other goods. If his income rises by 10 per cent to compensate for a 10 per cent rise in prices he can still buy a maximum of OB units of clothes but his budget line moves to CB, enabling him to buy OX units of clothes and retain OY units of money. He therefore moves to a higher indifference curve, even though his real income is constant.

The higher money income gives greater satisfaction. Although real incomes are not higher, as the money incomes will buy only the same quantity of real goods, the consumer is deluded into buying more as the extra money has less utility, and he thinks the residue larger than it actually is. This is one way in which inflation distorts the pattern of expenditure. Other effects of inflation are considered in Unit Twenty- three.

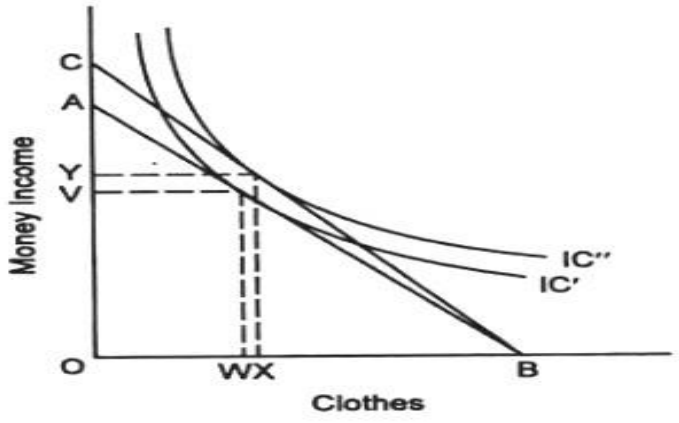


Fig. 16 : Inflation and constant real income

If the price of clothes rose and there was no compensating rise in income the budget line would have become steeper and forced the consumer to a lower indifference curve. This would reduce his living standards and this is the normal effect of inflation.

(b) Taxation:- In Fig. 17 a comparison is made between the relative effects of income taxes and expenditure taxes.

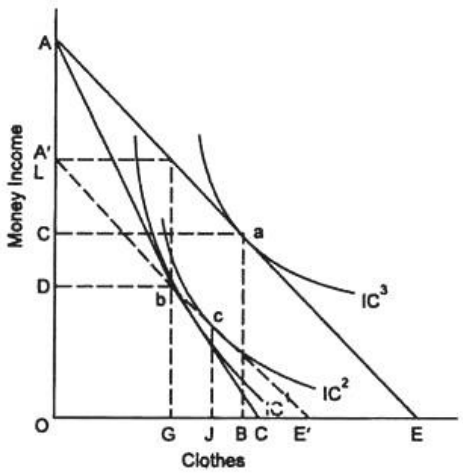


Fig. 17 : Income taxes and expenditure taxes

In this absence of taxation we can assume that the consumer is at a buying OB units of clothes and OC units of other goods. If a tax is imposed on consumer to point b on IC^1. At this point he buys OG units of clothes and spends OD units on other things. Before the tax was imposed the consumer could have combined OG units of clothes with OL units of money income or other goods as we can see from the budget line AE.

The tax has therefore reduced his real income by LD. This could equally well have been achieved by the imposition of an income tax equivalent to LD, when the consumer to move to c on IC^2 which is preferable to the position b that the expenditure tax leaves him in. He is able to enjoy GJ more of clothing than he could when clothes were taxed.

While this is true for the individual whose indifference map we have drawn, it is not necessarily true for all consumers and so we cannot on the basis of this analysis argue that income taxes are preferable to expenditure taxes.

IMPORTANT APPLICATIONS OF INDIFFERENCE CURVES

The technique of **indifference curves** has assumed special significance because of its application in almost every sphere of economic activity. A few such applications can be mentioned as follows:

1. In the theory of production:- The basic aim of a producer is to attain a low cost combination. Indifference curves are useful in the realization of this objective.

When we use these curves in the theory of production, they are called iso-product curves. Producer's equilibrium i.e. low cost combination is obtained at the point where producer's budget line becomes tangent to one of the iso-product curves on the map.

2. In the theory of Exchange:- Prof. Edge worth used the technique of indifference curves to show the mutual gains from the exchange of two goods between two consumers.

Exchange makes it possible for both the consumers to reach a higher level of satisfaction. The process of shifting to the higher level of satisfaction is explained with the help of 'contract curves.'

3. In the field of Rationing:- This technique can also be made use of in the field of rationing Ordinarily two commodities are rationed out to different individuals, irrespective of their preferences.

But if their respective preferences are considered and the amounts of the two commodities be distributed among consumers in accordance with their scale of preferences, each of them shall be in a position to search a higher indifference curve and satisfaction.

4. In the measurement of consumer's surplus:- Indifference curve technique has rehabilitated the old Marshallian concept of consumer's surplus that has lain buried almost for decades under the weight of unrealistic and illusory assumptions.

Consumer's surplus can be measured with the help of this technique without any need for making unralistic assumptions.

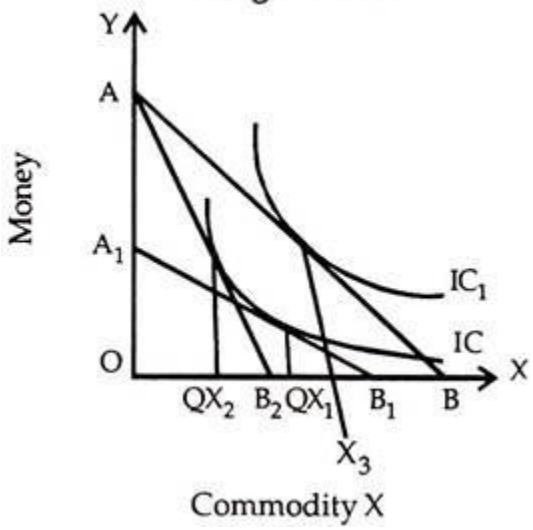
5. In the field of taxation:- The technique is also applied to test preference between a direct and indirect tax. With the help of indifference curves it can be shown that a direct tax is preferable to an indirect tax as regards its effects on consumption and satisfaction of the tax payer.

In view of the above application of the technique, it may be asserted that it forms an integral part of the modern welfare economics.

APPLICATION OF INDIFFERENCE CURVES IN PUBLIC FINANCE

Indifference curves can be used to study the effects of direct and indirect taxes. There are bad effects on the demand for goods when indirect tax (excise duty) is levied by finance ministry than the direct tax in the form of income tax.

Diagram : 23



We take an example of income tax and excise duty and their effects on the demand for a commodity as shown in the Diagram 23. AB is the original budget line where consumer is in equilibrium at point E and purchases OQx of community X. When income tax is levied the budget line shifts below to A_1B_1 where the consumer is in equilibrium at point E_1 and purchases OQ_{x1} of commodity X.

If excise duty is levied in place of income tax then the consumer's budget line will shift downward to AB_2 and the consumer will be in equilibrium at E_2 point with the amount of OQ_{X2} of commodity X. OQx_2 is lesser than OQ_{X1}. Hence the impact of excise duty (indirect tax) on the demand for a good is bad than the impact of income tax (direct tax).

Similarly, the effect or impact of government subsidy can also be studied with the help of indifference curves. The subsidy makes the goods cheaper and its effect is just like the effects of price effect.

LIMITATIONS OF INDIFFERENCE CURVE ANALYSIS

(i) The indifference curve analysis is utility analysis in a new grab. It has simply substituted new concepts and equations instead of the old ones. The old principle of diminishing marginal utility has been replaced by the new principle of diminishing marginal rate of substitution. The old equation of consumer equilibrium.

MUA/PA = MUB/PB = MUM

is replaced by a new equation, which says that the consumer is in equilibrium, when the marginal rate of substitution between the two commodities, which is the ratio of their marginal utilities is equal to their price ratio. This is nothing but the reformulation of previous equation in a modified form.

(ii) Indifference curve analysis assumes that consumers are familiar with their preference schedules. But, it is not possible for a consumer to have a complete knowledge of all the combinations of the two commodities, total satisfactions from them, rates of substitutions and total incomes. At best he can tell his preferences in the neighborhood of his existing position. Moreover, the preferences of this consumer keep changing.

(iii) This analysis is confined to the case of only two commodities. For covering a large number of commodities, one commodity, say, 'Y' has to be taken as a composite commodity (represented by money) such that prices of all the commodities comprising the composite commodities increase or decrease simultaneously and by the same proportion.

This may not happen in reality. It also becomes difficult to isolate the effect of change in price of a particular commodity. For three goods case, we can also use three – dimensional diagram, but, it is difficult to handle. Geometry fails all together for dealing with the situation of more than three goods. In such situation, we may have to fall back upon complicated algebraic methods.

(iv) This analysis assumes rationality of the consumer. In many situations, however, consumer behaves in an irrational and thoughtless manner.

(v) Indifference curve analysis is introspective, as it studies consumer behaviour on the basis of imaginary drawn indifference curves. Further, it is based on weak ordering hypothesis. Thus, consumer is indifferent towards some combinations. Samuelson criticised this analysis, since when a consumer chooses one particular combination, he prefers it over all other combinations Thus, and 'choice reveals preference'. Samuelson enunciated demand theory from observed consumer behaviour, which is more scientific.

(vi) This analysis assumes perfect divisibility of the commodities. But, consumer is often faced by lumpy units. So, the continuity of indifference curves is not ensured as assumed by indifference curves analysis, as also large number of very closed placed indifference curves. Further, choices with extreme combinations (too much of commodity 'X' and very little of 'Y' and vice-versa) are not observed in the real world.

(vii) Indifference curve analysis is micro economic in character. It is not possible to draw indifference curves indicating the choices of a group or a country as a whole. In this respect, utility analysis has an edge over, as it goes by a general opinion based on past experience and observation.

(viii) Indifference curve analysis is not amenable to statistical investigation and empirical research, as the entire analysis is based upon theoretically formulated cross-effect relationships and not upon statistical observations. In view of Samuelsson, indifference curves are imaginary.

(ix) Indifference curve analysis fails to explain consumer behaviour under risk and uncertainty.

Thus, indifference curve analysis is not free from defects of its own. Even some of these defects were appreciated by Hicks, who sought to remove them in his later work 'A Revision of Demand Theory' published in 1956. The approach is a considerable improvement over the conventional utility approach and has gained popularity among economists.

CONSUMER'S EQUILIBRIUM

MEANING OF CONSUMER'S EQUILIBRIUM

"The term ***consumer's equilibrium*** refers to the amount of goods and services which the consumer may buy in the market given his income and given prices of goods in the market".

A consumer is in equilibrium when given his tastes, and price of the two goods, he spends a given money income on the purchase of two goods in such a way as to get the maximum satisfaction.

According to Anna Koulsayiannis, "The consumer is in equilibrium when he maximises his utility, given his income and the market prices."

Every consumer aims at getting maximum satisfaction out of his given expenditure. A consumer is said to have attained equilibrium when he spends given income or budget in such a way as to yield optimum satisfaction, given the prices of two goods and the consumer's preference.

In simple words, a consumer is said to be in equilibrium when he is getting maximum satisfaction out of his limited income.

A consumer may find out his equilibrium condition with the help of indifference curve analysis.

ASSUMPTIONS OF CONSUMER'S EQUILIBRIUM

Consumer's equilibrium through indifference curve analysis is based on the following assumptions.

1. The consumer is rational and seeks to maximize his satisfaction through the purchase of goods.
2. The consumer consumes only two goods (X and Y).
3. The goods are homogenous and perfectly divisible.
4. Prices of the goods and income of the consumer are constant.
5. The indifference map for goods X and Y are given. The indifference map is based on the consumer's preferences for the goods.
6. The preference or habit of the consumer does not change throughout the analysis.

7. The income of consumer is given and constant.

CONDITIONS OF CONSUMER'S EQUILIBRIUM

The following are the conditions of consumer's equilibrium

1. Budget line should be tangent to the indifference curve
2. At the point of equilibrium, slope of the budget line = slope of the indifference curve
3. Indifference curve should be convex to the point of origin.

1. Budget line should be tangent to the indifference curve

Consumer's equilibrium is based on the assumption that the income of a consumer is constant and that he spends his entire income on purchasing two goods whose prices are given.

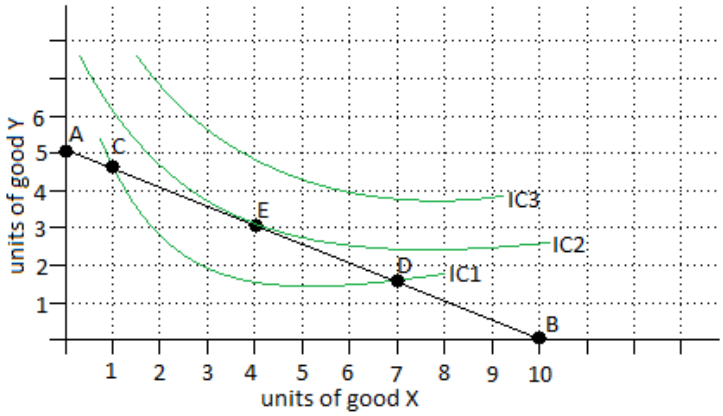
A budget line is a graphical representation of various combinations of two goods that a consumer can afford at specified prices of the products at particular income level. A budget line can be drawn on the basis of expenditure plan.

The table given below is an example of expenditure plan and the graph that follows is its presentation on graph.

Table: Expenditure plan

Given: Budget of the consumer is Rs 10, Price of good X is Rs 1 each and Price of good Y is Rs 2 each		
Combination	**Units of good Y**	**Units of good X**
A	**5**	**0**
C	**4.5**	**1**
E	**3**	**4**
D	**1.5**	**7**
B	**0**	**10**

Figure: Interplay of budget line and indifference curves



In the given diagram, we can see IC1, IC2 and IC3 are three different indifference curves and AB is a budget line. A consumer can only consume such combinations of goods which lie upon the budget line at a given income level and constant price of goods X and Y.

Since, we have,

level of income = Rs 10
price of good X = Rs 1
price of good Y = Rs 2

a consumer can only purchase goods in combination which satisfies the given equation "I = PX X QX + PY X QY" or "10 = 1 X QX+ 2 X QY"

At point A, 0 X 1 + 5 X 2 = 10
At point C, 4.5 X 2 + 1 X 1 = 10
At point E, 3 X 2 + 4 X 1 = 10
At point D, 1.5 X 2 + 7 X 1 = 10
At point B, 0 X 2 + 10 X 1 = 10
Thus, all these points lie on the budget line AB.

By the property of indifference curves, we know, utility in IC3 > utility in IC2 > utility in IC1

A consumer can have any combination of goods that lie on the budget line except for the combinations A and B because in either case he would only have X or Y.

The consumer can purchase combinations C or D but these will not yield him maximum satisfaction as they lie on lower indifference curve. On the other hand, he cannot get any combination on IC3 as it is away from the budget line.

Thus, the consumer will be in equilibrium (achieve maximum satisfaction at any given level of income) where the budget line is tangent to the indifference curve, i.e. at point E on IC2.

2. At the point of equilibrium, the slope on indifference curve = slope of the budget line.

At any given point on the budget line,

$$\text{slope of the budget line} = \frac{\text{intercept on y-axis}}{\text{intercept onx-axis}}$$

For example, at point E, the slope of budget line = intercept on y-axis / intercept on x-axis
or, slope of budget line at point E = 3/6 = 1/2

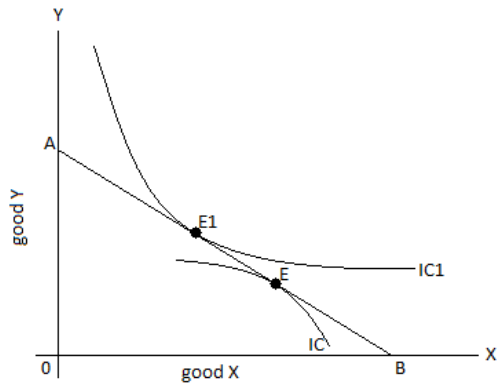
The slope is 1/2 throughout the budget line.

From condition 1, we have known that consumer's equilibrium exist at the point on indifference curve where budget line is tangent to the curve.

Thus, at equilibrium point, slope of budget line is equal to slope of the indifference curve.

3. Indifference curve should be convex to the point of origin

The other condition of equilibrium is that at the point of equilibrium, indifference curve should be convex to the origin. It means that marginal substitution rate between X and Y (MRSXY) should be diminishing. If indifference curve is concave and not convex to the origin, then it will not be the point of equilibrium.



In the above figure, AB is a budget line tangent to IC curve at point E. At point E, marginal rate of substitution is increasing instead of diminishing. It means, by moving left or right of point E, a consumer can obtain higher amount of either good X or good Y. Thus point E is not an equilibrium point.

A consumer will therefore be in equilibrium when at the point of tangency of indifference curve and the budget line, the indifference curve is convex to the origin.

As shown in the above figure, a consumer is in equilibrium at point E1 where budget line AB is tangent to the indifference curve IC1 which is convex to the origin.

IMPORTANT QUESTIONS

➢ Short Questions (2 marks)

Q1. Define Managerial Economics?

Q2. Opportunity Cost Principle.

Q3. Production Possibility Curve

Q4. Incremental Principle

Q5. Scarcity Cost.

Q6. Demand Estimation.

Q7. Demand Forecasting.

Q8. Uses of Elasticity of Demand.

Q9. Price Elasticity of Demand.

Q10. Cross Elasticity of Demand.

Q11. Income Elasticity of Demand.

Q12. Define Demand?

Q13. Define Demand Function?

Q14. Decision Making in Managerial Economics.

Q15. Define Indifference Curve?

Q16. Consumer Equilibrium.

➢ Long Questions (10 marks)

Q1:- Define Managerial Economics? Explain The Nature & Scope Of Managerial Economics?

Q2:- Define Managerial Economics? Discuss The Relationship Between Other Disciplines Of Managerial Economics?

Q3:- Discuss The Role Of Managerial Economics In Decision Making?

Q4:- Write the Short Note on Followings:-

A) Opportunity Cost Principle.

B) Production Possibility Curve

C) Incremental Principle

D) Scarcity Cost.

Q5:- Define Demand? Discuss Its Characteristics, Schedule & Curve & Its Determinants?

Q6:- Explain The Law Of Demand. Why Does Demand Curve Slopes

Downwards To The Right? Explain The Circumstances In Which Demand Curve Slope?

Q7:-Explain The Methods Of Elasticity Of Demand?

Q8:- Write the Short Note on Followings:-

A) Demand Estimation.
B) Demand Forecasting.
C) Types Of Demand

Q9:- Write the Short Note on Followings:-

A) Opportunity Cost Principle.
B) Production Possibility Curve

Q10:- Write the Short Note on Followings:-

A) Incremental Principle.
B) Scarcity Cost.

Q11:- What Is Indifference Curve Analysis? Write Detailed Note On Consumer Equilibrium?

Q12:- What Is Indifference Curve Analysis? Explain Its Assumptions, Properties, and Importance& Limitations?

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UNIT-II

PRODUCTION FUNCTION

MEANING & DEFINITION OF PRODUCTION FUNCTION

The Production Function shows the relationship between the quantity of output and the different quantities of inputs used in the production process. In other words, it means, the total output produced from the chosen quantity of various inputs.

Generally, production is the transformation of raw material into the finished goods. These raw materials are classified as land, labor, capital or natural resources. These may be fixed or variable depending upon the nature of the business.

This function establishes the physical relationship between these inputs and the output. The efficiency of this relationship depends on the different quantities used in the production process, the quantities of output and the productivity at each point. It can be shown algebraically:

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

Where Q = Quantity of output

L = Labour

C = Capital

N = Land.

Hence, the level of output (Q), depends on the quantities of different inputs (L, C, N) available to the firm. In the simplest case, where there are only two inputs, labour (L) and capital (C) and one output (Q), the production function becomes.

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

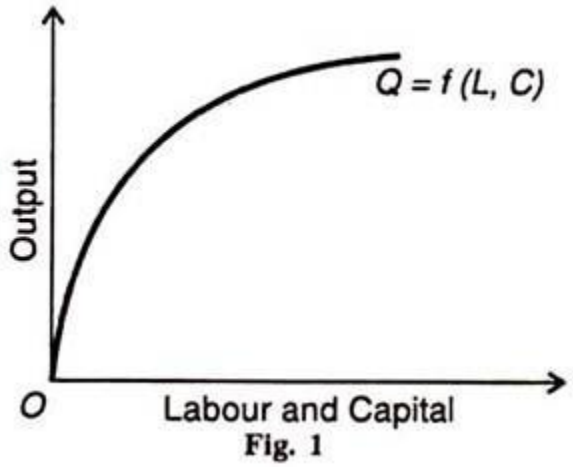
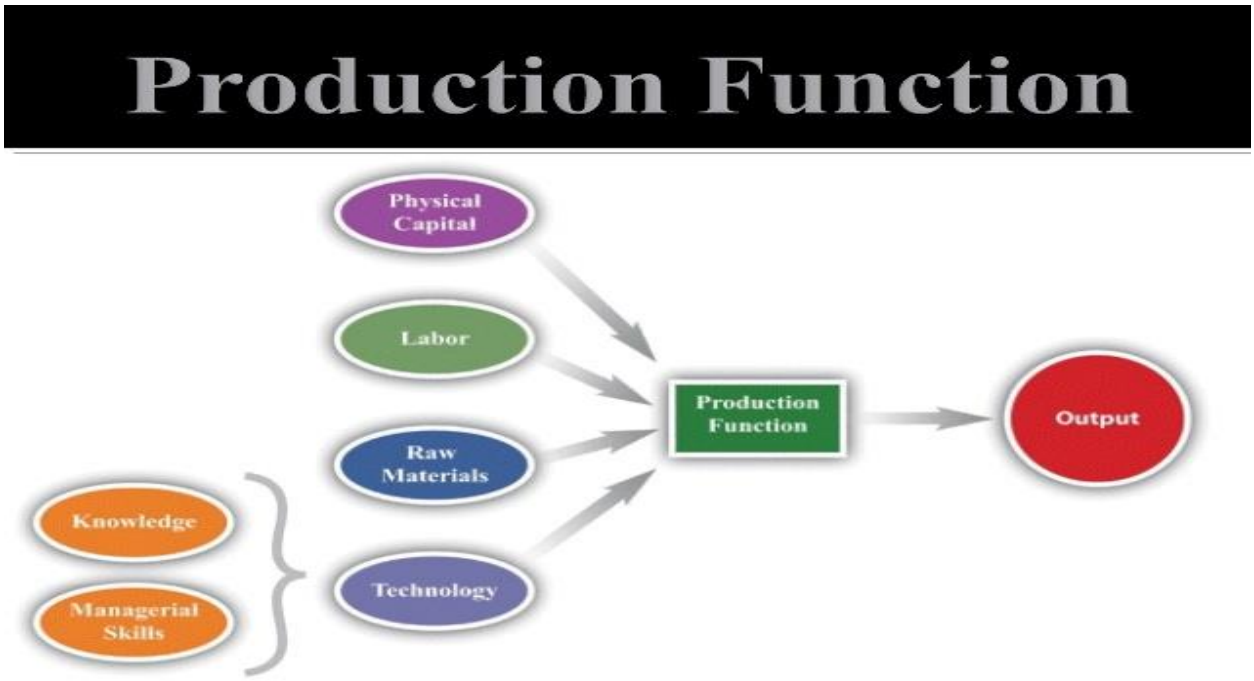


Fig. 1

"Production function is the relationship between inputs of productive services per unit of time and outputs of product per unit of time." **Prof. George J. Stigler**

"The relationship between inputs and outputs is summarized in what is called the production function. This is a technological relation showing for a given state of technological knowledge how much can be produced with given amounts of inputs." **Prof. Richard J. Lipsey**



ASSUMPTIONS OF PRODUCTION FUNCTIONS

1. Perfect divisibility of both inputs and outputs

2. Limited substitution of one factor for another

3. Constant technology

4. Inelastic supply of fixed factors in the short run

USES OF PRODUCTION FUNCTION

1. How to obtain Maximum output

2. Helps the producers to determine whether employing variable inputs /costs are profitable
3. Highly useful in long run decisions
4. Least cost combination of inputs and to produce an output

CHARACTERISTICS OF PRODUCTION FUNCTION

The function has the following characteristics

1) Production function always relates to a particular period.

2) It shows maximum output secured by combining the available technical knowledge with the factors of production.

3) It reveals all the possibilities of combination of different factors needed for the purpose of production. Production function is necessary for a producer for knowing the quantity of different factors and their prices.

4) It explains about the relationship between physical inputs and physical output only. It did not mention the prices of these units.

5) The method of utilizing the inputs in production depends on the technical knowledge.

6) The nature of production is determined by whether the factors of production are completely divisible or indivisible. Constant returns does not arise when the factors of production are divisible.

CLASSIFICATION OF PRODUCTION FUNCTION

Production function may be classified into two:-

1. Short-run production function which is studied through Law of Variable Proportions
2. Long-run production function which is explained by Returns to Scale

1. Short-run production function - The law of variable proportions

The law examines the relationship between one variable factor and output, keeping the quantities of other factors fixed.

➢ Definition

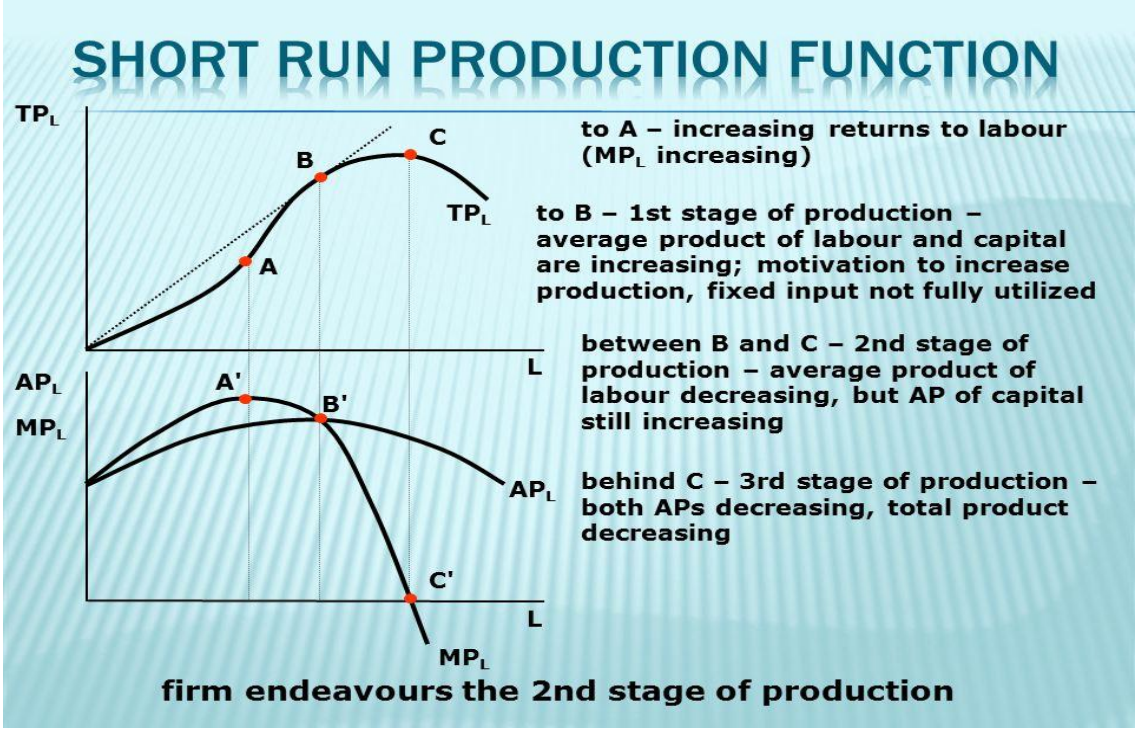
As the proportion of one factor in a combination of factors is increased, after a point, first the marginal and then the average product of that factor will diminish.

➢ Assumptions of the law

The law is based on the following assumptions

1) Only one factor is made variable and other factors are kept constant.
2) This law does not apply in case all factors are proportionately varied. i.e. where the factors must be used in rigidly fixed proportions to yield a product.
3) The variable factor units are homogenous i.e. all the units of variable factors are of equal efficiency.
4) Input prices remain unchanged
5) The state of technology does not change or remains the same at a given point of time.

6) The entire operation is only for short-run, as in the long-run all inputs are variable.



- **Three stages of law**

Stage I: Stage of increasing returns:-Stage I ends where the average product reaches its highest (maximum) point. During this stage, the total product, the average product and the marginal product are increasing. It is notable that the marginal product in this stage increases but in a later part it starts declining. Though marginal product starts declining, it is greater than the average product so that the average product continues to rise.

Stage II: Stage of decreasing returns:-Stage II ends at the point where the marginal product is zero. In the second stage, the total product continues to increase but at a diminishing rate. The marginal product and the average product are declining but are positive. At the end of the second stage, the total product is maximum and the marginal product is zero.

Stage III: Stage of negative returns:-In this stage the marginal product becomes negative. The total product and the average product are declining.

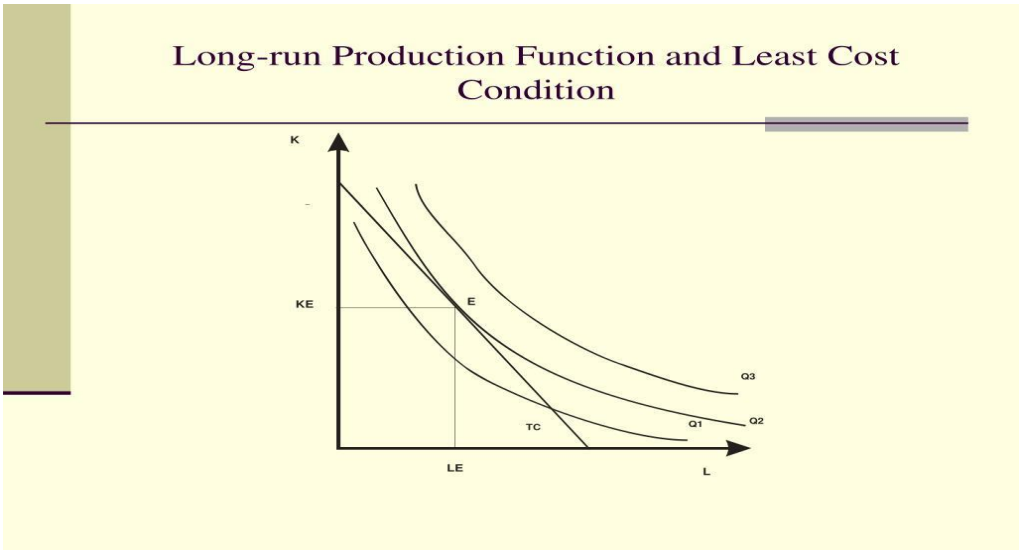
The stage of Operation:-In stage I the fixed factor is too much in relation to the variable factor. Therefore in stage I, marginal product of the fixed factor is negative. On the other hand, in stage III the marginal product of the variable factor is negative. Therefore a rational producer will not choose to produce in

stages I and III. He will choose only the second stage to produce where the marginal product of both the fixed factor and variable factor are positive. At this stage the total product is maximum. The particular point at which the producer will decide to produce in this stage depends upon the prices of factors. The stage II represents the range of rational production decisions.

2. Long-run production function - Returns to Scale

In the long run, all factors can be changed. Returns to scale studies the changes in output when all factors or inputs are changed. An increase in scale means that all inputs or factors are increased in the same proportion.

➢ Three phases of returns to scale



The changes in output as a result of changes in the scale can be studied in 3 phases. They are

1. Increasing returns to scale:-If the increase in all factors leads to a more than proportionate increase in output, it is called increasing returns to scale. For example, if all the inputs are increased by 5%, the output increases by more than 5% i.e. by 10%. In this case the marginal product will be rising.

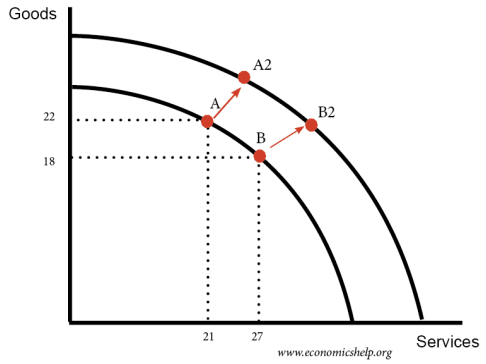
2. Constant returns to scale:-If we increase all the factors (i.e. scale) in a given proportion, the output will increase in the same proportion i.e. a 5% increase in all the factors will result in an equal proportion of 5% increase in the output. Here the marginal product is constant.

3. Decreasing returns to scale:-If the increase in all factors leads to a less than proportionate increase in output, it is called decreasing returns to scale i.e. if all the factors are increased by 5%, the output will increase by less than 5% i.e. by 3%. In this phase marginal product will be decreasing.

CONCEPT OF PRODUCTIVITY AND TECHNOLOGY

Factors of production typically include land, labour, capital, and natural resources. These inputs are used directly to produce a good or service. Technology, on the other hand, is used to put these factors of production to work. A firm doesn't purchase additional units of technology to feed into the production process in the same way that a firm might hire more labour in order to increase output. Instead, the technology available in a particular industry or economy allows firms to use labour and capital more or less efficiently. It is important to note that advances in technology are a result of innovation, innovative practices such as process changes are also worth mentioning in this context. Innovation is the driving economic force behind these leaps in efficiency.

Technological change is a term used to describe any change in the set of feasible production possibilities. A change in technology alters the combinations of inputs or the types of inputs required in the production process. An improvement in technology usually means that fewer and/or less costly inputs are needed. If the cost of production is lower, the profits available at a given price will increase, and producers will produce more. With more produced at every price, the supply curve will shift to the right, meaning an increase in supply and a decrease in prices. For the economy as a whole, an improvement in technology shifts the production possibilities frontier outward.



Production Possibility Frontier (PPF): An increase in technology that allows for greater output based upon the same inputs can be described as an outward shift of the PPF, as demonstrated in this figure.

Production Possibility Frontier (PPF): An increase in technology that allows for greater output based upon the same inputs can be described as an outward shift of the PPF, as demonstrated in this figure.

The invention and popularization of the assembly line is an example of process change, which is worth mentioning in context with technological change. Innovative practices to how we do this is an example of the way in which output can be increased with the same input, and is often discussed in conjunction with technological innovation. During the industrial revolution, many products that had previously been created by hand by a single person or a team of craftsmen began to be manufactured instead in factories in which each worker performed one simple operation. This meant that companies could produce much more output using the same amount of raw materials, capital, and labour. Supply of these goods increased, and the production possibilities curve for the entire economy shifted outwards.

Technological change in the computer industry has resulting in a shift of the computer supply curve. Due to advances in technology, computers can now be manufactured more cheaply, even though they continue to grow smaller, faster, and more powerful. Producers respond to the cheaper production process by increasing output, shifting the supply curve outwards. Thus, the number of computers produced increases and the price of computers falls.

ISO-QUANT CURVE / ISO-PRODUCT CURVE

ISO-QUANT / ISO-PRODUCT CURVE

The term Iso-quant or Iso-product is composed of two words, **ISO = EQUAL, QUANT = QUANTITY OR PRODUCT = OUTPUT.**

Thus it means equal quantity or equal product. Different factors are needed to produce a good. These factors may be substituted for one another.

A given quantity of output may be produced with different combinations of factors. Iso-quant curves are also known as Equal-product or Iso-product or Production Indifference curves. Since it is an extension of Indifference curve analysis from the theory of consumption to the theory of production.

Thus, an Iso-product or Iso-quant curve is that curve which shows the different combinations of two factors yielding the same total product. Like, indifference curves, Iso- quant curves also slope downward from left to right. The slope of an Iso-quant curve expresses the marginal rate of technical substitution (MRTS).

Definitions:-

"The Iso-product curves show the different combinations of two resources with which a firm can produce equal amount of product**."** **Bilas**

"Iso-product curve shows the different input combinations that will produce a given output." **Samuelson**

"An Iso-quant curve may be defined as a curve showing the possible combinations of two variable factors that can be used to produce the same total product." **Peterson**

"An Iso-quant is a curve showing all possible combinations of inputs physically capable of producing a given level of output." **Ferguson**

ASSUMPTIONS OF ISO-QUANT / ISO-PRODUCT CURVE

The main assumptions of Iso-quant curves are as follows:-

1. Two Factors of Production: - Only two factors are used to produce a commodity.

2. Divisible Factor: Factors of production can be divided into small parts.

3. Constant Technique: - Technique of production is constant or is known beforehand.

4. Possibility of Technical Substitution: - The substitution between the two factors is technically possible. That is, production function is of 'variable proportion' type rather than fixed proportion.

5. Efficient Combinations: - Under the given technique, factors of production can be used with maximum efficiency.

ISO-PRODUCT / ISO-QUANT SCHEDULE

Let us suppose that there are two factor inputs—labour and capital. An Iso-product schedule shows the different combination of these two inputs that yield the same level of output **as shown in table 1.**

Table 1. Iso-Product Schedule.

Combination	Units of labour	Units of capital	Output of cloth (metres)
A	1	15	200
B	2	11	200
C	3	8	200
D	4	6	200
E	5	5	200

The table 1 shows that the five combinations of labour units and units of capital yield the same level of output, i.e., 200 metres of cloth. Thus, 200 metre cloth can be produced by combining.

(a) 1 units of labour and 15 units of capital

(b) 2 units of labour and 11 units of capital

(c) 3 units of labour and 8 units of capital

(d) 4 units of labour and 6 units of capital

(e) 5 units of labour and 5 units of capital

ISO-PRODUCT / ISO-QUANT CURVE

From the above schedule Iso-product curve can be drawn with the help of a diagram. An. equal product curve represents all those combinations of two inputs which are capable of producing the same level of output.

The Fig. 1 showsthe various combinations of labour and capital which give the same amount of output. A, B, C, D and E.

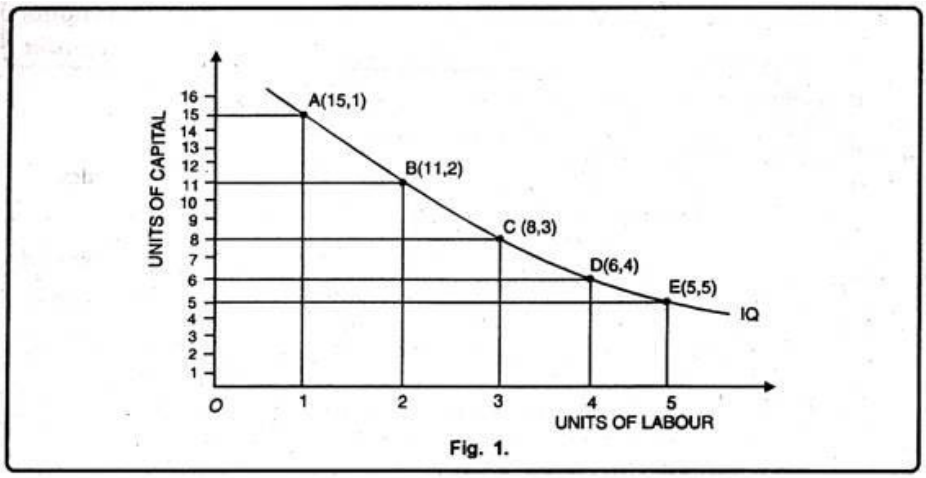


Fig. 1.

ISO-PRODUCT MAP OR EQUAL PRODUCT MAP

An Iso-product map shows a set of Iso-product curves. They are just like contour lines which show the different levels of output. A higher Iso-product curve represents a higher level of output.

In Fig. 2we have family Iso-product curves, each representing a particular level of output.

The Iso-product map looks like the indifference of consumer behaviour analysis. Each indifference curve represents particular level of satisfaction which cannot be quantified. A higher indifference curve represents a higher level of satisfaction but we cannot say by how much the satisfaction is more or less. Satisfaction or utility cannot be measured.

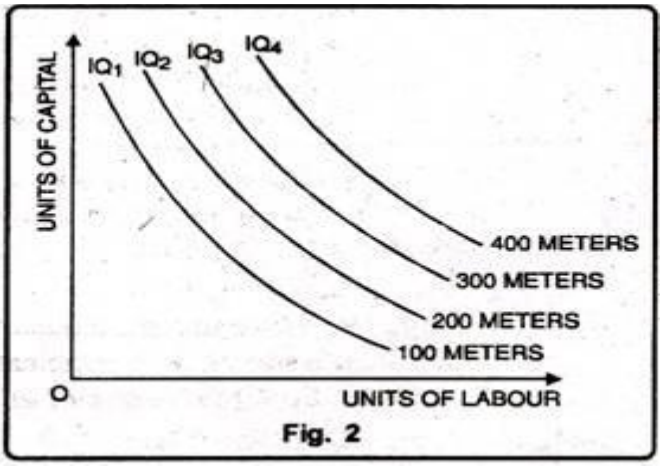


Fig. 2

An Iso-product curve, on the other hand, represents a particular level of output. The level of output being a physical magnitude is measurable. We can therefore know the distance between two equal product curves. While indifference curves are labelled as IC1, IC2, IC3, etc., the Iso-product curves are labelled by the units of output they represent -100 metres, 200 metres, 300 metres of cloth and so on.

PROPERTIES OF ISO-QUANT/ ISO-PRODUCT CURVES

The properties of Iso-product curves are summarized below:

1. Iso-Product Curves Slope Downward from Left to Right:-They slope downward because MTRS of labour for capital diminishes. When we increase labour, we have to decrease capital to produce a given level of output.

The downward sloping Iso-product curve can be explained with the help of the following figure:

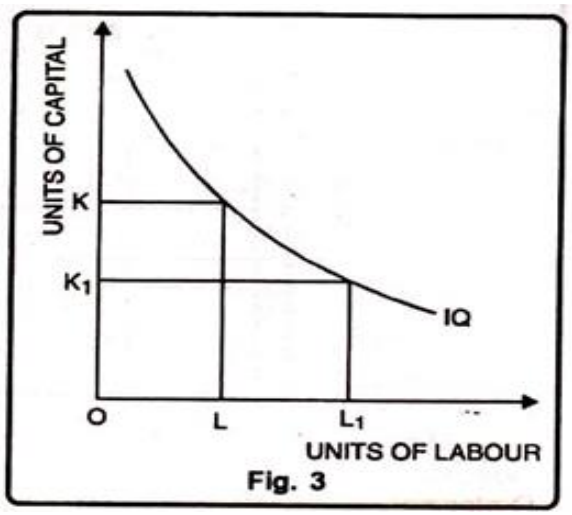


Fig. 3

The Fig. 3 showsthat when the amount of labour is increased from OL to OL1, the amount of capital has to be decreased from OK to OK1, The Iso-product curve (IQ) is falling as shown in the figure.

The possibilities of horizontal, vertical, upward sloping curves can be ruled out with the help of the following **figure 4:**

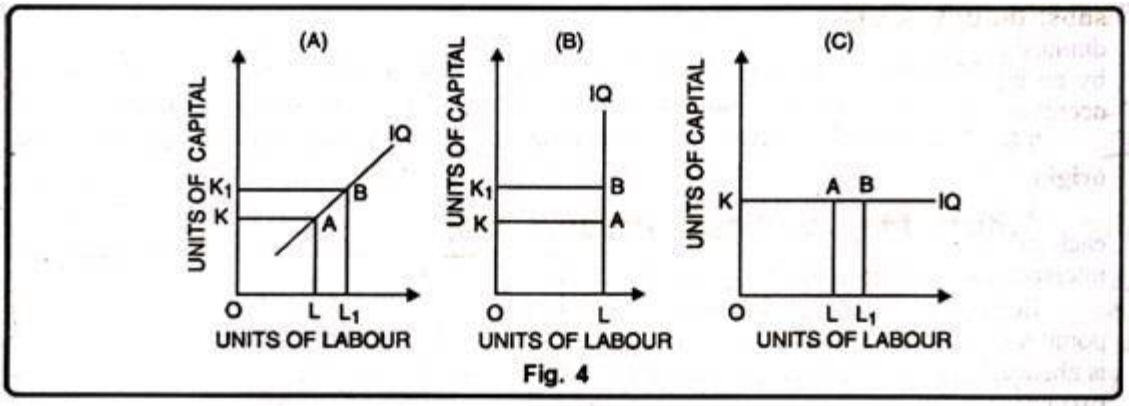


Fig. 4

(i) The figure (A) showsthat the amounts of both the factors of production are increased- labour from L to Li and capital from K to K1. When the amounts of both factors increase, the output must increase. Hence the IQ curve cannot slope upward from left to right.

(ii) The figure (B) shows that the amount of labour is kept constant while the amount of capital is increased. The amount of capital is increased from K to K1. Then the output must increase. So IQ curve cannot be a vertical straight line.

(iii) The figure (C) shows a horizontal curve. If it is horizontal the quantity of labour increases, although the quantity of capital remains constant. When the

amount of capital is increased, the level of output must increase. Thus, an IQ curve cannot be a horizontal line.

2. Isoquants are Convex to the Origin:-Like indifference curves, isoquants are convex to the origin. In order to understand this fact, we have to understand the concept of diminishing marginal rate of technical substitution (MRTS), because convexity of an isoquant implies that the MRTS diminishes along the isoquant. The marginal rate of technical substitution between L and K is defined as the quantity of K which can be given up in exchange for an additional unit of L. It can also be defined as the slope of an isoquant.

It can be expressed as:-**$MRTS_{LK} = -\Delta K/\Delta L = dK/dL$**

Where ΔK is the change in capital and AL is the change in labour.

Equation (1) states that for an increase in the use of labour, fewer units of capital will be used. In other words, a declining MRTS refers to the falling marginal product of labour in relation to capital. To put it differently, as more units of labour are used, and as certain units of capital are given up, the marginal productivity of labour in relation to capital will decline.

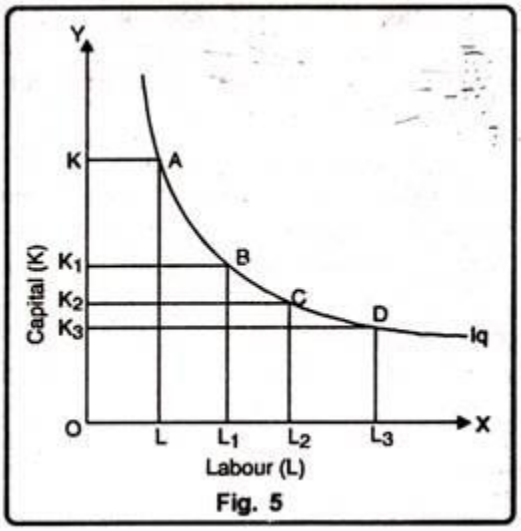


Fig. 5

This fact can be explained in Fig. 5. As we move from point A to B, from B to C and from C to D along an isoquant, the marginal rate of technical substitution (MRTS) of capital for labour diminishes. Every time labour units are increasing by an equal amount (AL) but the corresponding decrease in the units of capital (AK) decreases.

Thus it may be observed that due to falling MRTS, the isoquant is always convex to the origin.

3. Two Iso-Product Curves Never Cut Each Other: - As two indifference curves cannot cut each other, two Iso-product curves cannot cut each other.

In Fig. 6, two Iso-product curves intersect each other. Both curves IQ1 and IQ2 represent two levels of output. But they intersect each other at point A. Then combination A = B and combination A= C. Therefore B must be equal to C. This is absurd. B and C lie on two different Iso-product curves. Therefore two curves which represent two levels of output cannot intersect each other.

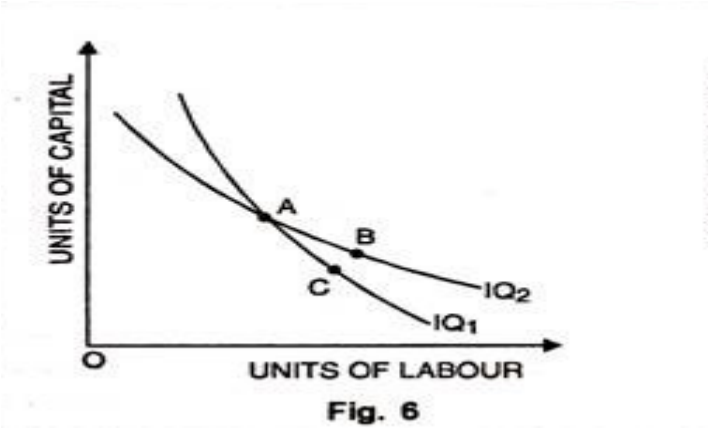


Fig. 6

4. Higher Iso-Product Curves Represent Higher Level of Output:-A higher Iso-product curve represents a higher level of output as shown in the figure 7 given below:

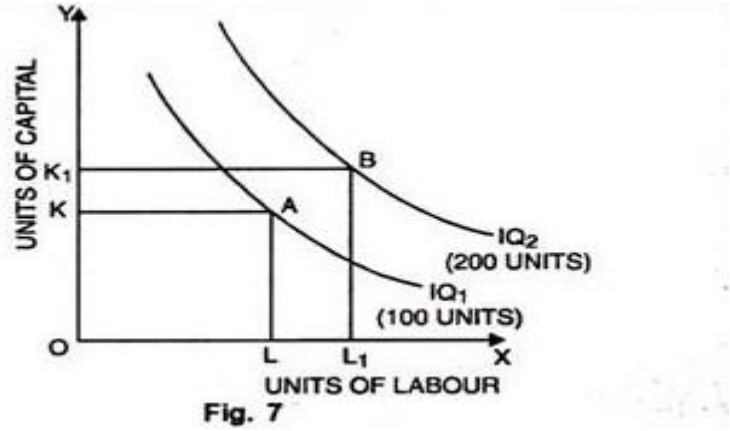


Fig. 7

In the Fig. 7,units of labour have been taken on OX axis while on OY, units of capital. IQ1 represents an output level of 100 units whereas IQ2 represents 200 units of output.

5. Isoquants Need Not be parallel to Each Other: - It so happens because the rate of substitution in different isoquant schedules need not be necessarily

equal. Usually they are found different and, therefore, isoquants may not be parallel as shown in Fig. 8. We may note that the isoquants Iq1 and Iq2 are parallel but the isoquants Iq3 and Iq4 are not parallel to each other.

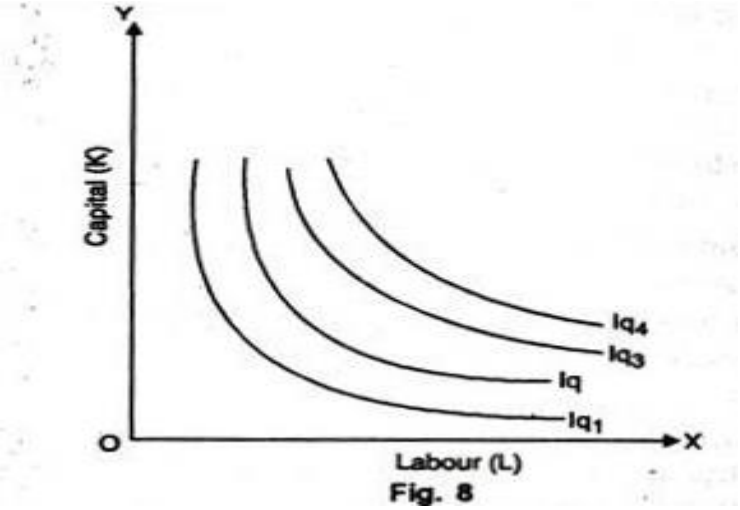


Fig. 8

6. No Isoquant can Touch Either Axis: - If an isoquant touches X-axis, it would mean that the product is being produced with the help of labour alone without using capital at all. These logical absurdities for OL units of labour alone are unable to produce anything. Similarly, OC units of capital alone cannot produce anything without the use of labour. Therefore as seen in figure 9, IQ and IQ1 cannot be isoquants.

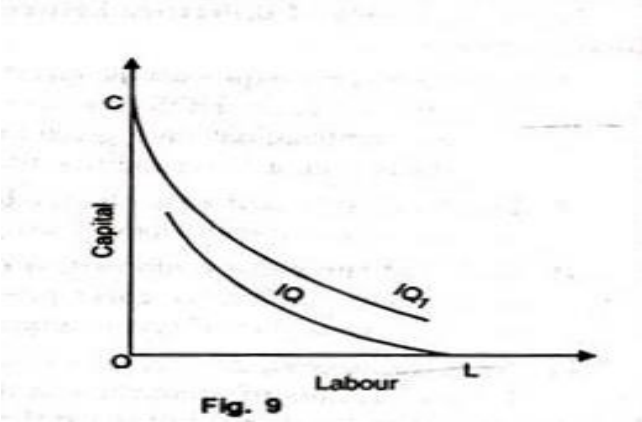


Fig. 9

7. Each Isoquant is Oval-Shaped: - It means that at some point it begins to recede from each axis. This shape is a consequence of the fact that if a producer uses more of capital or more of labour or more of both than is necessary, the total product will eventually decline. The firm will produce only in those segments of the isoquants which are convex to the origin and lie between the

ridge lines. This is the economic region of production. In Figure 10, oval shaped isoquants are shown.

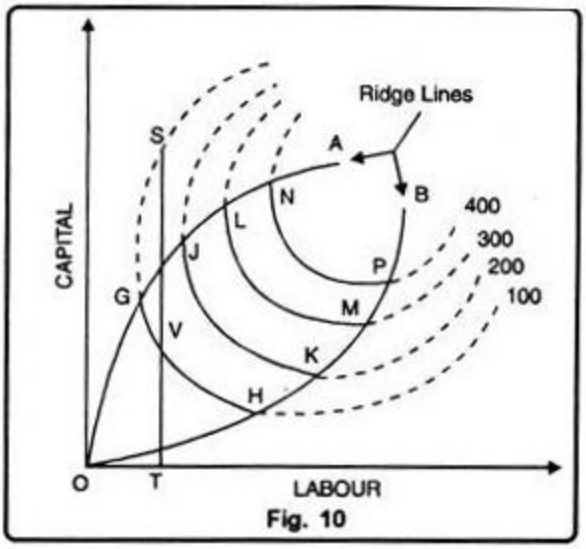


Fig. 10

Curves OA and OB are the ridge lines and in between them only feasible units of capital and labour can be employed to produce 100, 200, 300 and 400 units of the product.

For example, OT units of labour and ST units of the capital can produce 100 units of the product, but the same output can be obtained by using the same quantity of labour T and less quantity of capital VT.

Thus only an unwise entrepreneur will produce in the dotted region of the Iso-quant 100. The dotted segments of an isoquant are the waste- bearing segments. They form the uneconomic regions of production. In the up dotted portion, more capital and in the lower dotted portion more labour than necessary is employed. Hence GH, JK, LM, and NP segments of the elliptical curves are the isoquants.

LEAST-COST COMBINATION OF PRODUCTION

MEANING OF LEAST-COST COMBINATION OF PRODUCTION

Least-Cost Combination- A rational firm would combine the various factors of production its production function in such a way that with the minimum input and maximum output is obtained at the minimum cost. Such a combination is

referred to as the least cost combination. The least cost combination of two **inputs (labour and capital in our example)**

The problem of least-cost combination of factors refers to a firm getting the largest volume of output from a given cost outlay on factors when they are combined in an optimum manner.

In the theory of production, a producer will be in equilibrium when, given the cost-price function, he maximizes his profits on the basis of the least-cost combination of factor. For this he will choose that combination of factors which maximizes his cost of production. This will be the optimum combination for him.

ASSUMPTIONS LEAST-COST COMBINATION

The assumptions on which this analysis is based are:

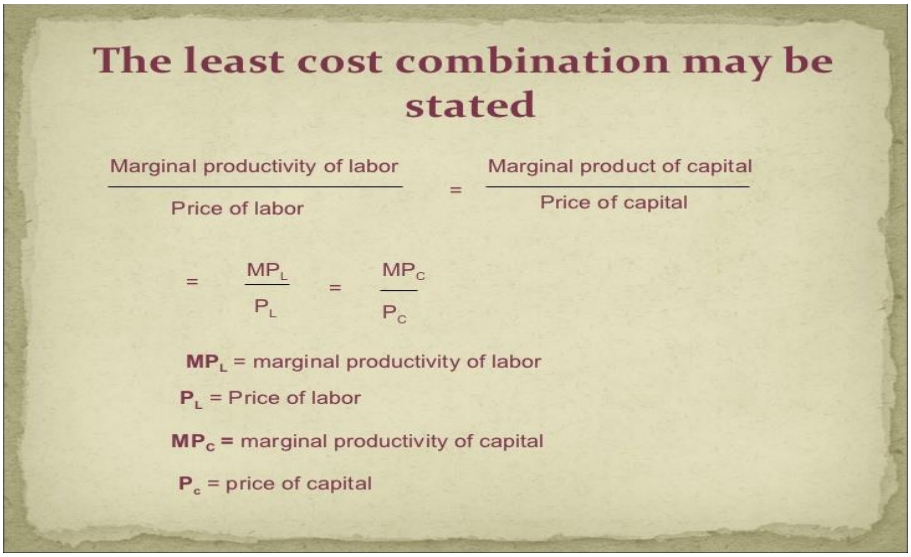
1) There are two factors. Capital and labour.
2) All units of capital and labour are homogeneous.
3) The prices of factors of production are given and constant.
4) Money outlay at any time is also given.
5) Perfect competition is prevailing in the factor market.

LEAST COST COMBINATION EQUATION

The least cost combination or optimum factor combination or producer's equilibrium is shown by an equation as follows:-

MP of Factor A/Price of factor A = MP of Factor B/Price of factor B = MP of Factor C/Price of factor C
[Where MP is Marginal Productivity]

The above equation explains that a producer substitutes the factor's A, B and C until their marginal productivity become equal. Here production costs will be minimum. Such a combination of factors is known as optimum factor combination. The optimum factor combination determines how factors of production are allotted between different firms and industries.



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LAW OF SUBSTITUTION

OR PRINCIPLE OF LEAST COST COMBINATION

The objective of profit maximization can be achieved by two ways, one by increasing output and other by minimizing the cost. The minimization of cost can be possible by deciding the use of more than one resource in substitution of other resources.

The objective of factor-factor relationship is twofold:-

1) Minimization of cost at a given level of Output.

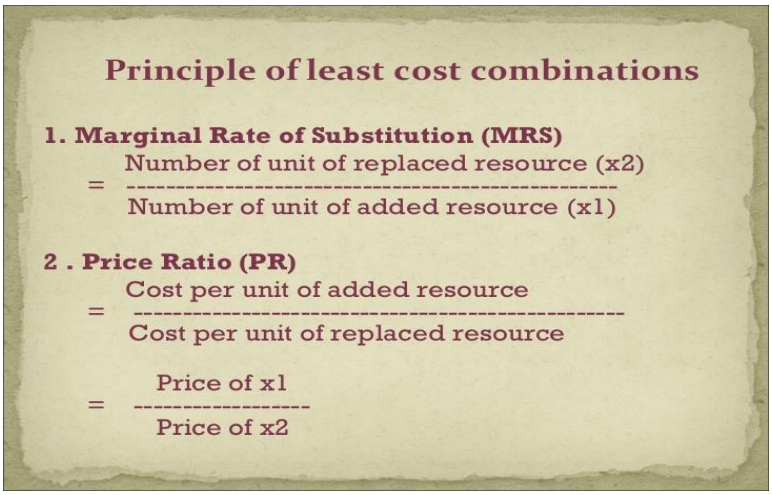
2) Optimization of output to the fixed factors through alternative resource use combinations.

$$y = f(x1, x2, x3, x4 \ldots\ldots\ldots\ldots xn)$$

Y is the function of x1 and x2 while other inputs are kept at constant. The relationship can be better explained by the principle of least cost combination.

PRINCIPLE OF LEAST COST COMBINATION

A given level of output can be produced using many different combinations of two variable inputs. In choosing between the two completing resources, the saving in the resource replaced must be greater than the cost of resource added. The principle of least cost combination states that if two factor inputs are considered for a given output the least cost combination will be such where their inverse price ratio is equal to their marginal rate of substitution.



1. Marginal Rate of substitution (MRS): MRS is defined as the units of one input factor that can be substituted for a single unit of the other input factor. So MRS of x2 for one unit of x1 is

$$MRS = \frac{\text{Number of unit of replaced resource (x2)}}{\text{Number of unit of added resource (x1)}}$$

2. Price Ratio (PR) =

$$PR = \frac{\text{Cost per unit of added resource (x1)}}{\text{Cost per unit of replaced resource (x2)}}$$

$$PR = \frac{\text{Price of x1}}{\text{Price of x2}}$$

Therefore the least cost combination of two inputs can be obtained by equating MRS with inverse price ratio.

i.e. x2 * Px2 = x1 * Px1

LEAST COST COMBINATION EXPLANATION &DIAGRAM

On the basis of given prices of factors of production and given money outlay we draw a line A, B.

The firm cannot choose and neither combination beyond line AB nor will it chooses any combination below this line. AB is known as the factor price line or cost outlay line or iso-cost line. It is an iso-cost line because it represents various combinations of inputs that may be purchased for the given amount of money allotted. The slope of AB shows the price ratio of capital and labour, *i.e.*, By combining the isoquants and the factor-price line, we can find out the optimum combination of factors. Fig. illustrates this point.

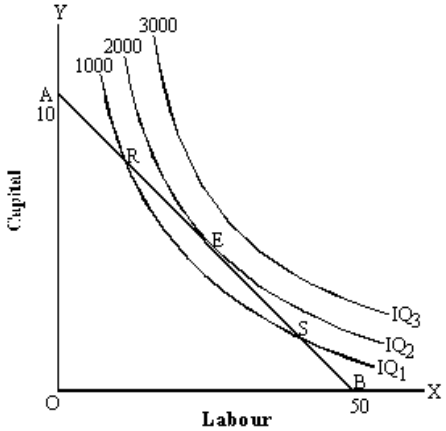


Fig. 5.10

In the Fig. equal product curves IQ_1, IQ_2 and IQ_3 represent outputs of 1,000 units, 2,000 units and 3,000 units respectively. AB is the factor-price line. At point E the factor-price line is tangent to iso-quant IQ_2 representing 2,000 units of output. Iso-qunat IQ_3 falls outside the factor-price line AB and, therefore, cannot be chosen by the firm. On the other hand, iso-quant IQ, will not be preferred by the firm even though between R and S it falls within the factor-price line. Points R and S are not suitable because output can be increased without increasing additional cost by the selection of a more appropriate input combination. Point E, therefore, is the ideal combination which maximizes output or minimizes cost per units: it is the point at which the firm is in equilibrium.

#LIMITATIONS OF PRINCIPLE OF LEAST COST COMBINATION

There are certain limitations to the principle of least cost combination.

1) All the factors of production are not perfectly divisible. Substitution of factors is not possible in the case of such factors.

2) It is not possible to estimate correctly the marginal productivity of every factor of production.

3) The producer has to determine not only the optimum combination of factors but also the optimum returns to scale. So it becomes a difficult task for him to arrive at a least cost combinations of factors.

PRODUCER EQUILIBRIUM

INTRODUCTION

PRODUCER Creator of Utility is known as a Producer. A person who converts inputs into outputs.

PROFIT The ultimate aim of any firm is to earn the maximum profit. Profit refers to the excess of revenue over cost.

Profit refers to the excess of receipts from the sale of goods over the expenditure incurred on producing them.

The amount received from the sale of goods is known as 'revenue' and the expenditure on production of such goods is termed as 'cost'. The difference between revenue and cost is known as 'profit'.

For example,if a firm sells goods for Rs. 10 crores after incurring an expenditure of Rs. 7 crores, then profit will be Rs. 3 crores. 2

Profit = TR – TC [Where R = Revenue & C = Cost]

EQUILIBRIUM Equilibrium refers to a state of rest when no change is required. A firm [Producer] is said to be in equilibrium when it has no inclination to expand or to contract its output. This state is either reflects maximum profits or minimum losses.

➢ MEANING OF PRODUCER'S EQUILIBRIUM

Equilibrium refers to a state of rest when no change is required. A firm (producer) is said to be in equilibrium when it has no inclination to expand or to contract its output. This state either reflects maximum profits or minimum losses.

The ultimate aim of any firm is to earn the maximum profit possible. Producer equilibrium is the situation of **PROFIT – MAXIMISATION.** At equilibrium, the firm has the maximum level of output being produced and earning the maximum profit out the same. It is the equilibrium level of output which the producer will produce at **MINIMUM COST**and sell to earn **MAXIMUM PROFIT.**

METHODS OF PRODUER EQUILIBRIUM

There are two methods for determination of Producer's Equilibrium:

1. Total Revenue and Total Cost Approach (TR-TC Approach)

2. Marginal Revenue and Marginal Cost Approach (MR-MC Approach)

1. Total Revenue-Total Cost Approach (TR-TC Approach):- A firm attains the stage of equilibrium when it maximises its profits, i.e. when he maximises the difference between TR and TC. After reaching such a position, there will be no incentive for the producer to increase or decrease the output and the producer will be said to be at equilibrium.
According to TR-TC approach, producer's equilibrium refers to stage of that output level at which the difference between TR and TC is positively maximized and total profits fall as more units of output are produced. So, two essential conditions for producer's equilibrium are:-

The difference between TR and TC is positively maximized;

Total profits fall after that level of output.

TR >TC (TR CURVE LIES ABOVE TC CURVE)

The first condition is an essential condition. But, it must be supplemented with the second condition. So, both the conditions are necessary to attain the producer's equilibrium.

A.Producer's Equilibrium (When Price remains Constant)

When price remains same at all output levels (like in case of perfect competition), each producer aims to produce that level of output at which he can earn maximum profits, i.e. when difference between TR and TC is the maximum. Let us understand this with the help of Table 8.1, where market price is fixed at Rs. 10 per unit:

Table 8.1: Producer's Equilibrium (When Price remains Constant):

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	Profit = TR-TC (Rs.)	Remarks
0	10	0	5	-5	Profit rises
1	10	10	8	2	with increase
2	10	20	15	5	in output
3	10	30	21	9	
4	10	40	31	9	Producer's Equilibrium
5	10	50	42	8	Profit falls with

6	10	60	54	6	increase in output

According to Table 8.1, the maximum profit of Rs. 9 can be achieved by producing either 3 units or 4 units. But, the producer will be at equilibrium at 4 units of output because at this level, both the conditions of producer's equilibrium are satisfied:

1. Producer is earning maximum profit of Rs. 9;

2. Total profit falls to Rs. 8 after 4 units of output.

In Fig. 8.1, Producer's equilibrium will be determined at P OQ level of output at which the vertical distance between TR and TC curves is the greatest. At this level of output, tangent to TC curve (at point G) is parallel to TR curve and difference between both the curves (represented by distance GH) is maximum.

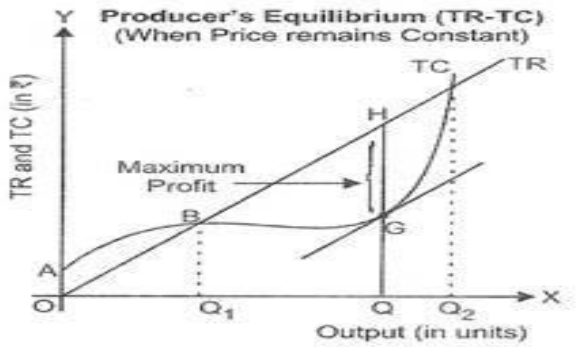


Fig. 8.1

At quantities smaller or larger than OQ, such as OQ_1 or OQ_2 units, the tangent to TC curve would not be parallel to the TR curve. So, the producer is at equilibrium at OQ units of output.

B. Producer's Equilibrium (When Price Falls with rise in output):

When price falls with rise in output (like in case of imperfect competition), each producer aims to produce that level of output at which he can earn maximum profits, i.e. when difference between TR and TC is the maximum. Let us understand this with the help of Table 8.2:

Table 8.2: Producer's Equilibrium (When Price Falls with rise in output):

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	Profit = TR-TC (Rs.)	Remarks
0	10	0	2	-2	Profit rises
1	9	9	5	4	with increase
2	8	16	9	7	in output
3	7	21	11	10	
4	6	24	14	10	Producer's Equilibrium
5	5	25	20	5	Profit falls with
6	4	24	27	-3	increase in output

As seen in Table 8.2, producer will be at equilibrium at 4 units of output because at this level, both the conditions of producer's equilibrium are satisfied:

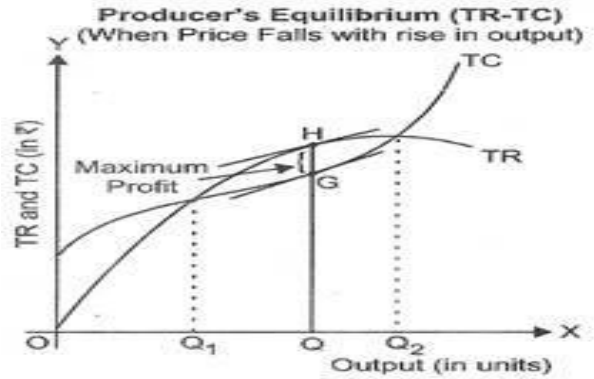


Fig. 8.2

Producer is earning maximum profit of Rs. 10;

Total profits fall to Rs. 5 after 4 units of output.

In Fig. 8.2, producer's equilibrium will be determined at OQ level of output at which the vertical distance between TR and TC curves is the greatest. At this level of output, tangent to TR curve (at point H) is parallel to the tangent to TC curve (at point G) and difference between both the curves (represented by distance GH) is maximum.

2. Marginal Revenue-Marginal Cost Approach (MR-MC Approach):

According to MR-MC approach, producer's equilibrium refers to stage of that output level at which:

1. MC = MR:-As long as MC is less than MR, it is profitable for the producer to go on producing more because it adds to its profits. He stops producing more only when MC becomes equal to MR.

2. MC is greater than MR after MC = MR output level:- When MC is greater than MR after equilibrium, it means producing more will lead to decline in profits.

Both the conditions are needed for Producer's Equilibrium:-

1. MC = MR:-We know, MR is the addition to TR from sale of one more unit of output and MC is addition to TC for increasing production by one unit. Every producer aims to maximize the total profits. For this, a firm compares it's MR with its MC. Profits will increase as long as MR exceeds MC and profits will fall if MR is less than MC.

So, equilibrium is not achieved when MC < MR as it is possible to add to profits by producing more. Producer is also not in equilibrium when MC > MR because benefit is less than the cost. It means, the firm will be at equilibrium when MC – MR.

2. MC is greater than MR after MC = MR output level:-MC = MR is a necessary condition, but not sufficient enough to ensure equilibrium. It is because MC = MR may occur at more than one level of output. However, out of these, only that output level is the equilibrium output when MC becomes greater than MR after the equilibrium.

It is because if MC is greater than MR, then producing beyond MC = MR output will reduce profits. On the other hand, if MC is less than MR beyond MC = MR output, it is possible to add to profits by producing more. So, first condition must be supplemented with the second condition to attain the producer's equilibrium.

A. Producer's Equilibrium (When Price remains Constant):- When price remains constant, firms can sell any quantity of output at the price fixed by the market. Price or AR remains same at all levels of output. Also, the revenue from every additional unit (MR) is equal to AR. It means, AR curve is same as MR curve. Producer aims to produce that level of output at which MC is equal to MR and MC is greater than MR after MC = MR output level.

Let us understand this with the help of Table 8.3, where market price is fixed at Rs. 12 per unit:

Table 8.3: Producer's Equilibrium (When Price remains Constant)

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	MR (Rs.)	MC (Rs.)	Profit = TR-TC (Rs.)
1	12	12	13	12	13	-1
2	12	24	25	12	12	-1
3	12	36	34	12	9	2
4	12	48	42	12	8	6
5	12	60	54	12	12	6
6	12	72	68	12	14	4

According to Table 8.3, MC = MR condition is satisfied at both the output levels of 2 units and 5 units. But the second condition, 'MC becomes greater than MR' is satisfied only at 5 units of output. Therefore, Producer's Equilibrium will be achieved at 5 units of output. Let us now discuss determination of equilibrium with the help of a diagram:

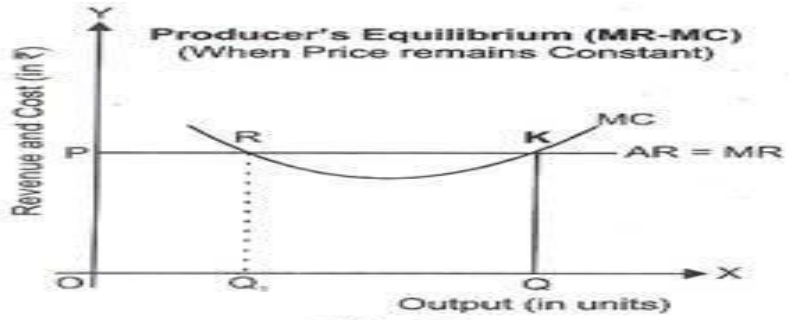


Fig. 8.3

Producer's Equilibrium is determined at OQ level of output corresponding to point K as at this point:- (i) MC = MR; and (ii) MC is greater than MR after MC = MR output level.

In Fig. 8.3, output is shown on the X-axis and revenue and costs on the Y-axis. Both AR and MR curves are straight line parallel to the X-axis. MC curve is U-shaped. Producer's equilibrium will be determined at OQ level of output corresponding to point K because only at point K, the following two conditions are met:

1. MC = MR; and

2. MC is greater than MR after MC = MR output level

Although MC = MR is also satisfied at point R, but it is not the point of equilibrium as it satisfies only the first condition (i.e. MC = MR). So, the producer will be at equilibrium at point K when both the conditions are satisfied.

Relation between Price and MC at Equilibrium (When Price remains Constant):
When price remains same at all levels of output, then Price (or AR) = MR. As equilibrium is achieved when MC = MR, it means, price is equal to MC at the equilibrium level. For, "Gross Profits are Maximum at Point of Producer's Equilibrium", refer Power Booster Section.

B. Producer's Equilibrium (When Price Falls with rise in output):-When there is no fixed price and price falls with rise in output, MR curve slope downwards. Producer aims to produce that level of output at which MC is equal to MR and MC curve cuts the MR curve from below. Let us understand this with the help of Table 8.4:

Table 8.4: Producer's Equilibrium (When Price Falls with rise in output):

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	MR (Rs.)	MC (Rs.)	Profit = TR-TC (Rs.)
1	8	8	6	8	6	2
2	7	14	11	6	5	3
3	6	18	15	4	4	3
4	5	20	20	2	. 5	0
5	4	20	26	0	6	-6

According to Table 8.4, both the conditions of equilibrium are satisfied at 3 units of output. MC is equal to MR and MC is greater than MR when more output is produced after 3 units of output. So, Producer's Equilibrium will be achieved at 3 units of output. Let us understand the determination of equilibrium with the help of a diagram:

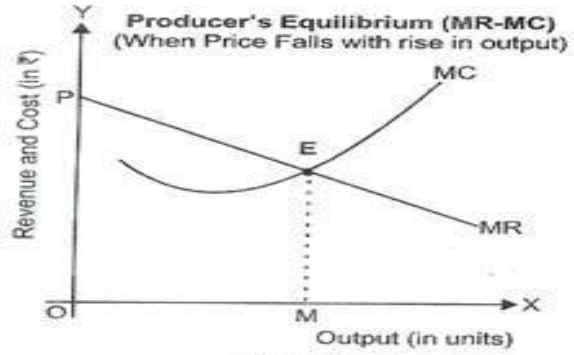


Fig. 8.4

Producer's Equilibrium is determined at OM level of output corresponding to point E as at this point: (i) MC = MR; and (ii) MC is greater than MR after MC = MR output level.

In Fig. 8.4, output is shown on the X-axis and revenue and costs on the Y-axis. Producer's equilibrium will be determined at OM level of output corresponding to point E because at this, the following two conditions are met:

1. MC = MR; and

2. MC is greater than MR after MC = MR output level.

So, the producer is at equilibrium at OM units of output.

Relation between Price and MC at Equilibrium (When Price Falls with rise in output):
When more output can be sold only by reducing the prices, then Price (or AR) > MR. As equilibrium is achieved when MC = MR, it means, price is more than MC at the equilibrium level.

RETURN TO SCALE

MEANING OF RETURN TO SCALE

Law of Returns to Scale In the long run all factors of production are variable. No factor is fixed. Accordingly, the scale of production can be changed by changing the quantity of all factors of production.

"The term returns to scale refers to the changes in output as all factors change by the same proportion." **Koutsoyiannis**

"Returns to scale relates to the behaviour of total output as all inputs are varied and is a long run concept".**Leibhafsky**

ASSUMPTIONS OF RETURN TO SCALE

1) All the factors of production are variable. (such as land, labour, capital)
2) Technology remains constant.
3) Outputs are measured in physical terms.
4) The market is perfectly competitive.

EXPLANATION OF RETURN TO SCALE

In the long run, output can be increased by increasing all factors in the same proportion. Generally, laws of returns to scale refer to an increase in output due to increase in all factors in the same proportion. Such an increase is called returns to scale.

Suppose, initially production function is as follows:-**P = f (L, K)**

Now,

1) if both the factors of production i.e., labour and capital are increased in same proportion **i.e., x,** product function will be rewritten as Production Function **P=$f(L, C)$**
2) If both factors of production labour and capital are Increased in same proportion **i.e., x,** production function will be rewritten as **P1=$f(xL, xC)$**
3) If **$P1$** increases in the same proportion as the increase in factors of production i.e. **$P1/P$ =x,** it will be constant return to scale
4) If **$P1$** increases less than the proportionate increase in the factors of production i.e. **$P1/P$<x,** it will be diminishing return to scale.
5) If **$P1$** increases more than proportionate increase in the factors of production i.e., **$P1$ /P<x,** it will be increasing return to scale.

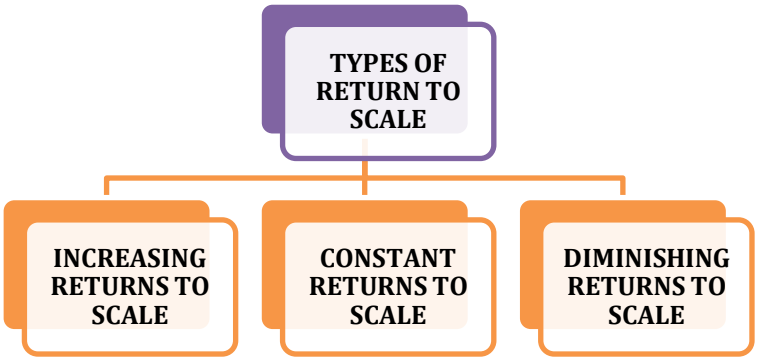
RETURN TO SCALE

S.No.	Scale	Total Product	Marginal Product	Phases
1.	1 machine + 1 labour	4	4	I
2.	2 machine + 2 labour	10	6	Increasing
3.	3 machine + 3 labour	18	8	Returns
4.	4 machine + 4 labour	28	10	
5.	5 machine + 5 labour	38	10	II Constant
6.	6 machine + 6 labour	48	10	Return
7.	7 machine + 7 labour	56	8	III Decreasing
8.	8 machine + 8 labour	62	6	Returns

EXAMPLE OF RETURN TO SCALE:-

Barry's barbershop was experiencing what it thought was overwhelming customer purchases. In one week the shop served 250 clients. To capitalize on this market, Barry hired 2 additional barbers, which gave him a total of 10 barbers. In this case the barbers were the input of resource, increased by 25%. As a result, the barbershop experienced average weekly sales of 320 for the next five weeks, an increase in output of 28%, increasing returns to scale. If instead the barbershop had made 225 sales after the increase in input, it would have experienced decreasing returns to scale.

TYPES OF RETURN TO SCALE



1. Increasing Returns to Scale:-Increasing returns to scale or diminishing cost refers to a situation when all factors of production are increased, output increases at a higher rate. **It means if all inputs are doubled, output will also increase at the faster rate than double.** Hence, it is said to be increasing returns to scale. **This increase is due to many reasons like division external economies of scale.** Increasing returns to scale can be illustrated with the help of a diagram 8.

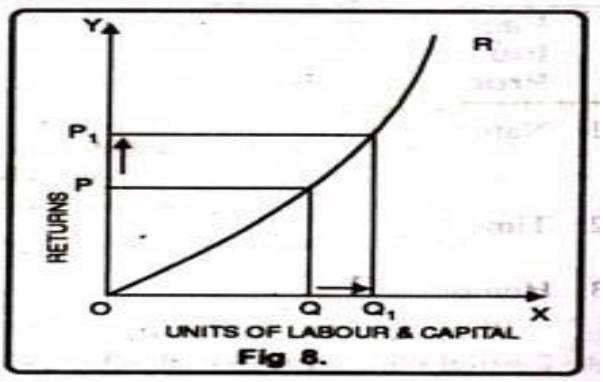


Fig 8.

In figure 8, OX axis represents increase in labour and capital while OY axis shows increase in output. When labour and capital increases from Q to Q1, output also increases from P to P1 which is higher than the factors of production i.e. labour and capital.

➢ Causes of Increasing Returns to Scale

1) Technical and managerial indivisibilities
2) Higher degree of specialization

3) Dimensional relations.

2. Constant Returns to Scale:-Constant returns to scale or constant cost refers to the production situation in which output increases exactly in the same proportion in which factors of production are increased. **In simple terms, if factors of production are doubled output will also be doubled.**

In this case internal and external economies are exactly equal to internal and external diseconomies. This situation arises when after reaching a certain level of production, economies of scale are balanced by diseconomies of scale. This is known as homogeneous production function. Cobb-Douglas linear homogenous production function is a good example of this kind.

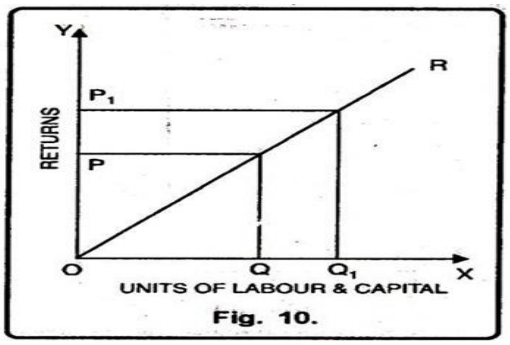


Fig. 10.

- **Causes of Constant Returns to Scale**

1) Indivisibility of fixed factors.
2) When the factors of production are perfectly divisible, the production function is homogenous of degree 1 showing constant returns to scale.

3. Diminishing Returns to Scale:- Diminishing returns or increasing costs refer to that production situation, where if all the factors of production are increased in a given proportion, output increases in a smaller proportion. **It means, if inputs are doubled, output will be less than doubled.**

For Example:-If 20 percent increase in labour and capital is followed by 10 percent increase in output, then it is an instance of diminishing returns to scale.

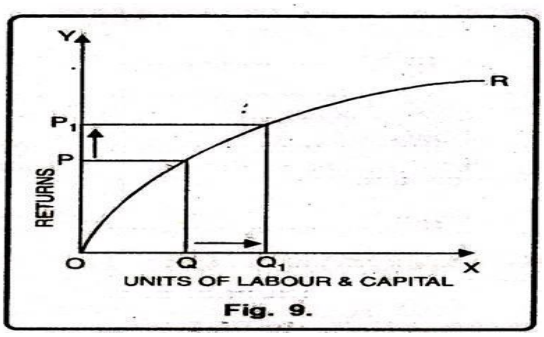


Fig. 9.

In this diagram 9, diminishing returns to scale has been shown. On OX axis, labour and capital are given while on OY axis, output. When factors of production increase from Q to Q1 (more quantity) but as a result increase in output, i.e. P to P1 is less. We see that increase in factors of production is more and increase in production is comparatively less, thus diminishing returns to scale apply.

➢ Causes of Diminishing Returns to Scale

1) Size of the firms expands, managerial efficiency decreases.
2) Limited resources.

DIFFERENCE BETWEEN LAW OF RETURN AND RETURN TO SCALE

Comparison between laws of Returns and Returns to Scale

Factors	Laws of Return	Return to Scale
Nature of inputs	Some inputs are fixed	All inputs are variable
Time Element	Short run production Function	Long run production Function
Homogeneity	Non Homogeneous production function	Homogeneous production function
Law of increasing return	Non Linear, Non Homogeneous production function	Non Linear, Homogeneous production function
Law of constant return	Linear, Non Homogeneous production function	Linear, Homogeneous production function
Law of diminishing return	Non Linear, Non Homogeneous production function	Non Linear, Homogeneous production function

THEORY OF COST

MEANING OF THEORY OF COST

CONCEPT OF COST:-Cost is defined as those expenses faced by a business in the process of supplying goods and services to consumers.

The expenses incurred in the business activity of supplying goods and services to consumers are defined as cost. In economics, the value of the price of an object or condition is the cost of production which is determined by the total cost of resources employed for producing it. The composition of the cost is the factors of production that includes labour, land, capital and entrepreneur as well as taxation.

According to Campbell,'' Production costs are those which must be received by resource owners in order to assume that they will continue to supply them in a particular time of production.''

TYPES OF COST

1) Opportunity Cost And Actual Cost:- Opportunity Cost is the loss of earnings due to lost opportunities. The opportunity cost may be defined as the loss of expected returns from the second use of the resources foregone for availing the gains from their best possible use.

Actual cost is those, which are actually incurred by the payment of labour, material, plant building, machinery, etc. The total money expenses, recorded in the books of accounts are the actual cost.

2) Direct Cost and Indirect Cost: Direct Costs are the costs that have direct relationship with a unit of operation, i.e. , they can be easily and directly identified or attributed to a particular product, operation or plant.

For Example: the salary for a branch manager is a direct cost when the branch is a costing unit.

Indirect cost is those cost whose source cannot be easily and definitely traced to a plant, a product, a process or a department. For example: Stationery, depreciation on building, decoration expenses etc.

3) Incremental Cost And Sunk Cost: Incremental cost denote the total additional cost associated with the marginal batch of output. These costs are addition to the costs resulting from a change in the nature and level of business activity.

A sunk cost is a cost that an entity has incurred, and which it can no longer recover by any means. Sunk costs should not be considered when making the decision to continue investing in an ongoing project, since these costs cannot be recovered.

For Example : A company spends $20,000 to train its sales staff in the use of new tablet computers, which they will use to take customer orders. The

computers prove to be unreliable, and the sales manager wants to discontinue their use. The training is a sunk cost, and so should not be considered in any decision regarding the computers.

4) Explicit Cost And Implicit Cost: Explicit costs are those payments that must be made to the factors hired from outside the control of the firm. They are mandatory payments made by the entrepreneur for purchasing or hiring the services of various productive factors which do not belongs to him. Such payment as rent, wages, interest, etc.

Implicit costs refers to the payment made to the self owned resources used in production. They are the earnings of owner's resources employed in their best alternatives.

5) Historical Cost And Replacement Cost: The historical cost is the actual cost of an asset incurred at the time the asset was acquired. It means the cost of plant at a price originally paid for it.

In contrast, replacement cost means the price that would have be paid currently for acquiring paid for it. So historical costs are the past costs and replacement costs are present costs.

For Example, suppose that the price of a machine in 2003 was Rs. 200000 and its present price is Rs. 500000, the actual cost of Rs. 200000 is the historical cost while Rs. 500000 is the replacement cost.

6) Urgent Cost and Postponable Cost: Urgent costs are those costs that are necessary for the continuation of the firm's activities. The cost of raw materials, labour, fuel, etc., may be **its examples which have to be incurred if production is to take place.**

The cost which can be postponed for some time, i.e., whose postponement does not effect the operational efficiency of the firm are called Postponable costs.

For example: Maintenance costs can be postponed for the time being.

7) Shut down Costs and Abandonment Costs: Shut down costs may be those which would be incurred in the event of a temporary cessation of business activities and which could be saved if operations are continued. Shut down cost, in addition to fixed cost, covers the additional expenses in looking after the property till not disposed off.

Abandonment costs on the other hand, are the cost of retiring a fixed asset from its use. If, for example, the costs related to discontinuance of a plant. Therefore, abandonment, thus involves permanent cessation of activity.

8) Fixed Costs and Variable Costs: Fixed costs are those, which are fixed in volume for a certain given output. Fixed cost does not vary with the variation in the output between zero and a certain level of output. The costs that do not vary for a certain level of output are known as fixed cost. **The fixed costs include:** i)Cost of managerial and administrative staff, ii) Depreciation of machinery iii) Maintenance of land etc.

Variable costs are those, which vary with the variation in the total output. Variable costs include cost of raw materials, direct labour charges, etc.

9) Total Cost, Average Cost, and Marginal Cost:

Total Cost (TC) represents the value of the total resources requirements for the production of goods and services.

Average Costs (AC) It is obtained by dividing the total costs (TC) by the total output (Q), i.e. AC= TC/Q

Marginal Costs (MC) is the addition to the total cost on account of producing and additional unit of the product or, marginal cost is the cost of marginal unit produced. It may be defined as: MC= TC/ Q

10) Short Run Costs and Long Run Costs: Short run cost is the cost, which vary with the variations in output, the size of the firm remains the same.

Long run cost, in the other hand, are the cost, which are incurred on the fixed asset, like plant, building, etc. such costs have long run implications, the long run simply refers to a period of time during which all inputs can be varied.

COST FUNCTION

The concept of cost function refers to mathematical relation between cost of a product and the various determinants of cost. In cost function the dependent variable is unit cost or total cost and the independent variable are the price of factor, the size of the output or nay other relevant phenomenon.

$$C = f(O, S, T, P, \ldots)$$

C = Cost O = Level of Output S = Size of Plant T = Time under Consideration P = Price of the factor of production

DETERMINANTS OF COST FUNCTION

1. Level of Output: There is positive relationship between total output and total cost. As the output increases the total cost also increases. The cost may rise or fall by different rates in different periods of time.

2. Size of Plant: Size of plant or scale of operation is inversely related to cost. As the scale of operation increases the cost declines but only up to a certain point.

3. Price of Inputs: The cost also depends on the price of factors of production. Any increase in prices of input will also increase the cost.

4. Managerial Efficiency: Managerial efficiency has direct bearing on cost function. With the increase inefficiency the cost declines and productivity increases, and economies the cost.

5. State of Technology: State of technology also influences the cost. Better the technology better is the technological efficiency. How best we can produce with the available technology determines the level of costs.

6. Time under Consideration:

COST OUTPUT RELATIONSHIP

The theory of cost deals with the behaviour of cost in relation to change in output. In other words, the cost theory deals with the cost output relationship.

The basic principle of the cost behaviour is that the total cost increases with the increase in output. But the specific form of cost function depends on whether the time framework chosen for cost analysis is short – run or long – run. It is important to know that some costs remain constant in the short run while all costs are variable in the long run.

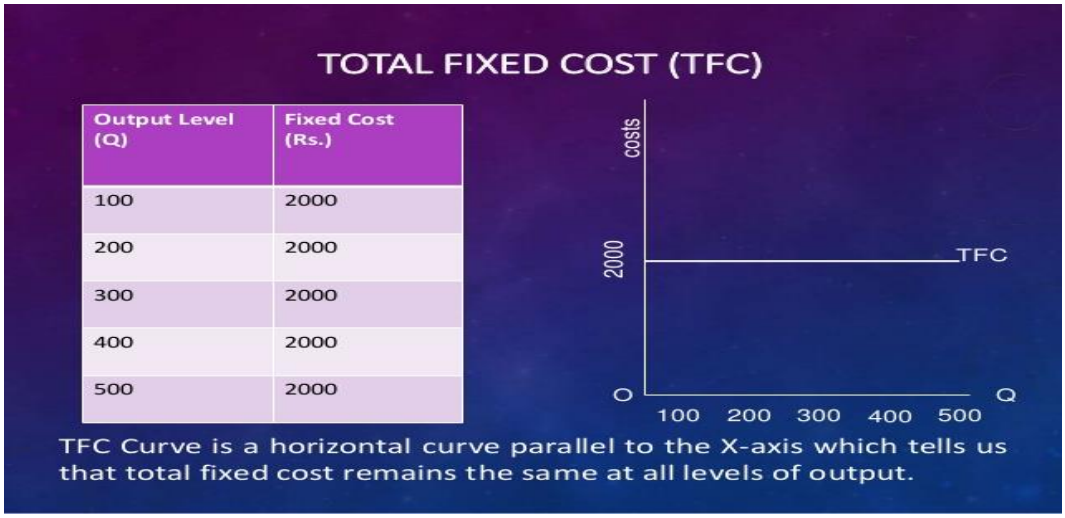
I. COST OUTPUT RELATIONSHIP IN THE SHORT - RUN

Short run is the period wherein only some of the factors are held constant and some are variable. Therefore, the costs associated with both fixed and variable inputs form part of the short period costs.

Short – Run Total Cost:- TC = TFC + TVC

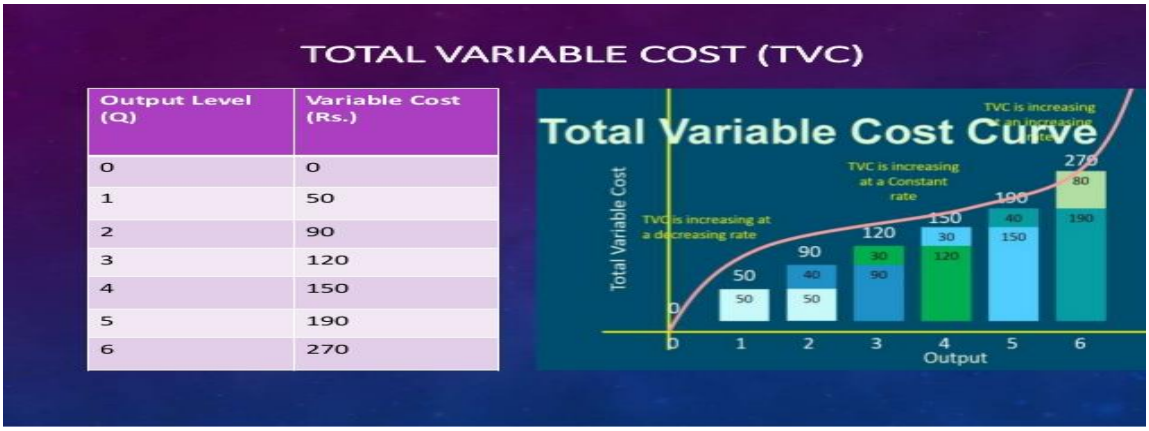
The costs which are found in the short period:
1) Total Fixed Cost
2) Total Variable Cost
3) Total Cost
4) Average Cost: - a) Average Variable Cost b) Average Fixed Cost c) Average Total Cost 5) Marginal Cost

1. TOTAL FIXED COST (TFC):-Total fixed cost is the sum of fixed cost which remains same irrespective of the level of output. This is the expenditure incurred by the firm on the fixed factors of production.
For example, the money incurred on land, building, machinery, etc. remains the same whatever is the amount of output.
They are also called Overhead Costs.



2. TOTAL VARIABLE COST (TVC):- Total variable costs are those costs of production that change directly with output. They rises when output increases, and falls when output declines. If there is no output the total variable cost will be zero. They include expenses on raw materials, power, taxes, advertising, etc.

Marshall has called variable cost as 'Prime Cost' or 'Avoidable Cost'.



In the short run cost diagram shows that total variable cost varies directly with the volume of output. TVC curve starts from the origin, upto a certain range it remains concave from below and then it becomes convex. If taken from a different angle we can say that initially the variable cost rises but with diminished rate and later the variable cost rises with increased rate. This makes the TVS curve inversely S-shaped.

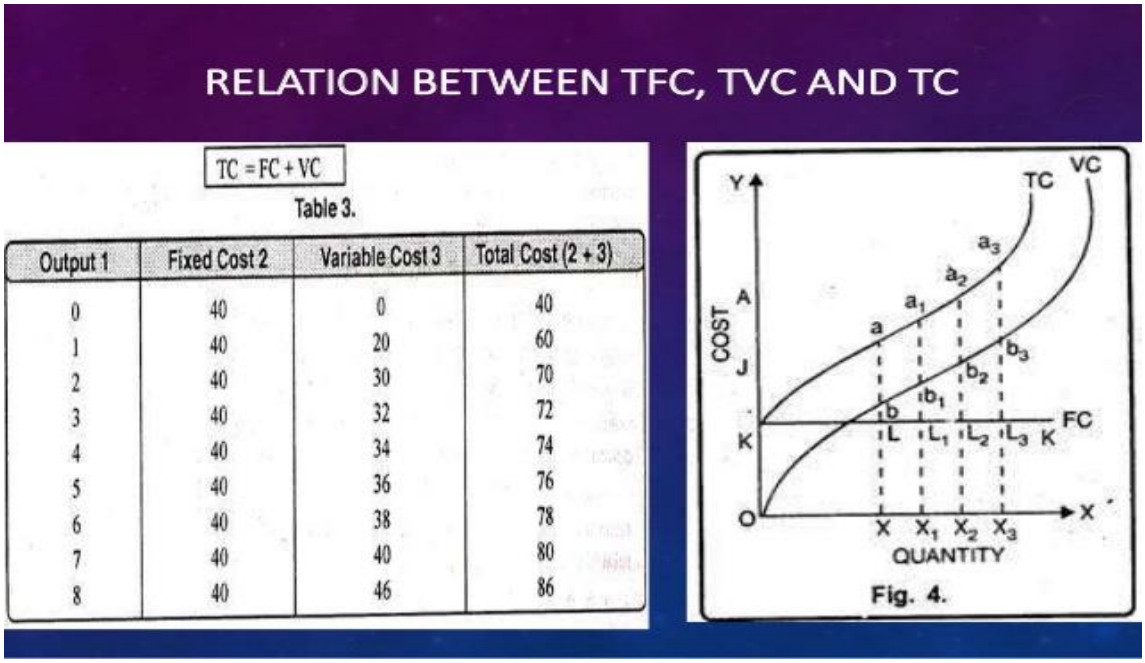
3. TOTAL COST (TC):-Total costs are the total expenses incurred by a firm in producing a given quantity of a commodity. When we add TFC and TVC it becomes total cost (TC).

They include payment for rent, interest, wages, and expenses on raw materials, electricity, water, etc.

RELATION BETWEEN TFC, TVC AND TC

In order to determine the total costs of a firm, we aggregate fixed as well as variable costs at different levels of output i.e.

1) TC = TFC + TVC
2) TFC = TC – TVC
3) TVC = TC – TFC



In the figure TFC is parallel to X-axis. This curve starts from the point on the Y-axis meaning thereby that fixed cost will be incurred even if the output is zero.

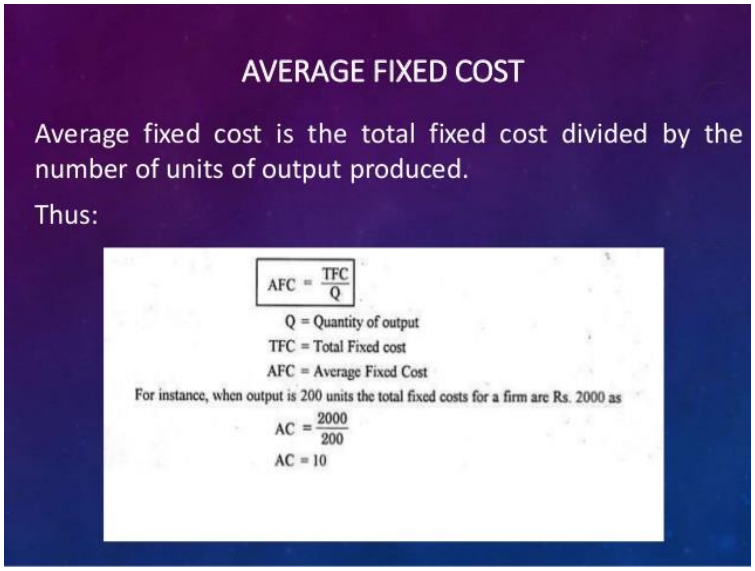
On the other hand, total variable cost curve rises upward showing thereby that as output increases, total variable cost also increases. This curve starts from the origin which shows that when the output is zero, variable costs are also nil.

The total cost curve has been obtained by adding vertically total fixed cost curve and total variable cost.

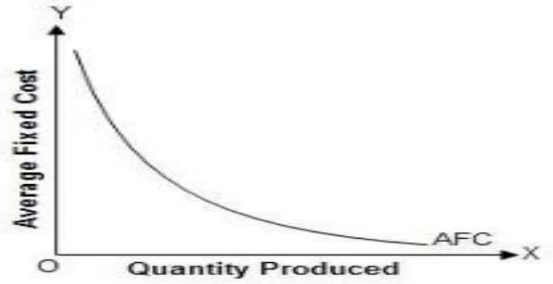
4. AVERAGE COST:- The concept of average cost is more relevant from the point of view of a firm because per unit cost helps in explaining the pricing of a product in a better way rather than the total cost.

The concept of average cost is divided in to two"
(a) Average Fixed Cost
(b) Average Variable Cost

(a) AVERAGE FIXED COST:- Average fixed cost is the total fixed cost divided by the number of units of output produced. Thus:-



Since, total fixed cost is a constant quantity, average fixed cost will steadily fall as output increases, thus, the average fixed cost curve slopes downward throughout the length.

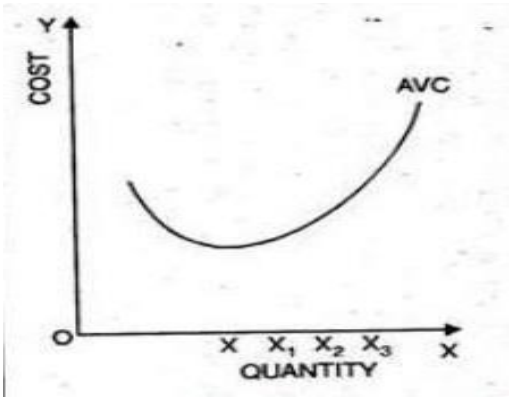


In Figure the average fixed cost curve slopes downward with a view to touch the horizontal axis. But it will not be so because AFC can never be zero. Thus, it is clear that as output increases, average fixed costs go on diminishing.

(b) AVERAGE VARIABLE COST:- Average variable cost is the total variable cost divided by the number of units of output produced.

AVC = TVC / Q

AVC = Average variable costs.
TVC = Total variable costs
Q = Output
Generally, the AVC falls as output increases from zero to the normal capacity output due to the law of increasing returns. But beyond the normal capacity output, the AVC will rise steeply because of the operation of the law of diminishing returns.



In Figure the average variable cost curve assumes the U- shape. Initially, the AVC curve falls, after having the minimum point the curve starts rising.

AVERAGE TOTAL COST/ AVERAGE COST:- "The average cost of production is the total cost per unit of output." In other words average cost of production is the total cost of production divided by the total number of units produced.

Suppose, the total cost of producing 500 units is Rs. 1000,

the average cost will be:- **AC=TC/Q**

AC=1000/500= 2

AVERAGE TOTAL COST/ AVERAGE COST

Average cost, average fixed cost can be shown with the help of a table 5.

Table 5.

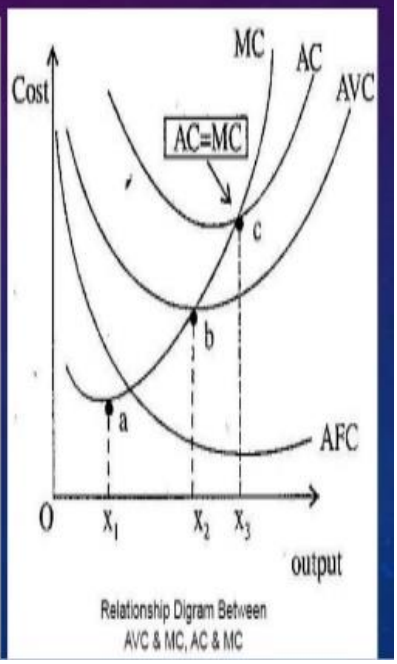
Units	TFC	TVC	TC	AC $\left(\frac{TC}{q}\right)$	AFC $\left(\frac{TFC}{q}\right)$	AVC $\left(\frac{TVC}{q}\right)$
0	40	0	40	0	0	0
1	40	20	60	60	40	20
2	40	30	70	35	20	15
3	40	32	72	24	13.3	10.7
4	40	34	74	18.5	10.0	8.5
5	40	36	76	15.2	8	7.2
6	40	38	78	13.0	6.6	6.3
7	40	40	80	11.4	5.7	5.7
8	40	46	86	10.7	5.0	5.7
9	40	48	88	9.8	4.4	5.4

$AC = \frac{TC}{q}$ Or AFC + AVC

$AFC = \frac{TFC}{q}$

$AVC = \frac{TVC}{q}$

TC = TFC + TVC



Relationship Digram Between AVC & MC, AC & MC

5. MARGINAL COST: -Marginal cost is an addition to the total cost caused by producing one more unit of output. For instance, the total cost for the production of 100 units is Rs. 5000. Suppose the production of one more unit costs Rs. 5000. It will be called the marginal cost.

where MC = Marginal cost
TC_n = total cost of 'n' units
TC_{n-1} = Total cost of $n-1$ units
ΔTC = Change in total cost
ΔQ = Change in output.

"Marginal cost is the addition to total cost due to the addition of one unit of output." –Ferguson

"Marginal cost at any level of output is the extra cost for producing one extra unit more or less." –Samuelson

The derivation of MC can be studied with the help of a table 6.

Table 7.

Units of Output	TC = TFC + TVC	MC = $(TC_n - TC_{n-1})$
1	60	–
2	70	10
3	76	6
4	78	2
5	84	6
6	90	6
7	108	18
8	130	22

From this table, we can draw the following conclusions :

(*i*) TC increases at diminishing rate upto 4 units.

(*ii*) TC increases at constant rate *i.e.* 4th to 5th unit.

(*iii*) TC increases at an increasing rate *i.e.* from 6th unit onwards.

In Figure 8 output has been measured on X-axis and costs on Y-axis. MC is marginal cost curve. It is also of U-shape which signifies the fact that as output is increased initially MC curve falls. The MC curve reaches the minimum point after that it starts rising in upward direction. It is only on account of this reason that MC curve is also of U-shape.

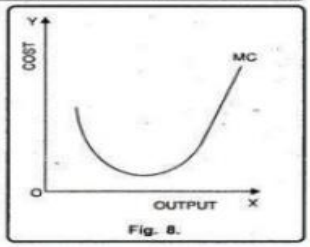


Fig. 8.

II. COST OUTPUT RELATIONSHIP IN LONG - RUN

Long run means time period long enough to make the entire productive factors variable In the long run all factors of production become variable. The entrepreneur has number of choices to change the plant size and level of output. The long run cost curve is also known as planning curve. The long run average cost curves is derived from short run average cost curves.

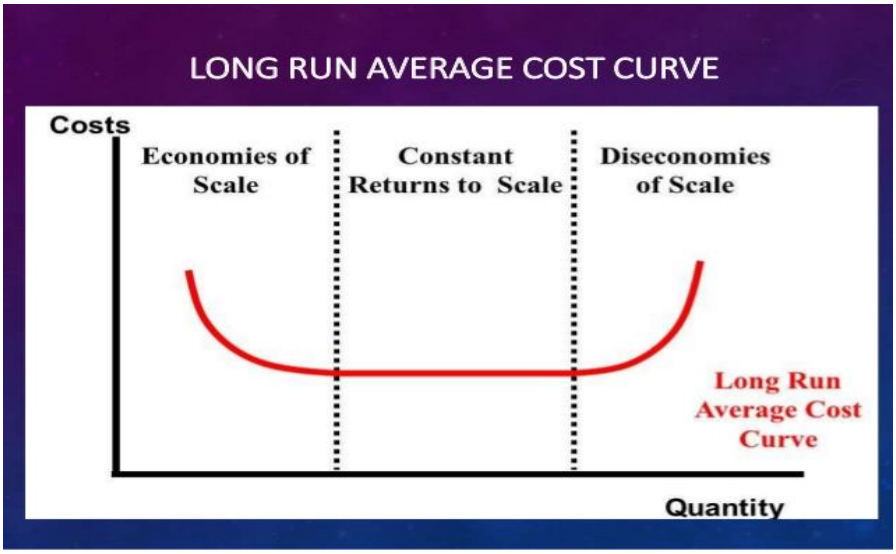
Long run average cost is also known as :-

1) Envelope Cost: It is also known as "envelope cost" because it encloses all short run average cost curves. The curve is created as an envelope of an infinite number of short-run average total cost curves.

2) Planning Curve: With the help of this curve a firm can plan as to which plant it should use to produce different quantities, so that production is obtained at the minimum cost.

The LRAC curve is U-shaped, reflecting economies of scale when it is negatively-sloped and diseconomies of scale when it is positively sloped.

In some industries, the LRAC is L-shaped, and economies of scale increase indefinitely. Initially the long-run average cost rapidly falls but after a point it remains flat throughout or at its right-hand end it may even slope gently downward.



LONG RUN AVERAGE COST CURVE

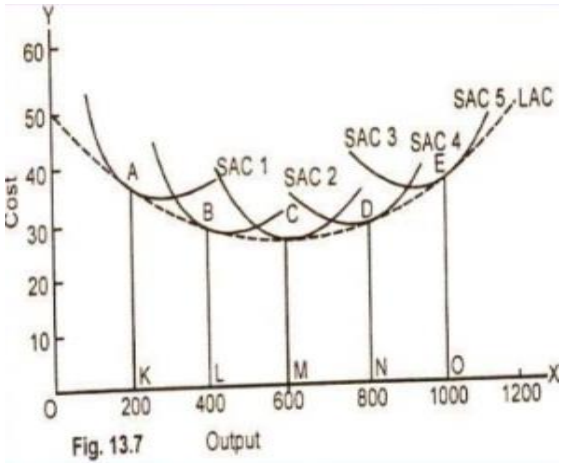


Fig. 13.7

if the anticipated rate of output is 200 units per unit of time, the firm will choose the smallest plant It will build the scale of plant given by SAC1 and operate it at point A. This is because of the fact that at the output of 200 units, the cost per unit is lowest with the plant size 1 which is the smallest of all the four plants.

In case, the volume of sales expands to 400, units, the size of the plant will be increased and the desired output will be attained by the scale of plant represented by SAC2 at point B.

If the anticipated output rate is 600 units, the firm will build the size of plant given by SAC3 and operate it at point C where the average cost is $26 and also the lowest The optimum output of the firm is obtained at point C on the medium size plant SAC3.

If the anticipated output rate is 1000 per unit of time the firm would build the scale of plant given by SAC5and operate it at point E.

If we draw a tangent to each of the short run cost curves, we get the long average cost (LAC) curve. The LAC is U-shaped but is flatter than tile short run cost curves. Mathematically expressed, the long-run average cost curve is the envelope of the SAC curves.

In this figure , the long-run average cost curve of the firm is lowest at point C. CM is the minimum cost at which optimum output OM can be, obtained.

MODERN THEORY OF COST

MODERN THEORY OF COST

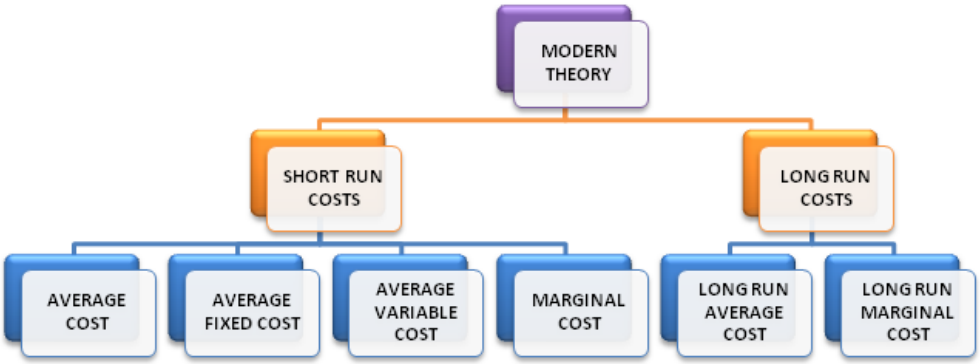
Modern economists including Stigler, Andrews and Friedman have questioned the validity of U-shaped cost curves both theoretical as well as on empirical grounds. Also the long run costs in modern theory are not U- shaped but L-shaped.

The Modern theory suggests the existence of 'built- in- reserve capacity 'which imparts flexibility and enables the plant to produce larger output without adding to the costs. Built –in- reserve capacity are planned by firms.

The short-run cost curve has a saucer- type shape whereas the long-run Average cost curve is either L-Shaped or inverse J-shaped.

The Modern theory of cost stresses on the role of economies of scale, which significantly enables the firm to continue production at the lowest point of average cost for a considerable period of time. The firm checks dis-economies of scale by planning in advance and enjoys the gains of production in comparison to the traditional theory where the average cost rises after the firm reaches the optimal level of output.

TYPES OF COSTS AS PER MODERN THEORY



A. SHORT RUN COST UNDER MODERN THEORY

1. **AVERAGE FIXED COST:-** The fixed costs include the costs for:-
   1. The salaries and other expenses of administrative staff.
   2. The wear and tear of machinery.
   3. The expenses for maintenance of building.
   4. The expenses for the maintenance of land on which the plant is installed or operates.

As in the traditional theory of cost, the average fixed costs in modern microeconomics, also plots as a rectangular hyperbola. This is shown as follows:

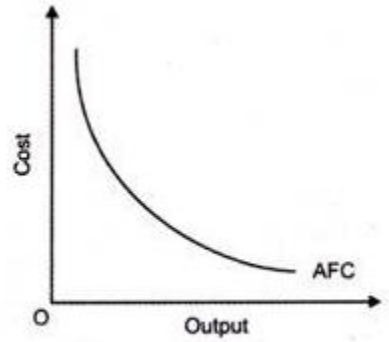
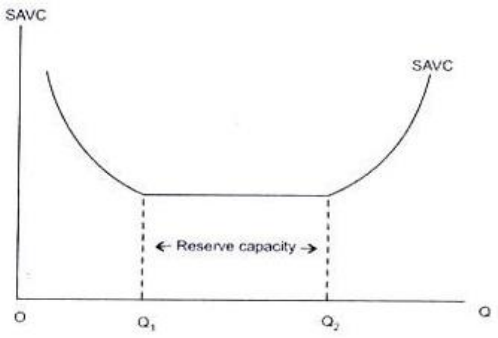


Figure-6: AFC Curve

2. **AVERAGE VARIABLE COST:-**In modern theory, Average variable cost is not U shaped rather it is saucer shaped and has a flat stretch over a range of output. This flat stretch represents the 'built in reserve capacity' of the firm to meet seasonal and cyclical changes in the demand. The average variable cost curve is as follows:



3. **AVERAGE COST:-**The short-run Average costs consist of the Average fixed costs and Average variable costs. The short-run average variable cost curve at each level of output. The smooth and continuous fall in the average cost curve is due to the fact that the AFC curve is a rectangular hyperbola and the AVC curve first falls and then becomes horizontal within the range of reserve capacity. Beyond that it starts rising steeply. The curve of average cost is as follows:

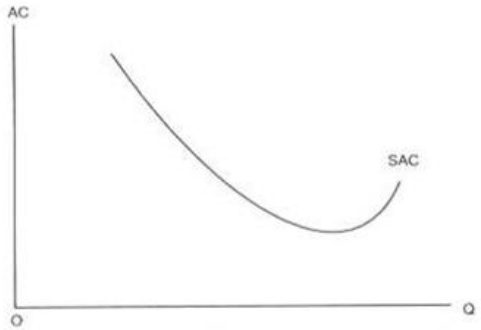


Fig. 5.13: *The short run AC in the modern theory of costs.*

4. MARGINAL COST:-Another concept to learn in short-run average costs is Marginal Cost. Marginal cost is the addition made to the cost of production by producing an additional unit of the output. In simpler words, it is the total cost of producing t units instead of t-1 units.

Let's look at an example to understand this better:

A firm produces 5 units at a total cost of Rs. 200. For some reasons, it is required to produce 6 units instead of 5 and the total cost is Rs. 250. Therefore, the marginal cost is Rs. 250 – Rs. 200 = Rs. 50.

A note about marginal costs: It is independent of fixed costs. This is because fixed costs do not change with the output. On the other hand, in the short run, the variable costs change with the output. Hence, marginal costs are due to changes in variable costs. Therefore,

MC=ΔTCΔQMC=ΔTCΔQ… where ΔTC is the change in the total cost and ΔQ is the change in the output. This equation can also be written as:

$MC_n = TC_n – TC_{n-1}$

In the Fig. 1 above, you can see that the MC curve falls as the output increases in the beginning and starts rising after a certain level of the output. This is because of the influence of the law of variable proportions. Since the marginal product rises first, reaches a maximum and then declines, the marginal costs decline first, reaches its minimum and then rises.

The following table outlines the behaviour of all these costs:

Units of output	Total fixed cost	Total variable cost	Total Cost	Average fixed cost	Average variable cost	Average total cost	Marginal cost
0	150	0	150	–	–	–	–
6	150	50	200	25.0	8.33	33.33	50/6 = 8.33
16	150	100	250	9.38	6.25	15.63	50/10 = 5.0
29	150	150	300	5.17	5.17	10.34	50/13 = 3.85
44	150	200	350	3.41	4.55	7.95	50/15 = 3.33

55	150	250	400	2.73	4.55	7.27	50/11 = 4.55
60	150	300	450	2.50	5.0	7.50	50/5 = 10.0

From the table, we can make the following observations:

1. Since the fixed cost does not change with the output, the average fixed cost decreases as the output increases.
2. The average variable cost does not always increase in proportion to an increase in the output.
3. Marginal costs also come down until 44 units are produced after which they start rising.

B. LONG RUN COST UNDER MODERN THEORY

1. **LONG RUN AVERAGE COST:-**Modern economists divide long run costs into production costs and managerial costs/ In the long run, all costs are variable and they given rise to a long run average cost curve which is roughly L-shaped. This curve rapidly slopes downwards in the beginning but later remains flat or slopes gently downwards at its right-hand cost. The long run average cost curve is as follows:

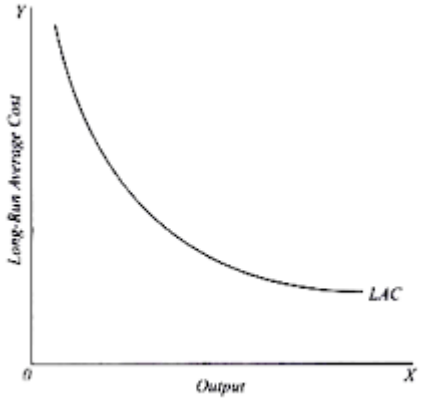
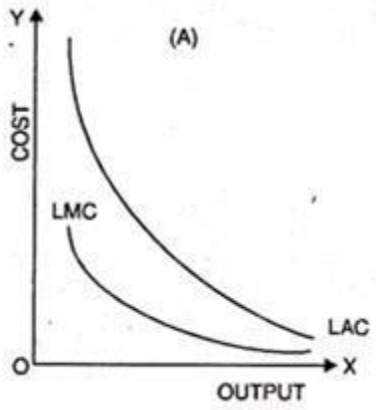


Fig. 19.17. L-Shaped Long-Run Average Cost Curve

The Long run average costs curve has two main features:-

1. It does not rise at every large scale of output.
2. It does not envelope the Short run Average Cost but intersects them.

2. **LONG RUN MARGINAL COST:-**According to modern theory, shape of long-run marginal cost curve corresponds to the shape of long-run average cost curve. The given figure shows that when LAC is L- shaped and LAC curve is falling then LMC curve will also be falling and its falling portion will be below the falling portion of LAC curve.



RELATION BETWEEN PRODUCTION AND COST

The economists frequently assumes that the problem of optimum input combinations has been solved and conducts his analysis of the firm in terms of its revenues and costs expressed as functions of output. The cost function of the firm gives the functional relationship between total cost and total output. If C represents total cost and Q represents the level of the output, then the cost functions is represented as C=C (Q). The same level of output can be produced with the help of different cost combinations. The cost function gives the least cost combinations for the production of different levels of output.

Cost functions are derived functions. They are derived from the production functions, which describes the available efficient methods of production at any particular point of time. The cost function can be deduced from the inputs combinations of the firm. The input prices of the two inputs of production labor (L) and capital (K) are given to be constant as the wage rate and rent (r), respectively. If L and K are the amounts of the two inputs that are used for the production of the output level Q, the firm will always select those combinations of the two inputs, which lie on the expansion path. Along any expansion path the level of output increases as we gradually depart from the origin. Within the non-inferior zone of the factors of production, their total employment will also increase as we move along the expansion path. Therefore we can say that along any expansion path the demand for any factor of production will depend on the level of output to be produced. So, if L and K are the amounts of the factors of production and Q is the level of output then it can be said that L and K are functions of Q.

That is,

$L = g_1(Q)$
And, $K = g_2(Q)$
Now, following the equation of the costs line, the total cost (C) for producing the output level Q is given by

$C = L.w + K.r$

or $C = w.g_1(Q) + r.g_2(Q)$
or $C = C(Q)$.

Since, w and r are constant C is only a function of Q. This function is called the total cost functions of the firm. The function shows that the total cost of the firm depends on the output to be produced. The costs function is deduced from the expansion path of the firm.

The cost function derived from the expansion path of the firm represents the cost function in its long run nature as in this case we have assumed that both the factors of production are variable.

A firm's cost curves are linked to its product curves. Overt the range of rising marginal product marginal; cost if falling. When marginal product is a maximum, marginal; cost is a minimum. Over the rang4e of rising average product, average variable cost is falling. When average product is a maximum, average variable cost is a minimum. Over the range of diminishing marginal product, marginal cost is rising. And over the range of diminishing marginal product, average variable cost is rising.

IMPORTANT QUESTIONS:-

➢ Short Questions (2 marks)

Q1. Productivity and Technology.

Q2. Define Production Function.

Q3. Define Return to Scale?

Q4. Define Producer Equilibrium?

Q5. Isoquant.

Q6. Average Cost.

Q7. Marginal Cost.

Q8. Total Cost.

Q9. Define Cost.

Q10. Relationship Between TC,AC and MC.

➢ Long Questions (10 marks)

Q1:-What Is Production Function? Discuss Its Features, Classification & Why Production & Technology Is Important?

Q2:-Define Isoquant Curve? Explain Its Properties & Limitations?

Q3:-Define Producer Equilibrium? Discuss Its Conditions & Methods?

Q4:-Write The Detailed Note On Least Cost Combination Of Production Function?

Q5:-Define Return To Scale? Discuss Its Types & Difference Between Laws Of Return & Return To Scale?

Q6:- Define Theory Of Cost? Explain Its Types & Determinants?

Q7:- Define Modern Theory? Discuss Its Types & Importance?

Q8:- Discuss Relationship Between Cost And Production Function?

UNIT-III

REVENUE

MEANING OF REVENUE

The amount of money that a producer receives in exchange for the sale proceeds is known as revenue.

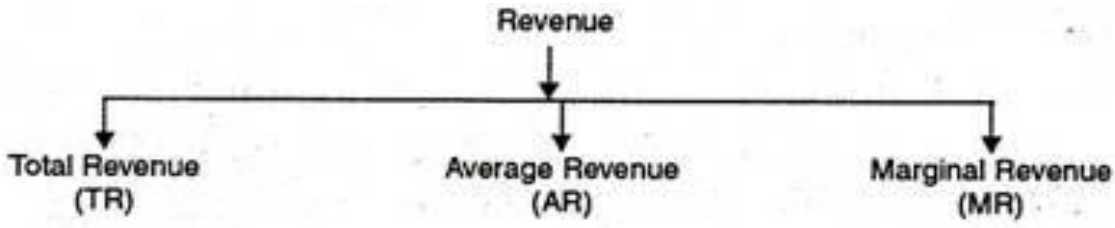
For example, if a firm gets Rs. 16,000 from sale of 100 chairs, then the amount of Rs. 16,000 is known as revenue.

Revenue refers to the amount received by a firm from the sale of a given quantity of a commodity in the market. Revenue is a very important concept in economic analysis. It is directly influenced by sales level, i.e., as sales increases, revenue also increases.

FEATURES OF REVENUE

1) Revenue arises from the normal trading activities of a business.
2) Revenue eventually creates an inflow of funds into the business.
3) Revenue is measured in monetary terms.
4) Revenue must be allocated to a particular accounting period.
5) Revenue is earned as a result of revenue generating activities typically expressed as expenses.

 # CONCEPT OF REVENUE:- The concept of revenue consists of three important terms; Total Revenue, Average Revenue and Marginal Revenue.



1. **Total Revenue (TR):-** Total Revenue refers to total receipts from the sale of a given quantity of a commodity. It is the total income of a firm. Total revenue is obtained by multiplying the quantity of the commodity sold with the price of the commodity.

Total Revenue = Quantity × Price

For example, if a firm sells 10 chairs at a price of Rs. 160 per chair, then the total revenue will be: 10 Chairs × Rs. 160 = Rs 1,600

2. **Average Revenue (AR):**- Average revenue refers to revenue per unit of output sold. It is obtained by dividing the total revenue by the number of units sold.

Average Revenue = Total Revenue/Quantity

For example, if total revenue from the sale of 10 chairs @ Rs. 160 per chair is Rs. 1,600, then:

Average Revenue = Total Revenue/Quantity

AR= 1,600/10 = Rs 160

AR and Price are the Same:- We know, AR is equal to per unit sale receipts and price is always per unit. Since sellers receive revenue according to price, price and AR are one and the same thing.This can be explained as under:

TR = Quantity × Price ... (1)

AR = TR/Quantity …… (2)

Putting the value of TR from equation (1) in equation (2), we get

AR = Quantity × Price / Quantity

AR = Price

AR Curve and Demand Curve are the Same:- A buyer's demand curve graphically represents the quantities demanded by a buyer at various prices. In other words, it shows the various levels of average revenue at which different

quantities of the good are sold by the seller. Therefore, in economics, it is customary to refer AR curve as the Demand Curve of a firm.

3. **Marginal Revenue (MR):-** Marginal revenue is the additional revenue generated from the sale of an additional unit of output. It is the change in TR from sale of one more unit of a commodity.

MRn = TRn-TRn-1

Where:

MRn = Marginal revenue of nth unit;

TRn = Total revenue from n units;

TR n-1 = Total revenue from (n – 1) units; n = number of units sold

For example, if the total revenue realised from sale of 10 chairs is Rs. 1,600 and that from sale of 11 chairsis Rs. 1,780, then MR of the 11th chair will be:

MR11 = TR11 – TR(11-1=10)
MR11=TR11-TR10

MR11 = Rs. 1,780 – Rs. 1,600 = Rs. 180

One More way to Calculate MR:

We know, MR is the change in TR when one more unit is sold. However, when change in units sold is more than one, then MR can also be calculated as:

MR = Change in Total Revenue/ Change in number of units = ΔTR/ΔQ

Let us understand this with the help of an example: If the total revenue realised from sale of 10 chairs is Rs. 1,600 and that from sale of 14 chairs is Rs. 2,200, then the marginal revenue will be:

MR = TR of 14 chairs – TR of 10 chairs / 14 chairs -10 chairs = 600/4 = Rs. 150

TR is summation of MR:

Total Revenue can also be calculated as the sum of marginal revenues of all the units sold.

It means, TRn = MR1 + M2 + MR3 + …….MRn

or, TR = ∑MR

The concepts of TR, AR and MR can be better explained through Table 7.1.

Table 7.1: TR, AR and MR:

Units Sold (Q)	Price (Rs.) (P)	Total Revenue (Rs.) TR = Q x P	Average Revenue (Rs.) AR = TR+Q = P	Marginal Revenue (Rs.) MRn=TRn-TRn-1
1	10	10=1×10	10 =10 + 1	10 =10-0
2	9	18 =2×9	9 =18 + 2	8 =18-10
3	8	24 =3×8	8 =24 + 3	6 =24-18
4	7	28 = 4×7	7 =28 + 4	4 =28-24
5	6	30 = 5×6	6 =30 + 5	2 =30-28
6	5	30 = 6 x 5	5 =30 + 6	0 =30-30
7	4	28 = 7×4	4 =28 + 7	-2 =28-30

SHAPES OF REVENUE CURVE

1. **Total Revenue curve:-** TR is obtained by multiplying amount of output sold by the given price determined in the market by intersection of market demand and market supply curve.

i.e. TR = Q × P
Where, Q= amount of product sale
P= Market Price which is constant.
TR increases at the same rate because, every additional unit of the commodity is sold at the same price. In this type of market firms are price taker not price maker.

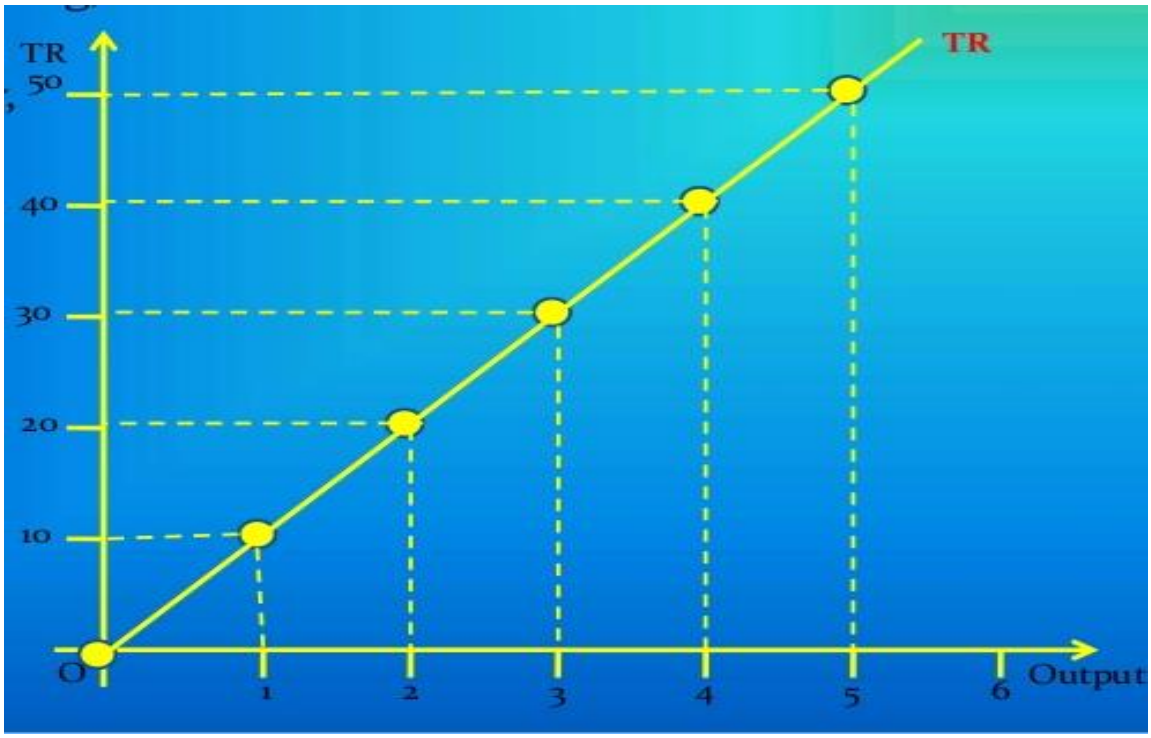
It can be explained with the help of following table and graph.

Total Revenue Under Perfect Competition

Units of Output (Q)	Per Unit Price (P)	Total Revenue (TR)
0	10	0
1	10	10
2	10	20
3	10	30
4	10	40
5	10	50

In above table total revenue (TR) is obtained by multiplying output (Q) and Price (P). When output is zero TR also zero. TR is Rs. 10, 20, 30, 40 and 50for the 1, 2, 3, 4 and 5 units of sale respectively, where price is constant at Rs. 10.

In the above table as increase in sell of output total revenue also increasing, but the rate of increase in total revenue is constant.



2. **Average Revenue curve:-** Average Revenue (AR):Per unit revenue obtained by a seller by selling product at market price in the market in certain time period is known as AR for that time period of that seller or producer.

It is calculated by dividing total revenue (TR) by corresponding quantity sold (Q) in the market at market price (P).

i.e. AR = TR/Q

i.e. AR =(P×Q)/Q

i.e. AR = P

Therefore, another name of AR is the average market price of the product. Since, price is constant in perfect competition market and hence, AR is also constant .

It can be explained with the help of following table;

Average Revenue Under Perfect Competition

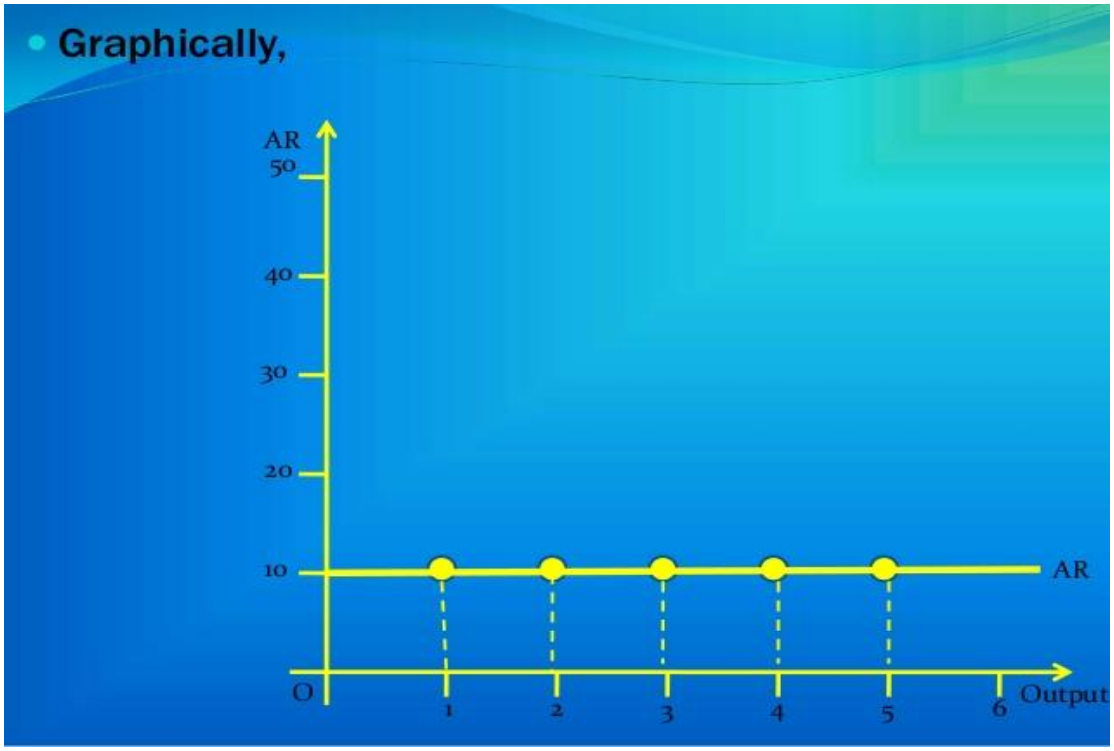
Units of Output (Q)	Per Unit Price (P)	Total Revenue (TR)	Average Revenue (AR) = TR/Q
0	10	0	-
1	10	10	10
2	10	20	10
3	10	30	10
4	10	40	10
5	10	50	10

In the above table as increase in sells of output of the product Average Revenue (AR) remains constant i.e. Rs. 10 for first unit to fifth unit of output.

Above information shows that AR is constant and equal to the price for all level of output.

In the following figure average revenue curve is found by plotting the combination of points of the quantity sold on the horizontal axis and corresponding AR on the vertical axis.

AR curve is a horizontal straight line at the different level of output sold at given price. It shows that AR is constant and equal to the price for all level of output, i.e. AR = P.



3. **Marginal Revenue curve:-** Marginal revenue is the change in total revenue in response to the change in quantity sold. It is calculated by dividing the change in total revenue (ΔTR) by the change in quantity sold (ΔQ).

In case of perfectly competitive market marginal revenue (MR) remains constant and equal to the market price for all level of output sold, i.e. MR = P.

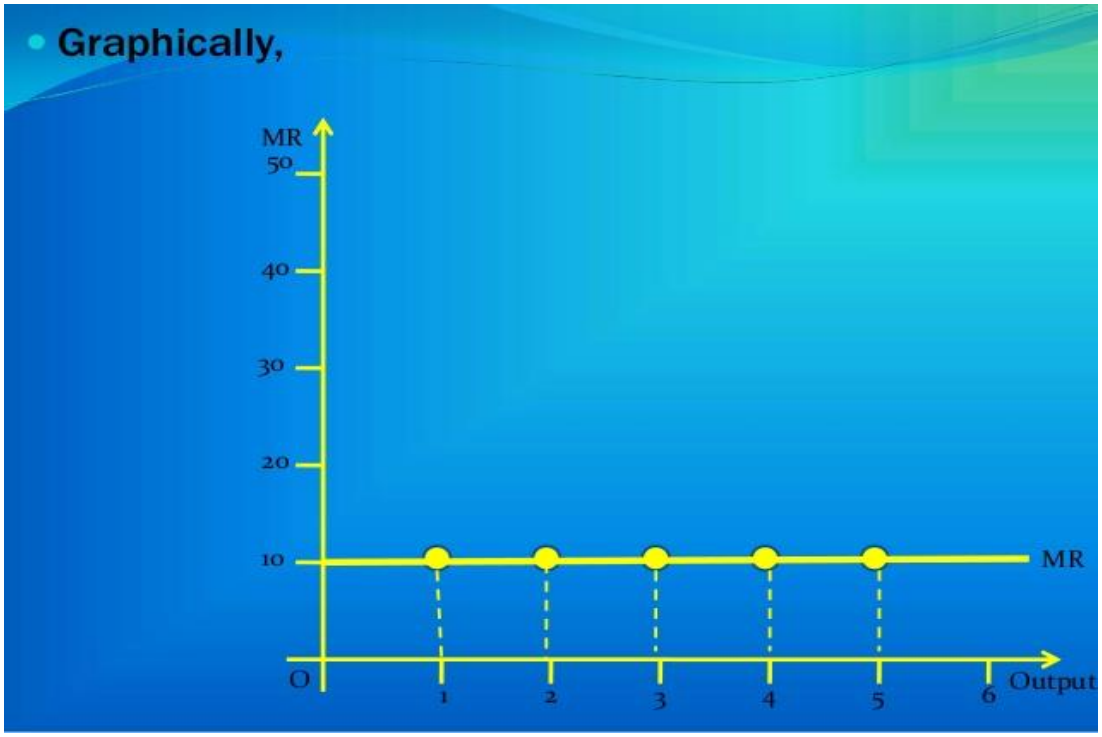
It can be explained with the help of following table and graph.

Marginal Revenue in Perfect Competition

Units of Output (Q)	Per Unit Price (P)	Total Revenue (TR) = P × Q	Average Revenue (AR) = TR/Q	Marginal Revenue (MR) = ΔTR/ΔQ
0	10	0	-	-
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10

In the above table as increase in output sold at market price TR increases at constant rate. But MR remains constant i.e. Rs. 10. which is equal to price.

Form above table we conclude that Price, AR and MR are same i.e. Rs. 10. that means P = AR = MR.



In the above figure MR is the slope of the TR. The MR curve is found by plotting the MR on y-axis and quantity sold on x-axis.

The MR curve is also horizontal to the x-axis as of the AR. It shows that AR and MR are overlapped and equal to the price in perfectly competitive market.

SIGNIFICANCE OF REVENUE CURVE

The main points of significance of revenue curves are as under:

1. Estimation of Profits and Losses:- A producer aims at maximizing his profits. His profits will be maximum where he finds AR > AC.

The maximum difference between AR and AC will show maximum profits. A producer finds out whether he is making supernormal profits, normal profits or sustaining losses.

2. Equilibrium:- The second point of the importance of AR and MR curves is to know how much a producer should produce. In this case, the concept of MR is very important. The firm will be in equilibrium at that point where MR = MC. This is a general condition for the firm under all market situations. MR = MC determines output, price, profits or loss.

3. Capacity Utilization:- It is through revenue curves that we come to know whether a firm is producing at its full capacity or not. In other words, the firm will be producing at its full capacity, if AR curve is tangent to AC curve at its minimum point. It is possible only under perfect competition but not under imperfect competition like monopoly, monopolistic competition etc.

4. Price Changes:- The concepts of AR and MR are also useful to the factor services in determining their price. In factor pricing like rent, wages, interest and profits, they become inverted U-shaped. The AR and MR curves become ARP and MRP (Average Revenue productivity and Marginal Revenue Productivity). It is an important tool in explaining the equilibrium of the firm under different market conditions.

RELATIONSHIP OF TOTAL REVENUE, AVERAGE REVENUE AND MARGINAL REVENUE

The relation of total revenue, average revenue and marginal revenue can be explained with the help of table and fig.

Table Representation:

The relationship between TR, AR and MR can be expressed with the help of a table 1.

Table 1

Unit (q)	TR/q AR or Price	(Pq) TR	($TR_n - TR_{n-1}$) MR
1	10	10	10
2	9	18	8
3	8	24	6
4	7	28	4
5	6	30	2
6	5	30	0
7	4	28	– 2
8	3	24	– 4
9	2	18	– 6
10	1	10	– 8

From the table 1 we can draw the idea that as the price falls from Rs. 10 to Re. 1, the output sold increases from 1 to 10. Total revenue increases from 10 to 30, at 5 units. However, at 6th unit it becomes constant and ultimately starts falling at next unit i.e. 7th. In the same way, when AR falls, MR falls more and becomes zero at 6th unit and then negative. Therefore, it is clear that when AR falls, MR also falls more than that of AR: TR increases initially at a diminishing rate, it reaches maximum and then starts falling.

The formula to calculate TR, AR and MR is as under:

$TR = P \times q$

Or $TR = MR_1 + MR_2 + MR_3 + MR_3 + \ldots MR_{,,}$

TR

$AR = TR/q$ $MR = TR_n - TR_{n\_x}$

In fig. 1 three concepts of revenue have been explained. The units of output have been shown on horizontal axis while revenue on vertical axis. Here TR, AR, MR are total revenue, average revenue and marginal revenue curves respectively.

In figure 1 (A), a total revenue curve is sloping upward from the origin to point K. From point K to K' total revenue is constant. But at point K' total revenue is maximum and begins to fall. It means even by selling more units total revenue is falling. In such a situation, marginal revenue becomes negative.

Similarly, in the figure 1 (B) average revenue curves are sloping downward. It means average revenue falls as more and more units are sold.

In fig. 1 (B) MR is the marginal revenue curve which slopes downward. It signifies the fact that MR with the sale of every additional unit tends to diminish. Moreover, it is also clear from the fig. that when both AR and MR are

falling, MR is less than AR. MR can be zero, positive or negative but AR is always positive.

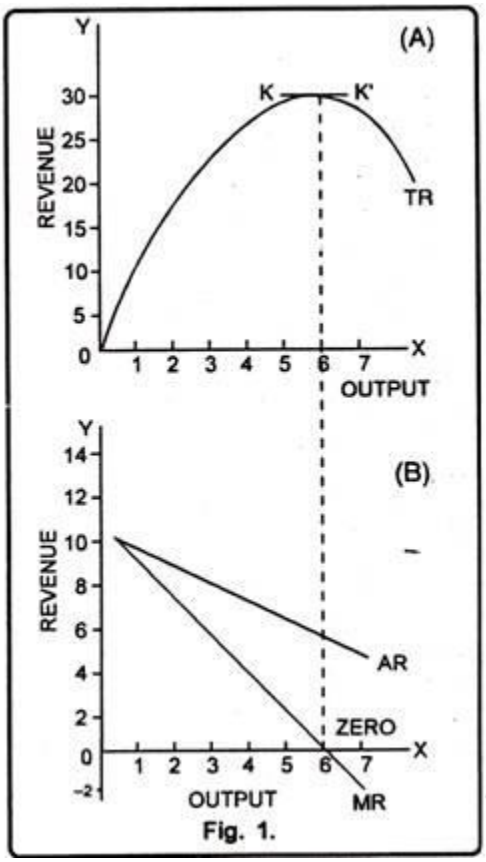


Fig. 1.

The relationship between TR, AR, and MR

In order to understand the basic concepts of revenue, it is also important to pay attention to the relationship between TR, AR, and MR. When the first unit is sold, TR, AR, and MR are equal.

Therefore, all three curves start from the same point. Further, as long as MR is positive, the TR curve slopes upwards.

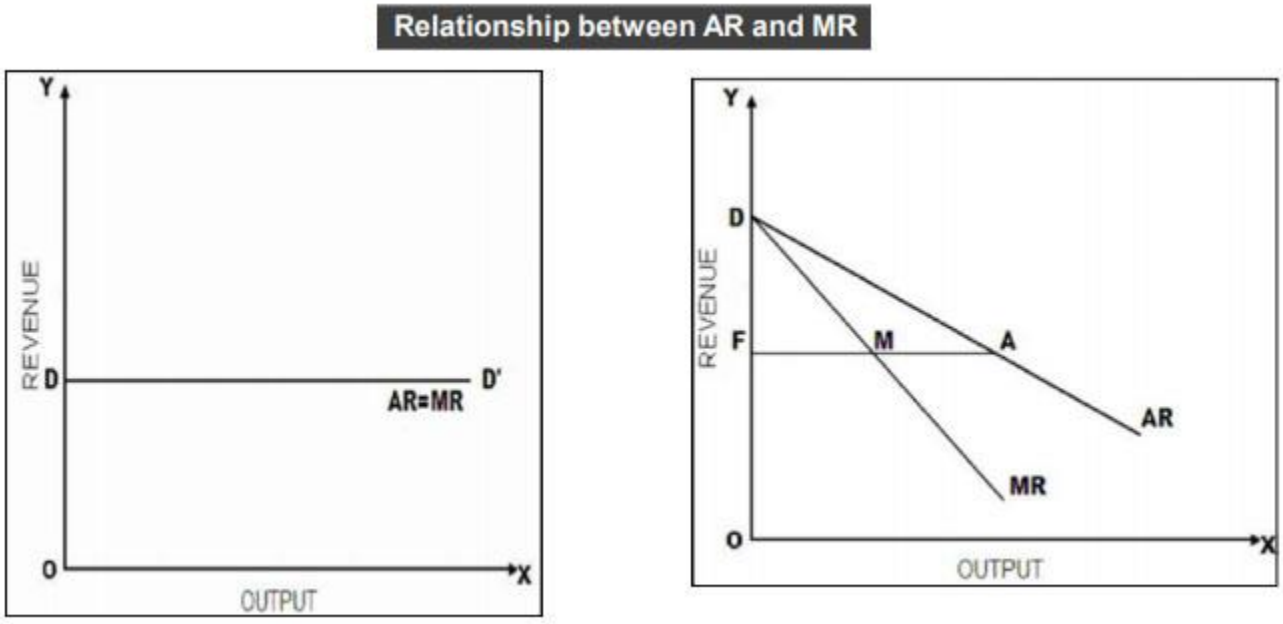
However, if MR is falling with the increase in the quantity of sale, then the TR curve will gain height at a decreasing rate. When the MR curve touches the X-axis, the TR curve reaches its maximum height.

Further, if the MR curve goes below the X-axis, the TR curve starts sloping downwards.

Any change in AR causes a much bigger change in MR. Therefore, if the AR curve has a negative slope, then the MR curve has a greater slope and lies below it.

Similarly, if the AR curve has a positive slope, then the MR curve again has a greater slope and lies above it. If the AR curve is parallel to the X-axis, then the MR curve coincides with it.

Here is a graphical representation of the relationship between AR and MR:



In the left half, you can see that AR has a constant value (DD'). Therefore, the AR curve starts from point D and runs parallel to the X-axis. Also, since AR is constant, MR is equal to AR and the two curves coincide with each other.
In the right half, you can see that the AR curve starts from point D on the Y-axis and is a straight line with a negative slope. This basically means that as the number of goods sold increases, the price per unit falls

at a steady rate.

Similarly, the MR curve also starts from point D and is a straight line as well. However, it is a locus of all the points which bisect the perpendicular distance between the AR curve and the Y-axis. In the figure above, FM=MA.

THE RELATIONSHIP BETWEEN ELASTICITY OF DEMAND AND REVENUE

The proper estimation of price elasticity is of great significance for business decision making. A firm's revenue changes as a result of the change in price.

Total revenue (TR) earned from sales by a firm is obtained by multiplying average unit price with the total quan-tity sold, i.e., **TR = P x Q.**

In Figure 8, the total revenue obtained from OQ quantity sold at OP price is OPCQ. Here, three things are clear:-

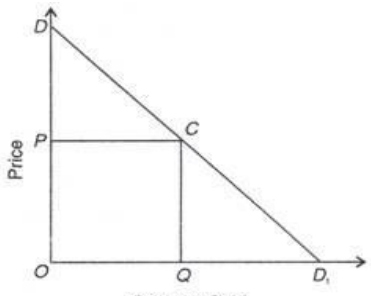


Fig. 8

The total revenue obtained from OQ quantity sold at OP price is OPCQ

(1) If the demand price is elastic, with an increase in price, there is a large fall in sales so that the total rev-enue decreases. On the other hand, if the price falls, the sales increase so much that the total revenue rises.

(2) If the elasticity of demand is equal to unity, there is no change in total revenue earned from sales even with the change in price. For example, with the fall in price by 5%, the sales will increase by 5% whereby the total revenue will remain unchanged.

(3) If the demand price is inelastic, the sales will fall with the increase in price but the Total Revenue will rise. On the other hand, with the fall in price, the sales will increase but the total revenue will fall.

In general, unity elasticity is not found in practice. When price changes in a certain ratio, the sales normally change in a high or low ratio.

Thus, if the management wants to increase sales, it has to reduce the price. But if the reduction in price is compensated by the additional sales, the total revenue will increase or remain the same. Similarly, the management can raise the price of product for increasing revenue.

But if the fall in revenue as a result of sales reduction is not compensated by the increased price, the total revenue will fall. Hence, the effect of a change in price on the sales determines the effect of the change in price on total revenue. Moreover, the firm often remains in a fix as to whether the sales should increase or decrease. In such a situation, the concept of the marginal revenue is decisive.

MARKET STRUCTURE

MEANING AND DEFINITION OF MARKET

Market generally means a place or a geographical area, where buyers with money and sellers with their goods meet to exchange goods for money. In Economics market refers to a group of buyers and sellers who involve in the transaction of commodities and services.

CHARACTERISTICS OF A MARKET

1. Existence of buyers and sellers of the commodity.

2. The establishment of contact between the buyers and sellers. Distance is of no consideration if buyers and sellers could contact each other through the available communication system like telephone, agents, letter correspondence and Internet.

3. Buyers and sellers deal with the same commodity or variety. Since the market in economics is identified on the basis of the commodity, similarity of the product is very essential.

4. There should be a price for the commodity bought and sold in the market.

CLASSIFICATION OF MARKETS

A) Market according to Area:- Based on the extent of the market for any product, markets can be classified into local regional, national and international markets.

1. Local Market:- A local market for a product exists when buyers and sellers of commodity carry on business in a particular locality or village or area where the demand and supply conditions are influenced by local conditions only. **E.g. Perishable goods like milk and vegetables and bulky articles like bricks and stones.**

2. National Market:- When commodities are demanded and supplied throughout the country, there is national market **e.g. wheat, rice or cotton**

3. Regional Market:- Commodities that are demanded and supplied over a region have regional market.

4. Global Market:- When demand and supply conditions are influenced at the global level, we have international market. **e.g. gold, silver, cell phone etc**.
On the basis of demand and supply, this geographical classification is made. With improved transport facilities and communications, even goods of local markets can become international goods.

B) Market according to time:- Marshall classified market based on the time element. In economics 'time' does not mean clock time. It means only the division of time based on extent of adjustability of supply of a commodity for a given change in its demand. The major divisions are very short period, short period and long period.

1. Very Short Period:- Very short period refers to the type of competitive market in which the supply of commodities cannot be changed at all. So in a very short period, the market supply is perfectly inelastic. The price of the commodity depends on the demand for the product alone. The perishable commodities like flowers are the best example.

2. Short-period:- Short period refers to that period in which supply can be adjusted to a limited extent by varying the variable factors alone. The short period supply curve is relatively elastic. The short period price is determined by the interaction of the short-run supply and demand curves.

3. Long Period:- Long period is the time period during which the supply conditions are fully able to meet the new demand conditions. In the long run, all (both fixed as well as variable) factors are variable. Thus the supply curve in

the long run is perfectly elastic. Therefore, it is the demand that influences price in the long period.

C) Market according to competition:- These markets are classified according to the number of sellers in the market and the nature of the commodity. The classification of market according to competition is as follows.

MEANING OF MARKET STRUCTURE

The **Market Structure** refers to the characteristics of the market either organizational or competitive, that describes the nature of competition and the pricing policy followed in the market.

Thus, the market structure can be defined as, the number of firms producing the identical goods and services in the market and whose structure is determined on the basis of the competition prevailing in that market.

The term " market" refers to a place where sellers and buyers meet and facilitate the selling and buying of goods and services. But in economics, it is much wider than just a place, It is a gamut of all the buyers and sellers, who are spread out to perform the marketing activities.

TYPES OF MARKET STRUCTURE

1. Perfect Competition Market Structure

2. Monopolistic Competition Market Structure
3. Oligopoly Market Structure
4. Monopoly Market Structure

DETERMINANTS OF THE MARKET STRUCTURE

1. The number of sellers operating in the market.
2. The number of buyers in the market.
3. The nature of goods and services offered by the firms.
4. The concentration ratio of the company, which shows the largest market shares held by the companies.
5. The entry and exit barriers in a particular market.
6. The economies of scale, i.e. how cost efficient a firm is in producing the goods and services at a low cost. Also the sunk cost, the cost that has already been spent on the business operations.
7. The degree of vertical integration, i.e. the combining of different stages of production and distribution, managed by a single firm.
8. The level of product and service differentiation, i.e. how the company's offerings differ from the other company's offerings.
9. The customer turnover, i.e. the number of customers willing to change their choice with respect to the goods and services at the time of adverse market conditions.

Thus, the structure of the market affects how firm price and supply their goods and services, how they handle the exit and entry barriers, and how efficiently a firm carry out its business operations.

PERFECT COMPETITION

MEANING OF PERFECT COMPETITION

The **Perfect Competition** is a market structure where a large number of buyers and sellers are present, and all are engaged in the buying and selling of the homogeneous products at a single price prevailing in the market.

In other words, perfect competition also referred to as a pure competition, exists when there is no direct competition between the rivals and all sell identically the same products at a single price.

FEATURES OF PERFECT COMPETITION

1. **Large number of buyers and sellers:** - In perfect competition, the buyers and sellers are large enough, that no individual can influence the price and the output of the industry. An individual customer cannot influence the price of the product, as he is too small in relation to the whole market. Similarly, a single seller cannot influence the levels of output, who is too small in relation to the gamut of sellers operating in the market.
2. **Homogeneous Product:**- Each competing firm offers the homogeneous product, such that no individual has a preference for a particular seller over the others. Salt, wheat, coal, etc. are some of the homogeneous products for which customers are indifferent and buy these from the one who charges a less price. Thus, an increase in the price would let the customer go to some other supplier.
3. **Free Entry and Exit:-** Under the perfect competition, the firms are free to enter or exit the industry. This implies, If a firm suffers from a huge loss due to the intense competition in the industry, then it is free to leave that industry and begin its business operations in any of the industry, it wants. Thus, there is no restriction on the mobility of sellers.
4. **Perfect knowledge of prices and technology**:- This implies, that both the buyers and sellers have complete knowledge of the market conditions such as the prices of products and the latest technology being used to produce it. Hence, they can buy or sell the products anywhere and anytime they want.

5. **No transportation cost:-** There is an absence of transportation cost, i.e. incurred in carrying the goods from one market to another. This is an essential condition of the perfect competition since the homogeneous product should have the same price across the market and if the transportation cost is added to it, then the prices may differ.
6. **Absence of Government and Artificial Restrictions:-** Under the perfect competition, both the buyers and sellers are free to buy and sell the goods and services. This means any customer can buy from any seller, and any seller can sell to any buyer. Thus, no restriction is imposed on either party. Also, the prices are liable to change freely as per the demand-supply conditions. In such a situation, no big producer and the government can intervene and control the demand, supply or price of the goods and services.

Thus, under the perfect competition, a seller is the price taker and cannot influence the market price.

ASSUMPTIONS

The model of perfect competition is based on the following assumptions.

1. Large numbers of sellers and buyers:- The industry or market includes a large number of firms (and buyers), so that each individual firm, however large, supplies only a small part of the total quantity offered in the market. The buyers are also numerous so that no monopolistic power can affect the working of the market. Under these conditions each firm alone cannot affect the price in the market by changing its output.

2. Product homogeneity:- The industry is defined as a group of firms producing a homogeneous product. The technical characteristics of the product as well as the services associated with its sale and delivery are identical. There is no way in which a buyer could differentiate among the products of different firms. If the product were differentiated the firm would have some discretion in setting its price. This is ruled out ex hypothesis in perfect competition.

The assumptions of large numbers of sellers and of product homogeneity imply that the individual firm in pure competition is a price-taker: its demand curve is infinitely elastic, indicating that the firm can sell any amount of output at the prevailing market price (figure 5.1). The demand curve of the individual firm is also its average revenue and its marginal revenue curve (see page 156).

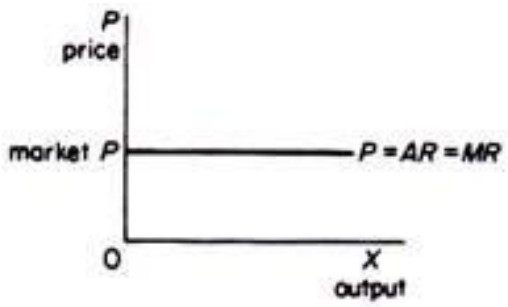


Figure 5.1

3. Free entry and exit of firms:- There is no barrier to entry or exit from the industry. Entry or exit may take time, but firms have freedom of movement in and out of the industry. This assumption is supplementary to the assumption of large numbers. If barriers exist the number of firms in the industry may be reduced so that each one of them may acquire power to affect the price in the market.

4. Profit maximization:- The goal of all firms is profit maximization. No other goals are pursued.

5. No government regulation:- There is no government intervention in the market (tariffs, subsidies, rationing of production or demand and so on are ruled out). The above assumptions are sufficient for the firm to be a price-taker and have an infinitely elastic demand curve. The market structure in which the above assumptions are fulfilled is called pure competition. It is different from perfect competition, which requires the fulfillment of the following additional assumptions.

6. Perfect mobility of factors of production:- The factors of production are free to move from one firm to another throughout the economy. It is also assumed that workers can move between different a job, which implies that skills can be learned easily. Finally, raw materials and other factors are not monopolized and labour is not unionized. In short, there is perfect competition in the markets of factors of production.

7. Perfect knowledge:- It is assumed that all sellers and buyers have complete knowledge of the conditions of the market. This knowledge refers not only to the prevailing conditions in the current period but in all future periods as well. Information is free and costless. Under these conditions uncertainty about future developments in the market is ruled out. Under the above assumptions we will examine the equilibrium of the firm and the industry in the short run and in the long run.

EXPLANATION & DIAGRAMS:-

Meaning of Perfect Competition Market

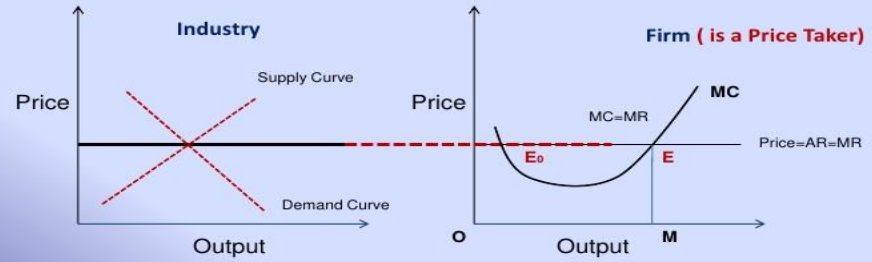
Nature of demand and AR, MR Curve of a firm

Out put	Price	TR	AR	MR
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10
6	10	60	10	10
7	10	70	10	10
8	10	80	10	10

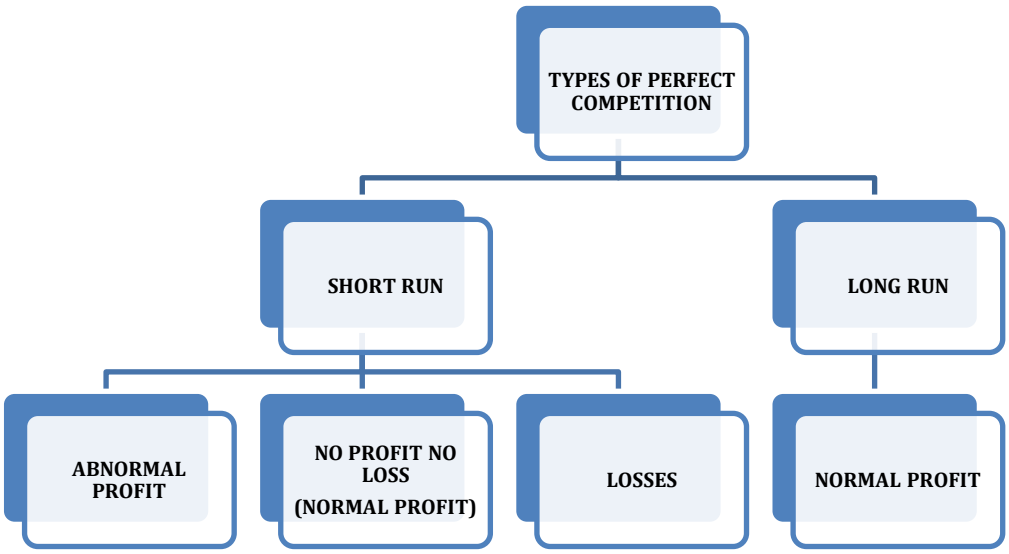
Meaning of Perfect Competition Market

The firms equilibrium(Out put determination)

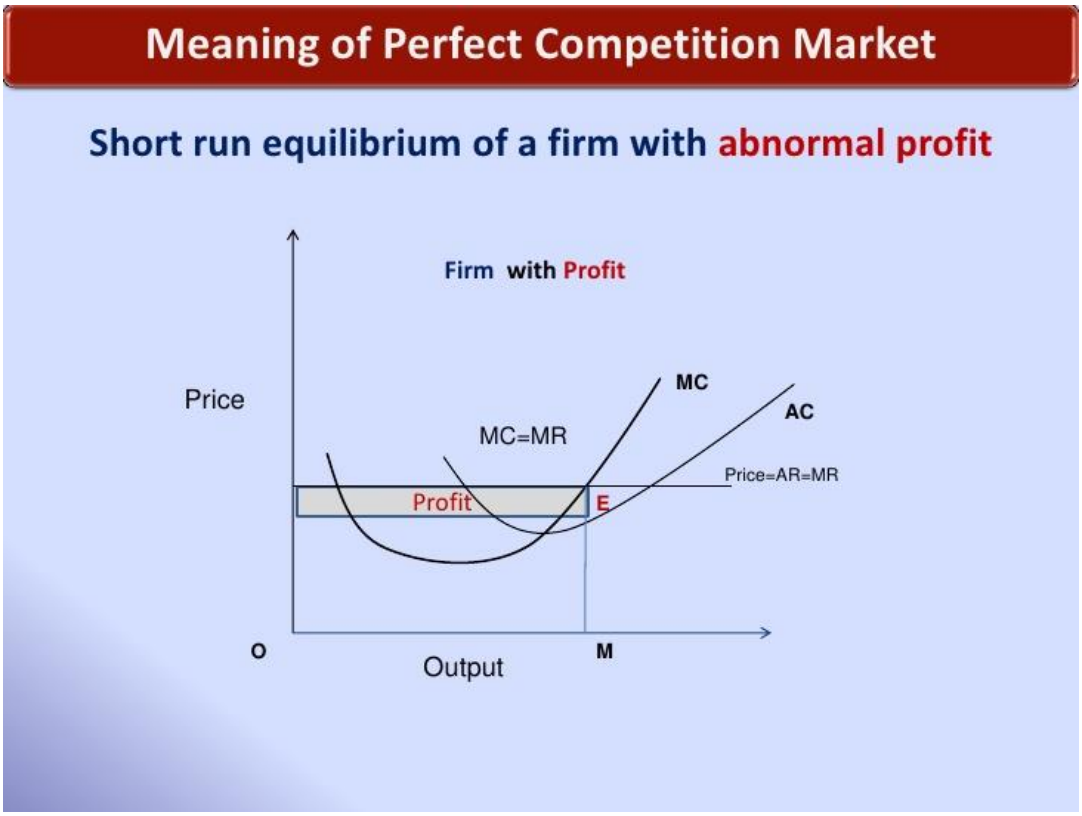
- First Condition for maximization of profit is MR= MC
- Second Condition for maximization of profit is MC curve cut MR curve from bellow



TYPES OF PERFECT COMPETITION

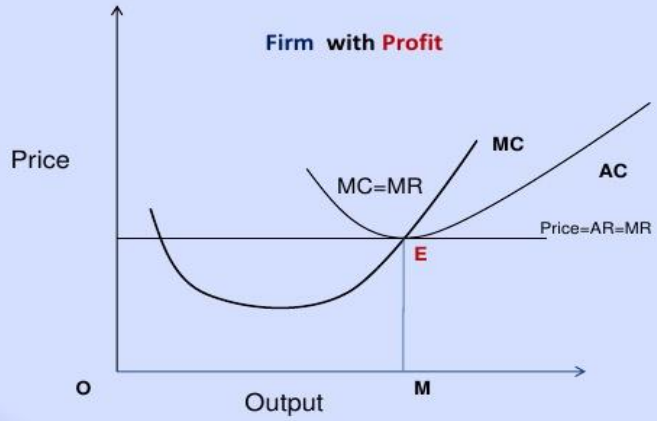


1. SHORT RUN PERFECT COMPETITION



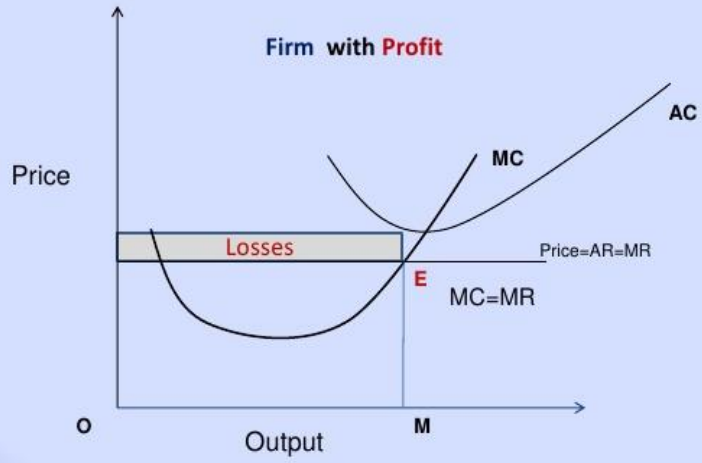
Meaning of Perfect Competition Market

Short run equilibrium of a firm with No profit No Losses

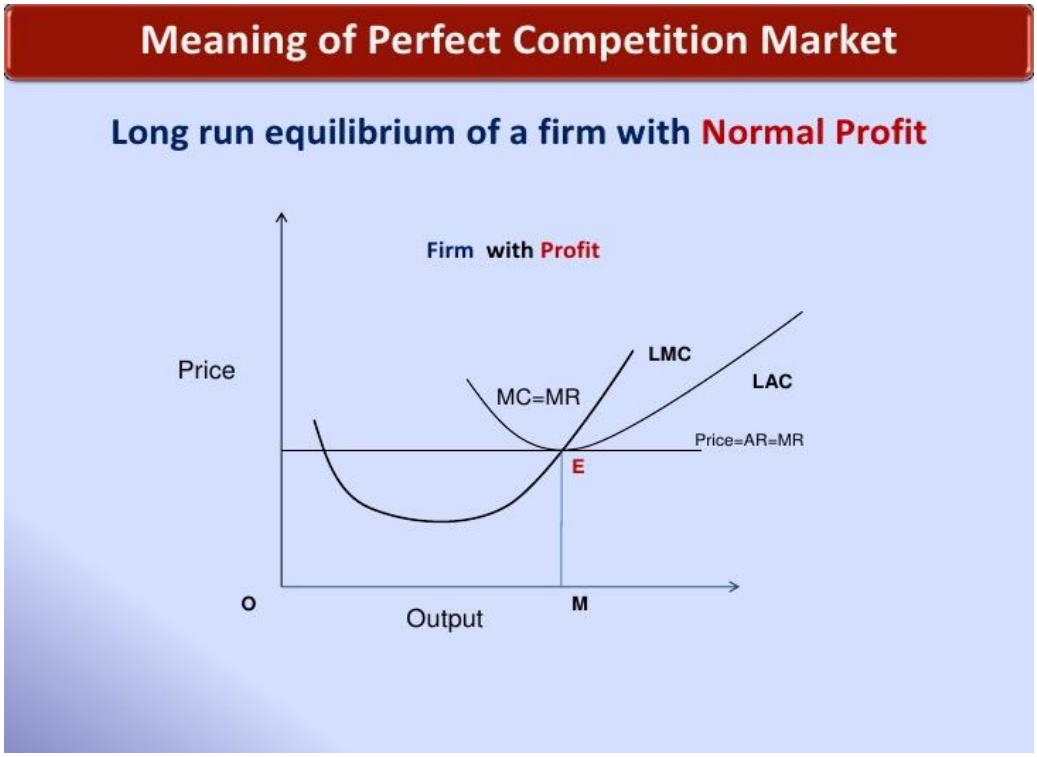


Meaning of Perfect Competition Market

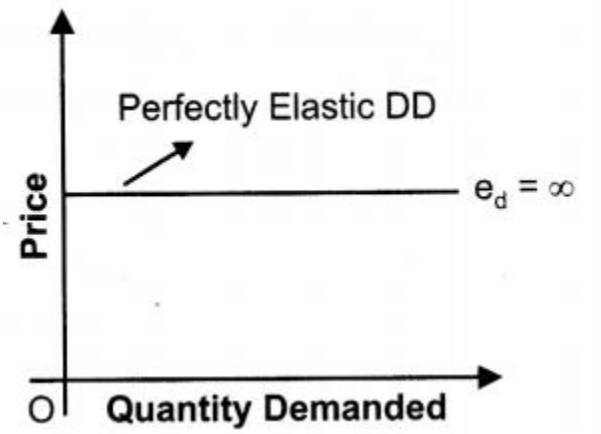
Short run equilibrium of a firm with Losses



LONG RUN PERFECT COMPETITION



DEMAND CURVE AND REVENUE CURVES UNDER PERFECT COMPETITION

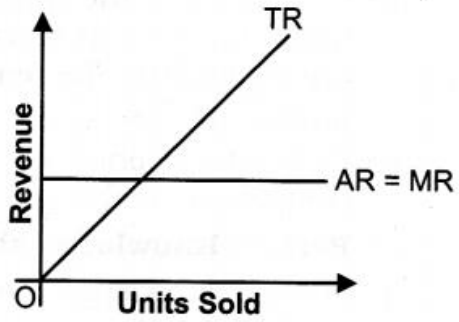


Price	Demand
5	1
5	2
5	3
5	4
5	5

(a) As we know, in perfect competition homogeneous goods are produced. So, price remains constant, which makes the demand curve perfectly elastic.

(b) In perfect competition, homogeneous goods are produced, that is why price remains constant, as price = AR, it means AR remains constant. And if, AR remains constant, then AR = MR as per the

Quantity	Price (Average Revenue)	Total Revenue = Price × quantity	Marginal Revenue $= \frac{\Delta TR}{\Delta Q}$
1	10	10	10
2	10	20	10
3	10	30	10
4	10	40	10



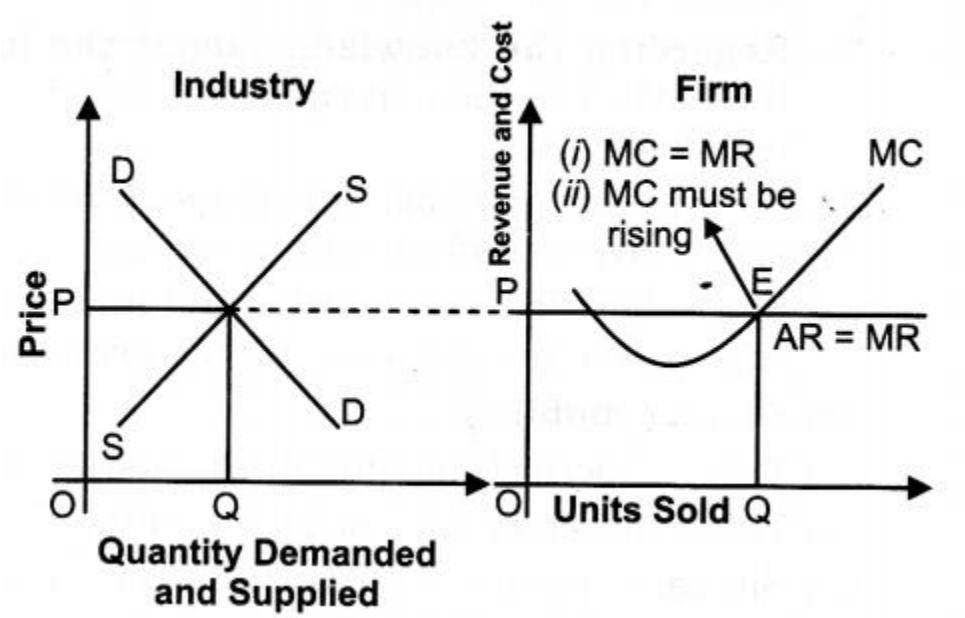
 # DEMAND CURVE UNDER IN PERFECT COMPETITION, industry is the price maker and firm is the price taker.

(a) As we know, in Perfect competition, homogeneous goods are produced. So, industry cannot charge different price from different firms.

(b) So, industry will give that price to the firm where industry is in equilibrium,

i. e., where Demand = Supply. Any movement from that point would be unstable.

(c) In the above diagram, price, revenue and Cost is measured on vertical axis and units of commodity on horizontal axis. Industry will give OP price to the firm as at that point Demand = supply, i.e., industry is in equilibrium.



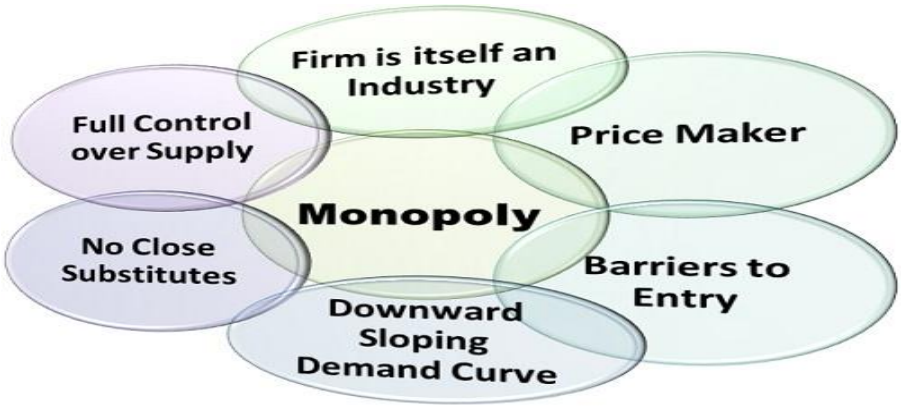
The firms will follow the same price and charges same from the consumer.

MONOPOLY

MONOPOLY MARKET

Definition: The **Monopoly** is a market structure characterized by a single seller, selling the unique product with the restriction for a new firm to enter the market. Simply, monopoly is a form of market where there is a single seller selling a particular commodity for which there are no close substitutes.

FEATURES OF MONOPOLY MARKET



1. Under monopoly, the firm has full control over the supply of a product. The elasticity of demand is zero for the products.
2. There is a single seller or a producer of a particular product, and there is no difference between the firm and the industry. The firm is itself an industry.
3. The firms can influence the price of a product and hence, these are price makers, not the price takers.
4. There are barriers for the new entrants.
5. The demand curve under monopoly market is downward sloping, which means the firm can earn more profits only by increasing the sales which are possible by decreasing the price of a product.
6. There are no close substitutes for a monopolist's product.

Under a monopoly market, new firms cannot enter the market freely due to any of the reasons such as Government license and regulations, huge capital requirement, complex technology and economies of scale. These economic barriers restrict the entry of new firms.

CAUSES FOR MONOPOLY

1. **Natural:** A monopoly may arise on account of some natural causes. Some minerals are available only in certain regions. For example, South Africa has the monopoly of diamonds; nickel in the world is mostly available in Canada and oil in Middle East. This is natural monopoly.

2. **Technical**: Monopoly power may be enjoyed due to technical reasons. A firm may have control over raw materials, technical knowledge, special know-how, scientific secrets and formula that enable a monopolist to produce a commodity. e.g., Coco Cola.

3. **Legal:** Monopoly power is achieved through patent rights, copyright and trade marks by the producers. This is called legal monopoly.

4. **Large Amount of Capital**: The manufacture of some goods requires a large amount of capital or lumpiness of capital. All firms cannot enter the field because they cannot afford to invest such a large amount of capital. This may give rise to monopoly. For example, iron and steel industry, railways, etc.

5. **State:** Government will have the sole right of producing and selling some goods. They are State monopolies. For example, we have public utilities like electricity and railways. These public utilities are undertaken by the State.

PRICE AND OUTPUT DETERMINATION

A monopolist like a perfectly competitive firm tries to maximise his profits.

A monopoly firm faces a downward sloping demand curve, that is, its average revenue curve. The downward sloping demand curve implies that larger output can be sold only by reducing the price. Its marginal revenue curve will be below the average revenue curve.

The average cost curve is 'U' shaped. The monopolist will be in equilibrium when MC = MR and the MC curve cuts the MR curve from below.

In figure, AR is the Average Revenue Curve and MR is the Marginal revenue curve. AR curve is falling and MR curve lies below AR. The monopolist is in equilibrium at E where MR = MC. He produces OM units of output and fixes price at OP. At OM output, the average revenue is MS and average cost MT. Therefore the profit per unit is MS-MT = TS. Total profit is average profit (TS) multiplied by output (OM), which is equal to HTSP. The monopolist is in equilibrium at point E and produces OM output at which he is earning maximum profit. The monopoly price is higher than the marginal revenue and marginal cost.

METHODS OF CONTROLLING MONOPOLY

1. **Legislative Method:** Government can control monopolies by legal actions. Anti-monopoly legislation has been enacted to check the growth of monopoly. In India, the Monopolies and Restrictive Trade Practices Act was passed in 1969. The objective of this Act is to prevent the unwanted growth of private monopolies and concentration of economic power in the hands of a small number of individuals and families.

2. **Controlling Price and Output:** This method can be applied in the case of natural monopolies. Government would fix either price or output or both.

(i) Taxation: Taxation is another method by which the monopolistic power can be prevented or restricted. Government can impose a lump-sum tax on a monopoly firm, irrespective of its level of output. Consequently, its total profit will fall.

(ii) Nationalisation: Nationalising big companies is one of the solutions. Government may take over such monopolistic companies, which are exploiting the consumers.

(iii) Consumer's Association: The growth of monopoly power can also be controlled by encouraging the formation of consumers associations to improve the bargaining power of consumers.

ADVANTAGES OF MONOPOLY

1. Monopoly avoids duplication and hence avoids wastage of resources. (We have to understand that duplicate and fake products are a real problem in many countries).
2. A monopoly enjoys economies of scale as it is the only supplier of product or service in the market. The benefits can be passed on to the consumers.
3. Due to the fact that monopolies make lots of profits, it can be used for research and development and to maintain their status as a monopoly.
4. Monopolies may use price discrimination which benefits the economically weaker sections of the society.
5. Monopolies can afford to invest in latest technology and machinery in order to be efficient and to avoid competition.
6. Source of revenue for the government- the government gets revenue in form of taxation from monopoly firms.

DISADVANTAGES OF MONOPOLY

1. Poor level of service.
2. No consumer sovereignty. A monopoly market is best known for consumer exploitation. There are indeed no competing products and as a result the consumer gets a raw deal in terms of quantity, quality and pricing.
3. Consumers may be charged high prices for low quality of goods and services.
4. Lack of competition may lead to low quality and out dated goods and services.

MONOPOLISTIC COMPETITION

Definition: Under, the **Monopolistic Competition**, there are a large number of firms that produce differentiated products which are close substitutes for each other. In other words, large sellers selling the products that are similar, but not identical and compete with each other on other factors besides price.

FEATURES OF MONOPOLISTIC COMPETITION

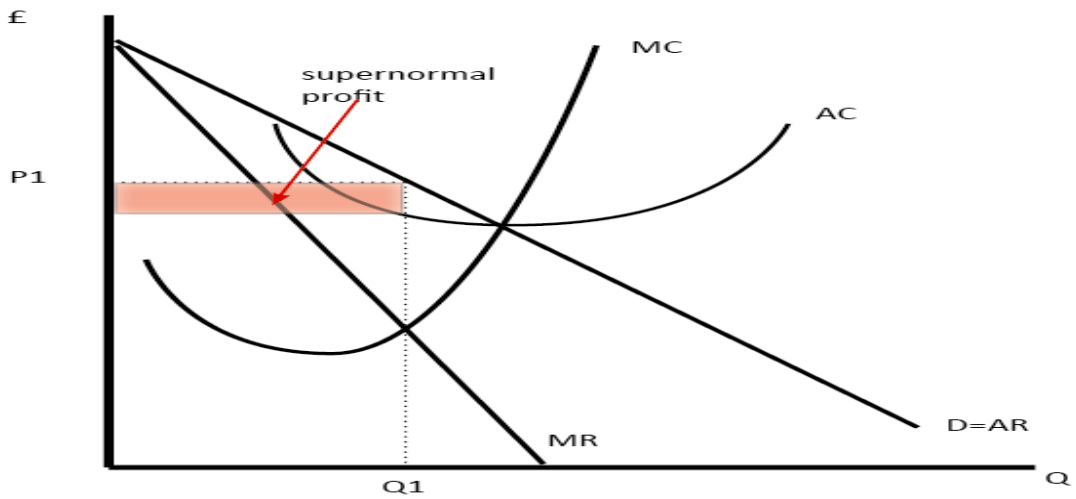
1. **Product Differentiation:** This is one of the major features of the firms operating under the monopolistic competition, that produces the product which is not identical but is slightly different from each other. The products being slightly different from each other remain close substitutes of each other and hence cannot be priced very differently from each other.
2. **Large number of firms:** A large number of firms operate under the monopolistic competition, and there is a stiff competition between the existing firms. Unlike the perfect competition, the firms produce the differentiated products which are substitutes for each other, thus make the competition among the firms a real and a tough one.
3. **Free Entry and Exit:** With an intense competition among the firms, the entity incurring the loss can move out of the industry at any time it wants. Similarly, the new firms can enter into the industry freely, provided it comes up with the unique feature and different variety of products to outstand in the market and meet with the competition already existing in the industry.
4. **Some control over price:** Since, the products are close substitutes for each other, if a firm lowers the price of its product, then the customers of other products will switch over to it. Conversely, with the increase in the price of the product, it will lose its customers to others. Thus, under the monopolistic

competition, an individual firm is not a price taker but has some influence over the price of its product.

5. **Heavy expenditure on Advertisement and other Selling Costs:** Under the monopolistic competition, the firms incur a huge cost on advertisements and other selling costs to promote the sale of their products. Since the products are different and are close substitutes for each other; the firms need to undertake the promotional activities to capture a larger market share.
6. **Product Variation:** Under the monopolistic competition, there is a variation in the products offered by several firms. To meet the needs of the customers, each firm tries to adjust its product accordingly. The changes could be in the form of new design, better quality, new packages or container, better materials, etc. Thus, the amount of product a firm is selling in the market depends on the uniqueness of its product and the extent to which it differs from the other products.

The monopolistic competition is also called as **imperfect competition** because this market structure lies between the pure monopoly and the pure competition.

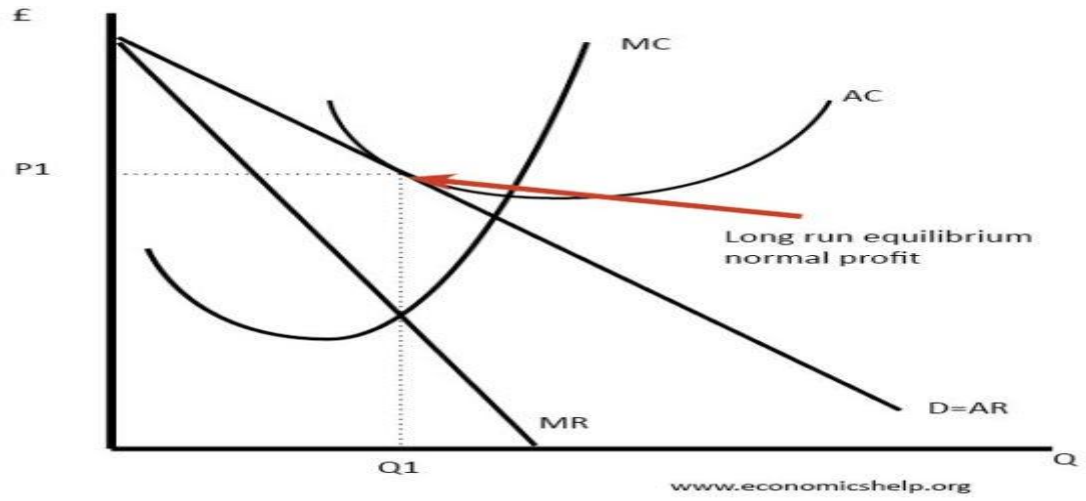
DIAGRAM OF MONOPOLISTIC COMPETITION SHORT RUN



In the short run, the diagram for monopolistic competition is the same as for a monopoly.

The firm maximises profit where MR=MC. This is at output Q1 and price P1, leading to supernormal profit

DIAGRAM OF MONOPOLISTIC COMPETITION LONG RUN



Demand curve shifts to the left due to new firms entering the market.

In the long-run, supernormal profit encourages new firms to enter. This reduces demand for existing firms and leads to normal profit.

EFFICIENCY OF FIRMS IN MONOPOLISTIC COMPETITION

1. **Allocative inefficient.** The above diagrams show a price set above marginal cost
2. **Productive inefficiency**. The above diagram shows a firm not producing on the lowest point of AC curve
3. **Dynamic efficiency.** This is possible as firms have profit to invest in research and development.
4. **X-efficiency.** This is possible as the firm does face competitive pressures to cut cost and provide better products.

EXAMPLES OF MONOPOLISTIC COMPETITION

1. **Restaurants –** restaurants compete on quality of food as much as price. Product differentiation is a key element of the business. There are relatively low barriers to entry in setting up a new restaurant.
2. **Hairdressers.** A service which will give firms a reputation for the quality of their hair-cutting.

3. **Clothing.** Designer label clothes are about the brand and product differentiation
4. **TV programmes** – globalisation has increased the diversity of tv programmes from networks around the world. Consumers can choose between domestic channels but also imports from other countries and new services, such as NETFLIX.

WASTAGES OF MONOPOLISTIC COMPETITION

1. Unemployment: Under monopolistic competition, the firms produce less than optimum output. As a result, the productive capacity is not used to the fullest extent. This will lead to unemployment of resources.

2. Excess capacity: Excess capacity is the difference between the optimum output that can be produced and the actual output produced by the firm. In the long run, a monopolistic firm produces an output which is less than the optimum output that is the output corresponding to the minimum average cost. This leads to excess capacity which is regarded as waste in monopolistic competition.

3. Advertisement: There is a lot of waste in competitive advertisements under monopolistic competition. The wasteful and competitive advertisements lead to high cost to consumers.

4. Too Many Varieties of Goods: Introducing too many varieties of a good is another waste of monopolistic competition. The goods differ in size, shape, style and colour. A reasonable number of varieties would be desirable. Cost per unit can be reduced if only a few are produced.

5. Inefficient Firms: Under monopolistic competition, inefficient firms charge prices higher than their marginal cost. Such type of inefficient firms should be kept out of the industry. But, the buyers' preference for such products enables the inefficient firms to continue to exist. Efficient firms cannot drive out the inefficient firms because the former may not be able to attract the customers of the latter.

LIMITATIONS OF THE MODEL OF MONOPOLISTIC COMPETITION

1. Some firms will be better at brand differentiation and therefore, in the real world, they will be able to make supernormal profit.
2. New firms will not be seen as a close substitute.
3. There is considerable overlap with oligopoly – except the model of monopolistic competition assumes no barriers to entry. In the real world, there are likely to be at least some barriers to entry
4. If a firm has strong brand loyalty and product differentiation – this itself becomes a barrier to entry. A new firm can't easily capture the brand loyalty.
5. Many industries, we may describe as monopolistically competitive are very profitable, so the assumption of normal profits is too simplistic.

MERITS OF MONOPOLISTIC COMPETITION

1. An important merit of monopolistic competition is that it is much closer to reality than several other models of market structure. Firstly, it incorporates the facts of product differentiation and selling costs. Secondly, it can be easily used for the analysis of duopoly and oligopoly.

2. Under monopolistic competition it is possible to see that even when each individual firm produces under conditions of increasing returns, not only the firm under consideration but also the entire group of firms can be in equilibrium.

3. Moreover, monopolistic competition is able to show that even when each individual firm is producing under increasing returns, it still earns only normal profit in the long run.

4. The theory of monopolistic competition helps us in bringing in the concept of market share of an individual firm. This opens up the possibility of considering those situations in which a firm may be pursuing a goal other than profit maximization.

5. In monopolistic competition we are able to consider the interaction between several interdependent variables on the basis of which a firm takes its decisions.

DEMERITS OF MONOPOLISTIC COMPETITION

1. The biggest conceptual difficulty with monopolistic competition is the concept of age group of firms. There is no standard theoretical foundation for deciding the boundaries of a group.

2. Related with the concept of a group of firms, we face the difficulty of defining the meaning of a 'close substitute'. We are not told at what values of cross elasticity, two products become close substitutes of each other.

3. The theory of monopolistic competition fails to take into account the fact that the demand by final consumers is largely influenced by the retail dealers because the consumers themselves are not fully aware of the technical qualities of the product.

4. Similarly, the theory fails to fully account for the determination of equilibrium quantities and prices of goods like raw materials and other inputs. To a large extent, their demand is governed by a combination of the technical quality, price and timely availability rather than by brand name, etc. Given the technical quality of an input, its demand is governed more by its price and availability than its brand name

OLIGOPOLY

 # Oligopoly Market Definition:- The **Oligopoly Market** characterized by few sellers, selling the homogeneous or differentiated products. In other words, the Oligopoly market structure lies between the pure monopoly and monopolistic competition, where few sellers dominate the market and have control over the price of the product.

✓ **Under the Oligopoly market, a firm either produces:**

1. **Homogeneous product:** The firms producing the homogeneous products are called as Pure or Perfect Oligopoly. It is found in the producers of industrial products such as aluminum, copper, steel, zinc, iron, etc.
2. **Heterogeneous Product:** The firms producing the heterogeneous products are called as Imperfect or Differentiated Oligopoly. Such type of Oligopoly is found in the producers of consumer goods such as automobiles, soaps, detergents, television, refrigerators, etc.

 # FEATURES OF OLIGOPOLY MARKET

1. Few Sellers:- Under the Oligopoly market, the sellers are few, and the customers are many. Few firms dominating the market enjoys a considerable control over the price of the product

2. Interdependence:- it is one of the most important features of an Oligopoly market, wherein, the seller has to be cautious with respect to any action taken by the competing firms. Since there are few sellers in the market, if any firm makes the change in the price or promotional scheme, all other firms in the industry have to comply with it, to remain in the competition.

Thus, every firm remains alert to the actions of others and plan their counterattack beforehand, to escape the turmoil. Hence, there is a complete interdependence among the sellers with respect to their price-output policies.

3. Advertising:- Under Oligopoly market, every firm advertises their products on a frequent basis, with the intention to reach more and more customers and increase their customer base.This is due to the advertising that makes the competition intense.

If any firm does a lot of advertisement while the other remained silent, then he will observe that his customers are going to that firm who is continuously promoting its product. Thus, in order to be in the race, each firm spends lots of money on advertisement activities.

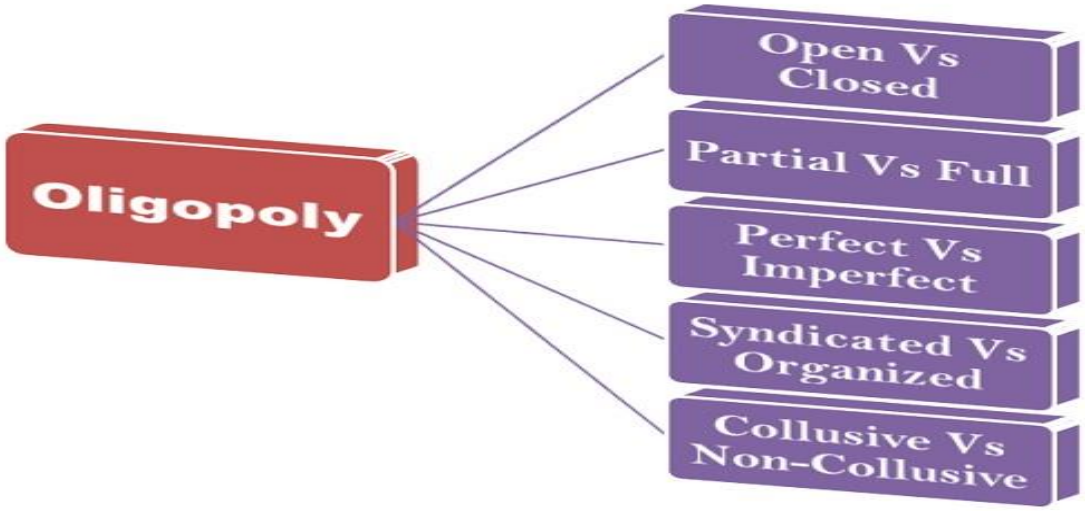
4.Competition:- It is genuine that with a few players in the market, there will be an intense competition among the sellers. Any move taken by the firm will have a considerable impact on its rivals. Thus, every seller keeps an eye over its rival and be ready with the counterattack.

5. **Entry and Exit Barriers:**- The firms can easily exit the industry whenever it wants, but has to face certain barriers to entering into it. These barriers could be Government license, Patent, large firm's economies of scale, high capital requirement, complex technology, etc. Also, sometimes the government regulations favor the existing large firms, thereby acting as a barrier for the new entrants.

6. Lack of Uniformity:- There is a lack of uniformity among the firms in terms of their size, some are big, and some are small.

Since there are less number of firms, any action taken by one firm has a considerable effect on the other. Thus, every firm must keep a close eye on its counterpart and plan the promotional activities accordingly.

TYPES OF OLIGOPOLY MARKET



1. **Open Vs Closed Oligopoly:** This classification is made on the basis of freedom to enter into the new industry. An open Oligopoly is the market situation wherein firm can enter into the industry any time it wants, whereas, in the case of a closed Oligopoly, there are certain restrictions that act as a barrier for a new firm to enter into the industry.

2. **Partial Vs Full Oligopoly:** This classification is done on the basis of price leadership. The partial Oligopoly refers to the market situation, wherein one large firm dominates the market and is looked upon as a price leader. Whereas in full Oligopoly, the price leadership is conspicuous by its absence.
3. **Perfect (Pure) Vs Imperfect (Differential) Oligopoly:** This classification is made on the basis of product differentiation. The Oligopoly is perfect or pure when the firms deal in the homogeneous products. Whereas the Oligopoly is said to be imperfect, when the firms deal in heterogeneous products, i.e. products that are close but are not perfect substitutes.
4. **Syndicated Vs Organized Oligopoly:** This classification is done on the basis of a degree of coordination found among the firms. When the firms come together and sell their products with the common interest is called as a Syndicate Oligopoly. Whereas, in the case of an Organized Oligopoly, the firms have a central association for fixing the prices, outputs, and quotas.
5. **Collusive Vs Non-Collusive Oligopoly:** This classification is made on the basis of agreement or understanding between the firms. In Collusive Oligopoly, instead of competing with each other, the firm come together and with the consensus of all fixes the price and the outputs. Whereas in the case of a non-collusive Oligopoly, there is a lack of understanding among the firms and they compete against each other to achieve their respective targets.

Thus, oligopoly market is a market structure that lies between the monopolistic competition and a pure monopoly.

LIST OF ADVANTAGES OF OLIGOPOLY

1. It offers simple choices.- With only a few businesses offering products or services, it will be easy for consumers to compare and choose the best option for their needs. In other types of market, it can be very challenging to thoroughly look into all the things offered by a huge group of companies and then compare prices.

2. It generates high profits.-Because there is only little competition in oligopoly, the businesses involved in it enjoy the benefit of bringing in huge amounts of profits. Generally, the products and services controlled through this type of market are highly needed by a large majority of consumers.

3. It offers better information, products and services.- Along with fair price competition, competition among products also plays a huge role in this market structure, where every business would scramble to come out with best and

latest items to attract consumers. The same goes to the amount of information, advertising and support offered to consumers.

4. It creates competitive prices.- As already implied, the ability to easily compare prices coerces business to keep their prices in competition with their competitors. This is a great perk for consumers, as prices could continually go down.

LIST OF DISADVANTAGES OF OLIGOPOLY

1. It offers fewer choices.-In many cases, choosing the best brand in an oligopoly is like going for the least evil. This means that consumers would have very limited options for the products or services they are looking for.

2. It makes it difficult for smaller entities to establish a spot in the market.- For smaller enterprises and creatives, their outlook for business in this type of market is grim, as only the extremely advanced and large companies have complete control over market. This makes it nearly impossible for smaller and new entities to break into the market.

3. It eliminates motivation to compete.- Generally, companies in oligopoly become very settled with their ventures, as their operations and profits are guaranteed. This means that they would no longer feel the necessity to create new innovative ideas.

4. Its fixed prices can be bad for consumers.- While competitive prices are good, they are rarely far apart from those of other companies they could go with, as businesses agree to fix prices, where there is a set limit for how low prices could go.

Given the nature of an oligopoly form of market and the size of the businesses that participates in it, it definitely has some benefits and drawbacks. By weighing down the pros and cons listed above, you will be able to come up with a well-informed opinion whether it is good to engage in or not.

PRICE AND OUTPUT DETERMINATION UNDER COLLUSIVE & NON-COLLUSIVE OLIGOPOLY

1. PRICE AND OUTPUT DETERMINATION UNDER OLIGOPOLY:

(a) If an industry is composed of few firms each selling **identical or homogenous products** and having powerful influence on the total market, the

price and output policy of each is likely to affect the other appreciably, therefore they will try to promote **collusion.**

(b) In case there is **product differentiation**, an oligopolistic can raise or lower his price without any fear of losing customers or of immediate reactions from his rivals. However, keen rivalry among them may create condition of **monopolistic competition.**

There is no single theory which satisfactorily explains the oligopoly behaviour regarding price and output in the market. There are set of theories like Cournot Duopoly Model, Bertrand Duopoly Model, the Chamberlin Model, the Kinked Demand Curve Model, the Centralised Cartel Model, Price Leadership Model, etc., which have been developed on particular set of assumptions about the reaction of other firms to the action of the firm under study.

➢ PRICE DETERMINATION MODELS OF COLLUSIVE OLIGOPOLY:

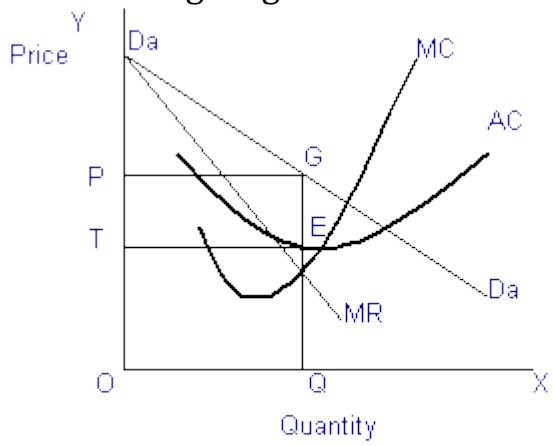
The degree of imperfect competition in a market is influenced not just by the number and size of firms but by how they behave. When only a few firms operate in a market, they see what their rivals are doing and react. 'Strategic interaction' is a term that describes how each firm's business strategy depends upon its rivals' business behaviour.

When there are only a small number of firms in a market, they have a choice between 'cooperative' and 'non-cooperative' behaviour:

1. Firms act **non-cooperatively** when they act on their own without any explicit or implicit agreement with other firms. That's what produces 'price wars'.
2. Firms operate in a **cooperative** mode when they try to minimise competition between them. When firms in an oligopoly actively cooperate with each other, they engage in 'collusion'. Collusion is an oligopolistic situation in which two or more firms jointly set their prices or outputs, divide the market among them, or make other business decisions jointly.

A 'cartel' is an organisation of independent firms, producing similarproducts, which work together to raise prices and restrict output. It is strictly illegal in Pakistan and most countries of the world for companies to collude by jointly setting prices or dividing markets. Nonetheless, firms are often tempted to engage in 'tacit collusion', which occurs when they refrain from competition without explicit agreements. When firms tacitly collude, they often quote

identical (high) prices, pushing up profits and decreasing the risk of doing business. The rewards of collusion, when it is successful, can be great. It is more illustrated in the following diagram:



The above diagram illustrates the situation of oligopolistic A and his demand curve DaDa assuming that the other firms all follow firm A's lead in raising and lowering prices. Thus the firm's demand curve has the same elasticity as the industry's DD curve. The optimum price for the collusive oligopolistic is shown at point G on DaDa just above point E. This price is identical to the monopoly price, it is well above marginal cost and earns the colluding oligopolists a handsome monopoly profit.

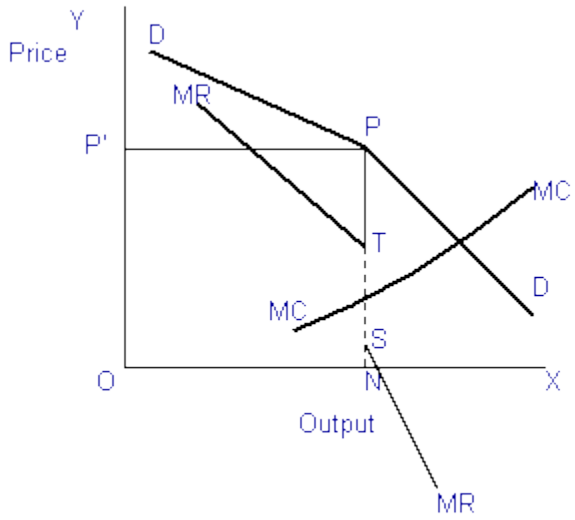
➢ PRICE DETERMINATION MODELS OF OLIGOPOLY (NON-COLLUSIVE):

1. Kinky Demand Curve: The kinky demand curve model tries to explain that in non-collusive oligopolistic industries there are not frequent changes in the market prices of the products. The demand curve is drawn on the assumption that the kink in the curve is always at the ruling price. The reason is that a firm in the market supplies a significant share of the product and has a powerful influence in the prevailing price of the commodity. Under oligopoly, a firm has two choices:

(a) The first choice is that the firm **increases the price** of the product. Each firm in the industry is fully aware of the fact that if it increases the price of the product, it will lose most of its customers to its rival. In such a case, the upper part of demand curve is more elastic than the part of the curve lying below the kink.

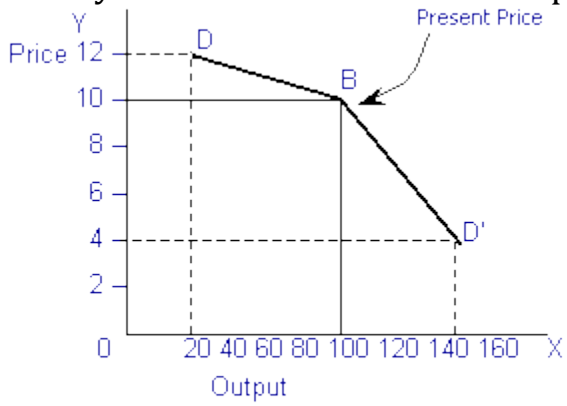
(b) The second option for the firm is to **decrease the price.** In case the firm lowers the price, its total sales will increase, but it cannot push up its sales very

much because the rival firms also follow suit with a price cut. If the rival firms make larger price cut than the one which initiated it, the firm which first started the price cut will suffer a lot and may finish up with decreased sales. The oligopolists, therefore avoid cutting price, and try to sell their products at the prevailing market price. These firms, however, compete with one another on the basis of quality, product design, after-sales services, advertising, discounts, gifts, warrantees, special offers, etc.



In the above diagram, we shall notice that there is a discontinuity in the marginal revenue curve just below the point corresponding to the kink. During this discontinuity the marginal cost curve is drawn. This is because of the fact that the firm is in equilibrium at output ON where the MC curve is intersecting the MR curve from below.

The kinky demand curve is further explained in the following diagram:



In the above diagram, the demand curve is made up of two segments DB and BD'. The demand curve is kinked at point B. When the price is Rs. 10 per unit, a firm sells 120 units of output. If a firm decides to charge Rs. 12 per unit, it loses a large part of the market and its sales come down to 40 units with a loss of 80 units. In case, the producer lowers the price to Rs. 4 per unit, its competitors in the industry will match the price cut. Its sales with a big price cut of Rs. 6 increases the sale by only 40 units. The firm does not gain as its total revenue decreases with the price cut.

PRICE LEADERSHIP MODEL

2. Price Leadership Model: 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 dominant firm or a firm with the lowest cost of production. It often happens that price leadership is established as a result of price war in which one firm emerges as the winner.

In oligopolistic market situation, it is very rare that prices are set independently and there is usually some understanding among the oligopolists operating in the industry. This agreement may be either tacit or explicit.

 # Types of Price Leadership: There are several types of price leadership. The following are the principal types:

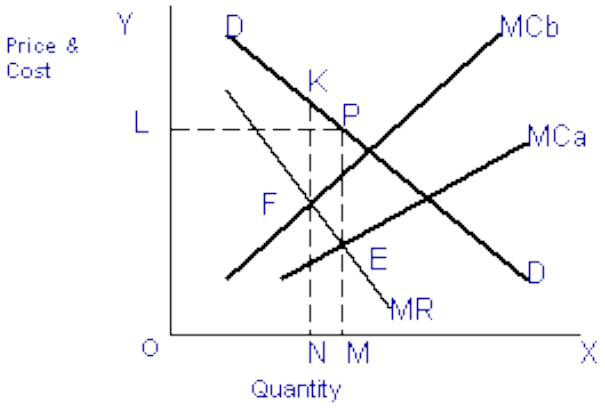
(a) Price leadership of a dominant firm, i.e., the firm which produces the bulk of the product of the industry. It sets the price and rest of the firms simply accepts this price.

(b) Barometric price leadership, i.e., the price leadership of an old, experienced and the largest firm assumes the role of a leader, but undertakes also to protect the interest of all firms instead of promoting its own interests as in the case of price leadership of a dominant firm.

(c) Exploitative or Aggressive price leadership, i.e., one big firm built its supremacy in the market by following aggressive price leadership. It 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.

 # Price Determination under Price Leadership: There are various models concerning price-output determination under price leadership on the basis of certain assumptions regarding the behaviour of the price leader and his followers. In the following case, there are few assumptions for determining price-output level under-price leadership:

(a) There are only **two firms A and B** and firm A has a lower cost of production than the firm B.
(b) The **product is homogenous or identical** so that the customers are indifferent as between the firms.
(c) Both A and B have **equal share in the market**, i.e., they are facing the same demand curve which will be the half of the total demand curve.



In the above diagram, MCa is the marginal cost curve of firm A and MCb is the marginal cost curve of firm B. Since we have assumed that the firm A has a lower cost of production than the firm B, therefore, the MCa is drawn below MCb.

Now let us take the firm A first, firm A will be maximising its profit by selling OM level of output at price MP, because at output OM the firm A will be in equilibrium as its marginal cost is equal to marginal revenue at point E. Whereas the firm B will be in equilibrium at point F, selling ON level of output at price NK, which is higher than the price MP. Two firms have to charge the same price in order to survive in the industry. Therefore, the firm B has to accept and follow the price set by firm A. This shows that firm A is the price leader and firm B is the follower.

Since the demand curve faced by both firms is the same, therefore, the firm B will produce OM level of output instead of ON. Since the marginal cost of firm B is greater than the marginal cost of firm A, therefore, the profit earned by firm B will be lesser than the profit earned by firm A.

 # Difficulties of Price Leadership: The following are the challenges faced by a price leader:

(a) It is difficult for a price leader to correctly assess the reactions of his followers.
(b) The rival firms may secretly charge lower prices when they find that the leader charged unduly high prices. Such price cutting devices are rebates, favorable credit terms, money back guarantees, after delivery free services, easy installment sales, etc.
(c) The rivals may indulge in non-price competition. Such non-price competition devices are heavy advertisement and sales promotion.
(d) The high price set by the price leader may also attract new entrants into the industry and these new entrants may not accept his leadership.

 # IMPORTANT QUESTIONS:-

➢ Short Questions (2 marks)

Q1. Define Revenue.

Q2. Total Revenue.

Q3. Average Revenue.

Q4. Marginal Revenue.

Q5. Relationship between TC, AC & MC.

Q6. Relationship between TR, AR & MR.

Q7:- Oligopoly

Q8:- Monopoly

Q9:- Price Leadership model.

Q10:- Monopolistic Competition

Q11. Market.
Q12. Perfect Competition

➢ Long Questions (10 marks)

Q1:- Define Revenue? Explain Its Types, Shapes And Curves?

Q2: - Explain Relationship Between Marginal Revenue & Elasticity Of Demand?
Q3:- What Is Market Structure? Discuss Its Types & Determinants?

Q4:- Discussed The Concept Of Perfect Competition Under Equilibrium?

Q5:- Define Monopoly? Explain Its Features & Types?

Q6:- Define Monopolistic Competition? Discuss It's Under Short & Long Run?

Q7:- Discuss Price And Output Determination Under Collusive & Non-Collusive Oligopoly?

Q8:- Write the detailed Note on Oligopoly?

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UNIT-IV

PRICING PRACTICES

MEANING OF PRICING

- ✓ Pricing is one of the most important elements of the marketing, as it is the only factor which generates a turnover for the organization. It can be defined as "Activities aimed at finding a product's optimum price, typically including overall marketing objectives, consumer demand, product attributes, competitors' pricing, and market and economic trends." It costs to produce and design a product; it costs to distribute a product and costs to promote it.

- ✓ Price must support these elements of the mix. Pricing is difficult and must reflect supply and demand relationship. Pricing a product too high or too low could mean a loss of sales for the organization.

- ✓ It is the value that is put to a product or service and is the result of a complex set of calculations, research and understanding and risk taking ability.

- ➢ **THE INFLUENCING FACTORS FOR A PRICING DECISION CAN BE DIVIDED INTO TWO GROUPS:**

(A) Internal Factors (B) External Factors.

Factors Affecting Pricing Decisions

Fig. 14.1

(A) Internal Factors:

1. Organizational Factors:- Pricing decisions occur on two levels in the organisation. Over-all price strategy is dealt with by top executives. They determine the basic ranges that the product falls into in terms of market segments. The actual mechanics of pricing are dealt with at lower levels in the firm and focus on individual product strategies. Usually, some combination of production and marketing specialists are involved in choosing the price.

2. Marketing Mix:- Marketing experts view price as only one of the many important elements of the marketing mix. A shift in any one of the elements has an immediate effect on the other three—Production, Promotion and Distribution. In some industries, a firm may use price reduction as a marketing technique.

Other firms may raise prices as a deliberate strategy to build a high-prestige product line. In either case, the effort will not succeed unless the price change is combined with a total marketing strategy that supports it. A firm that raises

its prices may add a more impressive looking package and may begin a new advertising campaign.

3. Product Differentiation:- The price of the product also depends upon the characteristics of the product. In order to attract the customers, different characteristics are added to the product, such as quality, size, colour, attractive package, alternative uses etc. Generally, customers pay more prices for the product which is of the new style, fashion, better package etc.

4. Cost of the Product:- Cost and price of a product are closely related. The most important factor is the cost of production. In deciding to market a product, a firm may try to decide what prices are realistic, considering current demand and competition in the market. The product ultimately goes to the public and their capacity to pay will fix the cost, otherwise product would be flapped in the market.

5. Objectives of the Firm:- A firm may have various objectives and pricing contributes its share in achieving such goals. Firms may pursue a variety of value-oriented objectives, such as maximizing sales revenue, maximizing market share, maximizing customer volume, minimizing customer volume, maintaining an image, maintaining stable price etc. Pricing policy should be established only after proper considerations of the objectives of the firm.

(B) External Factors:

1. Demand:- The market demand for a product or service obviously has a big impact on pricing. Since demand is affected by factors like, number and size of competitors, the prospective buyers, their capacity and willingness to pay, their preference etc. are taken into account while fixing the price.
A firm can determine the expected price in a few test-markets by trying different prices in different markets and comparing the results with a controlled market in which price is not altered. If the demand of the product is inelastic, high prices may be fixed. On the other hand, if demand is elastic, the firm should not fix high prices, rather it should fix lower prices than that of the competitors.

2. Competition:- Competitive conditions affect the pricing decisions. Competition is a crucial factor in price determination. A firm can fix the price

equal to or lower than that of the competitors, provided the quality of product, in no case, be lower than that of the competitors.

3. Suppliers:- Suppliers of raw materials and other goods can have a significant effect on the price of a product. If the price of cotton goes up, the increase is passed on by suppliers to manufacturers. Manufacturers, in turn, pass it on to consumers.
Sometimes, however, when a manufacturer appears to be making large profits on a particular product, suppliers will attempt to make profits by charging more for their supplies. In other words, the price of a finished product is intimately linked up with the price of the raw materials. Scarcity or abundance of the raw materials also determines pricing.

4. Economic Conditions:- The inflationary or deflationary tendency affects pricing. In recession period, the prices are reduced to a sizeable extent to maintain the level of turnover. On the other hand, the prices are increased in boom period to cover the increasing cost of production and distribution. To meet the changes in demand, price etc.

- **Several pricing decisions are available:**

(a) Prices can be boosted to protect profits against rising cost,

(b) Price protection systems can be developed to link the price on delivery to current costs,

(c) Emphasis can be shifted from sales volume to profit margin and cost reduction etc.

5. Buyers:- The various consumers and businesses that buy a company's products or services may have an influence in the pricing decision. Their nature and behaviour for the purchase of a particular product, brand or service etc. affect pricing when their number is large.
6. Government:- Price discretion is also affected by the price-control by the government through enactment of legislation, when it is thought proper to arrest the inflationary trend in prices of certain products. The prices cannot be fixed higher, as government keeps a close watch on pricing in the private sector. The marketers obviously can exercise substantial control over the internal factors, while they have little, if any, control over the external ones.

- **WHILE SETTING THE PRICE, THE FIRM MAY AIM AT THE FOLLOWING OBJECTIVES:**

(i) Price-Profit Satisfaction:- The firms are interested in keeping their prices stable within certain period of time irrespective of changes in demand and costs, so that they may get the expected profit.
(ii) Sales Maximization and Growth:- A firm has to set a price which assures maximum sales of the product. Firms set a price which would enhance the sale of the entire product line. It is only then, it can achieve growth.
(iii) Making Money:- Some firms want to use their special position in the industry by selling product at a premium and make quick profit as much as possible.
(iv) Preventing Competition:- Unrestricted competition and lack of planning can result in wasteful duplication of resources. The price system in a competitive economy might not reflect society's real needs. By adopting a suitable price policy the firm can restrict the entry of rivals.
(v) Market Share:- The firm wants to secure a large share in the market by following a suitable price policy. It wants to acquire a dominating leadership position in the market. Many managers believe that revenue maximisation will lead to long run profit maximisation and market share growth.
(vi) Survival:- In these days of severe competition and business uncertainties, the firm must set a price which would safeguard the welfare of the firm. A firm is always in its survival stage. For the sake of its continued existence, it must tolerate all kinds of obstacles and challenges from the rivals.
(vii) Market Penetration:- Some companies want to maximise unit sales. They believe that a higher sales volume will lead to lower unit costs and higher long run profit. They set the lowest price, assuming the market is price sensitive. This is called market penetration pricing.
(viii) Marketing Skimming:- Many companies favour setting high prices to 'skim' the market. DuPont is a prime practitioner of market skimming pricing. With each innovation, it estimates the highest price it can charge given the comparative benefits of its new product versus the available substitutes.
(ix) Early Cash Recovery:- Some firms set a price which will create a mad rush for the product and recover cash early. They may also set a low price as a caution against uncertainty of the future.
(x) Satisfactory Rate of Return:- Many companies try to set the price that will maximise current profits. To estimate the demand and costs associated with alternative prices, they choose the price that produces maximum current profit, cash flow or rate of return on investment.

TYPES OF PRICING

A. COST BASED PRICING METHOD

1. Cost plus pricing: Product unit's total cost + percentage of profit. Commonly followed in departmental stores. Does not consider the competition factor.
2. Marginal cost pricing: Also called break-even pricing. Selling price is fixed in such a way that it covers fully the variable or marginal cost.

B. COMPETITION-ORIENTED PRICING

1. Sealed bid Pricing: This method is more popular in tenders & contracts. Each contracting firm quotes its price in a sealed cover called 'tender'. All the tenders are opened on a scheduled date and the person who quotes the lowest price is awarded the contract.

2. Going rate Pricing: Price is charged in tune with the price in the industry as a whole. When one wants to buy or sell gold, the prevailing market rate at a given point of time is taken as the basis to determine the price

C. DEMAND-ORIENTED PRICING

1. Price discrimination: Practice of charging different prices to customers for the same good. It is also called differential pricing. Prices are discriminated on the basis of customer requirements, nature of product itself, geographical areas, income group etc.

2. Perceived value pricing: price fixed on the basis of the perception of the buyer of the value of the product. For example: Mobile phones without touch screens these days.

D. STRATEGY-BASED PRICING

1. Market Skimming: When the product is introduced for the first time in the market, the company follows this method. Under this method, the company fixes a very high price for the product. The idea is to charge the customer maximum possible. Mostly found in technical products.

2. Market Penetration: Opposite to the market skimming method. Here the product is fixed so low that the company can increase its market share.

3. Two-part pricing: A firm charges a fixed fee for the right to purchase its goods, plus a per unit charge for each unit purchased. Organizations such as country clubs, golf courses charge membership fee and offer their products & services cost- to-cost.

4. Block Pricing: Block pricing is another way a firm with market power can enhance its profits. We see block pricing in our day-to- day life. Six lux soaps in a single pack or Maggi noodles in a single pack illustrate this pricing methods. By selling certain number of units of a product as one package, the firm earns more than by selling unit wise.

5. Commodity bundling: Commodity bundling refers to the practice of bundling two or more different products together and selling them at a single 'bundle price'. For example: The package deals offered by the tourist companies, airlines etc.

6. Peak load Pricing: During seasonal period when demand is likely to be higher, a firm may enhance profits by peak load pricing. The firm's philosophy is to charge a higher price during peak times than is charged during off- peak times

7. Cross subsidization: In cases where demand for two products produced by a firm is interrelated through demand or costs, the firm may enhance the profitability of its operation through cross subsidization. Using the profits generated by established products, a firm may expand its activities by financing new product development and diversification into new product market. For example, A computer selling both hardware & Software.

8. Transfer Pricing: Transfer pricing is an internal pricing technique. It refers to a price at which inputs of one department are transferred to another, in order to maximize the overall profits of the company.

9. Price Matching: A firm promises to match a lower price offered by any competitor, while announcing its own price. It is necessary that one should be confident, before adopting this strategy.

10. Promoting Brand Loyalty: This is an advertising strategy where the customers are frequently reminded by the brand value of a given product or service. Conviction is to retain the brand loyalty, so that customers will not slip away when the competitors come up with lower prices. For example: Pepsi and Coke spend huge amounts on advertising campaigns to draw the attention of consumers.

11. Time-to-time Pricing: This is also called randomized pricing strategy where the firm varies its price from time-to-time, say hour-to- hour or day-to-day. Customers cannot learn from experience which firm charges the lowest price in the market. For ex: Markets of bullion, currency and bank deposits.

12. Promotional Pricing: Promoting the product by intentionally charging lower price to attract the customer

13. Target Pricing: This is a strategy where company fixes a price keeping in view a targeted profit in mind.

PRICING PRACTICES AND STRATEGY

It takes into account segments, ability to pay, market conditions, competitor actions, trade margins and input costs, amongst others. It is targeted at the defined customers and against competitors.

1. Cost-plus pricing :- It Refers to the simplest method of determining the price of a product. In cost-plus pricing method, a fixed percentage, also called mark-up percentage, of the total cost (as a profit) is added to the total cost to set the price. For example, XYZ organization bears the total cost of Rs. 100 per unit for producing a product. It adds Rs. 50 per unit to the price of product as' profit. In such a case, the final price of a product of the organization would be Rs. 150.
Cost-plus pricing is also known as **average cost pricing.** This is the most commonly used method in manufacturing organizations.

- ✓ **In economics, the general formula given for setting price in case of cost-plus pricing is as follows:**

P = AVC + AVC (M)
AVC= Average Variable Cost
M = Mark-up percentage
AVC (m) = Gross profit margin
Mark-up percentage (M) is fixed in which AFC and net profit margin (NPM) are covered.
AVC (m) = AFC+ NPM

i) For determining average variable cost, **the first step** is to fix prices. This is done by estimating the volume of the output for a given period of time. The planned output or normal level of production is taken into account to estimate the output.

ii) The second step is to calculate Total Variable Cost (TVC) of the output. TVC includes direct costs, such as cost incurred in labor, electricity, and transportation. Once TVC is calculated, AVC is obtained by dividing TVC by output, Q. [AVC= TVC/Q]. The price is then fixed by adding the mark-up of some percentage of AVC to the profit [P = AVC + AVC (m)].

- ✓ **Advantages of cost-plus pricing method are as follows:**

a. Requires minimum information
b. Involves simplicity of calculation
c. Insures sellers against the unexpected changes in costs

- ✓ **Disadvantages of cost-plus pricing method are as follows**:

a. Ignores price strategies of competitors
b. Ignores the role of customers

2. Markup Pricing:- It Refers to a pricing method in which the fixed amount or the percentage of cost of the product is added to product's price to get the selling price of the product. Markup pricing is more common in retailing in which a retailer sells the product to earn profit.

For example, if a retailer has taken a product from the wholesaler for Rs. 100, then he/she might add up a markup of Rs. 20 to gain profit.It is mostly expressed by the following formulae:

a. Markup as the percentage of cost= (Markup/Cost) *100
b. Markup as the percentage of selling price= (Markup/ Selling Price)*100
c. For example, the product is sold for Rs. 500 whose cost was Rs. 400. The mark up as a percentage to cost is equal to (100/400)*100 =25. The mark up as a percentage of the selling price equals (100/500)*100= 20.

3. Demand-based Pricing:- Demand-based pricing refers to a pricing method in which the price of a product is finalized according to its demand. If the demand of a product is more, an organization prefers to set high prices for products to gain profit; whereas, if the demand of a product is less, the low prices are charged to attract the customers. The success of demand-based pricing depends on the ability of marketers to analyze the demand. This type of pricing can be seen in the hospitality and travel industries

4. Competition-based Pricing:- Competition-based pricing refers to a method in which an organization considers the prices of competitors' products to set the prices of its own products. The organization may charge higher, lower, or equal prices as compared to the prices of its competitors.
The aviation industry is the best example of competition-based pricing where airlines charge the same or fewer prices for same routes as charged by their competitors. In addition, the introductory prices charged by publishing organizations for textbooks are determined according to the competitors' prices.

5. Value Pricing:- Implies a method in which an organization tries to win loyal customers by charging low prices for their high- quality products. The organization aims to become a low cost producer without sacrificing the quality. It can deliver high- quality products at low prices by improving its research and development process. Value pricing is also called value-optimized pricing.
6. Target Return Pricing:- It Helps in achieving the required rate of return on investment done for a product. In other words, the price of a product is fixed on the basis of expected profit.

7. Going Rate Pricing:- It implies a method in which an organization sets the price of a product according to the prevailing price trends in the market. Thus, the pricing strategy adopted by the organization can be same or similar to other organizations. However, in this type of pricing, the prices set by the market leaders are followed by all the organizations in the industry.

8. Transfer Pricing:- It involves selling of goods and services within the departments of the organization. It is done to manage the profit and loss ratios of different departments within the organization. One department of an organization can sell its products to other departments at low prices.

Sometimes, transfer pricing is used to show higher profits in the organization by showing fake sales of products within departments

9. Market Skimming Pricing:- Skimming is adopted where a new product is launched and the seller has little information on the acceptable price in the market. The seller, therefore, starts by setting a high price on the launch of the product and then, over a period of time, lowers the price to meet the varying price elastic ties of demand.
This enables gradual expansion in capacity by the seller. This practice is followed in the consumer durables market. The seller chooses to start by setting at a high price to avoid the risk of losing on customers who are willing to pay a high price.

10. Penetration Pricing:- Penetration pricing is a strategy employed by businesses introducing new goods or services into the marketplace. With this policy, the initial price of the good or service is set relatively low in hopes of 'penetrating' into the marketplace quickly and securing significant market share.

- ✓ A penetration policy is even more attractive if selling larger quantities results in lower costs because of economies of scale. Penetration pricing may be wise if the firm expects strong competition very soon after introduction.
- ✓ A low penetration price may be called a 'stay out' price. It discourages competitors from entering the market. Once the product has secured a desired market share, its producers can then review business conditions and decide whether to gradually increase the price.
- ✓ Penetration pricing involves the setting of lower, rather than higher prices in order to achieve a large, if not dominant, market share.

This strategy is most often used in businesses wishing to enter a new market or build on a relatively small market share.

This will only be possible where demand for the product is believed to be highly elastic, i.e., demand is price-sensitive and either new buyers will be attracted or existing buyers will buy more of the product as a result of a low price.

11. Bundling Pricing:- It is a pricing practice when two or more products are sold as bundle. Also, the constituent products of the bundle are not sold individually.
Price bundling is a strategy whereby a seller bundles together many different goods/items being sold and offers the entire bundle at a single price.

There are two forms of price bundling—pure bundling, where the seller does not offer buyers the option of buying the items separately, and **mixed bundling**, where the seller offers the items separately at higher individual prices. Mixed bundling is usually preferable to pure bundling, both because there are fewer legal regulations forbidding it, and because the reference price effect makes it appear even more attractive to buyers.

Suppose there are two buyers, A and B, and two products, X and Y. Suppose buyer A values product X at 20 units above the cost of production, and values 7 at 15 units above the cost of production. Suppose buyer B values Y at 20 units above the cost of production, and X at 15 units above the cost of production.
The ideal thing for the seller would be to practice price discrimination: charge each buyer the maximum that buyer is willing to pay. However, this may be forbidden by law or otherwise difficult to implement.
Instead, the seller can pursue the following bundling strategy- charge slightly under 35 units above production cost for the combination of X and Y. Since both buyers value the combination at 35 units, this deal appeals to both buyers. This allows the seller to obtain the entire social surplus as producer surplus.
The seller can even make this a mixed bundling strategy – offer both X and Y individually for 20 units, and offer the combination for slightly less than 35 units.

12. Peak Load Pricing:- It is a pricing practice where price varies with time of the day. When demand for a commodity or service varies at different periods of time, it has been generally suggested that higher price of a commodity or service be charged for the peak period when demand is greater and lower price be charged for off-peak period when demand is lower. This dual pricing, that is higher price for peak period and lower price for off-peak period is known as peak-load pricing.

For example. In India charges for trunk or STD calls during day time which is the peak period is higher and charges for the off-peak period from 9 P.M. to 6 A.M. are lower. In many countries, electric companies are permitted to charge higher rates during the day time which is the peak period for the use of electricity and lower rates for the night which is off-peak period for the use of electricity. Similarly, airlines often follow peak-load pricing; in off season they often lower their rates as compared to the peak periods of travel.

13. Limit Pricing:- Limit pricing refers to the pricing by incumbent firm(s) to deter or inhibit the entry or the expansion of fringe firms.
Limit pricing implies that firms sacrifice current profits in order to deter entry of new firms and earn future profits. It is not clear whether this strategy is always superior to one where current prices (and profits) are higher, but decline over time as an entry occurs.
Limit pricing thus involves charging prices below the monopoly price in order to make entry appear unattractive (to limit entry). A low price would discourage entry if prices had a commitment value. But they do not, because prices can be changed quickly. Hence, if a potential entrant has complete information about the incumbent, limit pricing would be useless.
It is the policy adopted by firms already in a market to reduce their prices so as to make it unprofitable for other firms to try to enter the market. The price so established is called an entry forestalling price.

14. Prestige Pricing:- Prestige pricing is a marketing strategy where prices are set higher than normal because lower prices will hurt instead of helping sales, such as for high-end perfumes, jewelry, clothing, cars, etc. It is also called image pricing or premium pricing.
It is a price system that implies added value of a product because of its location at the higher end of the price scale. Prices within this type of financial modeling are artificially elevated for a psychological marketing advantage. This type of pricing aims to capitalize on buyers' notions that one brand's high-priced item is superior in quality to a similar item that could be purchased for significantly less.
The strategy behind prestige pricing is not tied to its quality but more to its image.

ADVANTAGES OF PRICE PRACTICES

1. Firms will be able to increase revenue. Price discrimination will enable some firms to stay in business who otherwise would have made a loss. For example price discrimination is important for train companies who offer different prices for peak and off-peak. Without price discrimination, they may go out of business or be unable to provide off-peak services.

2. Increased investment. These increased revenues can be used for research and development which benefit consumers

3. Lower prices for some. Some consumers will benefit from lower fares. For example, old people benefit from lower train companies; old people are more likely to be poor. Also, customers willing to spend time in researching 'special offers' and travelling at awkward times will be rewarded with lower prices.

4. Manages demand. Airlines can use price discrimination to encourage people to travel at unpopular times (early in the morning) This helps avoid over-crowding and helps to spread out demand.

DISADVANTAGES OF PRICING PRACTICES

1. Higher prices for some. Under price discrimination, some consumers will end up paying higher prices (e.g. people who have to travel at busy times). These higher prices are likely to be allocatively inefficient because P > MC.

2. Decline in consumer surplus. Price discrimination enables a transfer of money from consumers to firms – contributing to increased inequality.

3. Potentially unfair. Those who pay higher prices may not be the poorest. For example, adults paying full price could be unemployed, senior citizens can be very well off.

4. Administration costs. There will be administration costs in separating the markets, which could lead to higher prices.

5. Predatory pricing. Profits from price discrimination could be used to finance predatory pricing.

COLLECTIVE BARGAINING

HISTORY OF COLLECTIVE BARGANING:-

The term of "Collective Bargaining" was first used in 1891 by Beatrics Webb, a founder of field if industrial relation in Britain. It refers to a sort of collective of negotiation and agreement that has existed. The concept of collective bargaining was introduced very late in India, as trade union were formed only in 1962.

MEANING:-

Collective Bargaining is the agreement between the a single employer or an association of the employers on the one hand and labor union on the other.

"Collective Bargaining is the processes in which the representative of a labor organization and the representative of the business organization meet and attempt to negotiate a contracts or agreement." **Edwin Flippo**

OBJECTIVES:-

1. To provide an opportunity to the workers to voice.

2. To reaching a solution that is acceptable.

3. To maintain cordial relation.

4. To promote democracy. To prevent unilateral action to employees.

5. To preventing strike and enhance the productivity.

6. To Resolving and prevent all conflicts and disputes in a mutually agreeable manner.

7. To develop a conducting atmosphere.

8. To provide stable and peaceful organization (hospital).

TYPES OF COLLECTIVE BARGAINING:-

1. DISTRIBUTIVE OR COLLECTIVE BARGAINING: - Conjunctive bargaining is the most common type of bargaining & involves zero-sum negotiations, in other words, one side wins and the other loses. This involves bargaining over the distribution of surplus. In this, economic issues like salaries, wages and bonuses. Economic issues like wages, salaries and bonus are discussed. One party's gain is another party's loss & More competitive. **e.g. Unions negotiate for maximum wages.**

2. INTEGRATIVE OR CORPORATIVE BARGAINING:- Integrative bargaining is similar to problem solving sessions in which both sides are trying to reach a mutually beneficial alternative, **i.e. a win-win situation.** Both parties may gain or neither party losses. Both the parties are trying to make more of something.

3. PRODUCTIVITY BARGAINING:- A form of collective bargaining leading to a productivity agreement in which management offers a pay raise in exchange for alterations to employee working practices designed to increase productivity.

4. COMPOSITE BARGAINING:- Wages with equity.

PROCESS OF COLLECTIVE BARGAINING

1. PREPARATORY PHASE:- In this phase, following activities are carried out :- Selection of negotiation team:- This phase involves composition of a negotiation team. It consist of the representatives of the both parties. They should have adequate knowledge and skills for the negotiation. Identification of problem. Enough supporting data is kept ready

2. **DISCUSSION PHASE:-** Decide and appropriate time and set a proper climate for negotiation. Maintenance of mutual trust and understanding. Involve in active listening, asking questions, observation and summarizing decision.

3. **PROPOSAL PHASE:-** This phase could be described as brainstorming'. The exchange of messages takes place and opinion of both the parties. Initial opening of statement. Possible alternative/opinion to resolve the issue by both parties.

4. **BARGAINING PHASE:-** Both the parties will involve in the following activities:- Problem solving & Proposal.

5. **SETTLEMENT PHASE:-** This stage is described as consisting of effective joint implementation of the agreement through shared visions, strategic planning and negotiated change. Agreement on common decision.

6. **FORMALIZING AGREEMENT:-**

- **Drafting of agreement:-**After good faith bargaining, a formal document must prepare. It should be simple, clear and concise.
- **Signing the agreement:-** Both parties sign the agreement and abide by its terms and conditions.

7. **ENFORCING AGREEMENT:-** To have the agreement effective and meaningful, it should be enforced or implemented immediately

PRINCIPLES OF COLLECTIVE BARGAING:-

1. **PRINCIPLES FOR THE MANAGEMENT**:- The management should be waiting for the trade union to bring employees grievances to its notice but should rather create the condition in which the employees can approach themselves without involving the trade union. The management should only deal with the one trade in the organization. They must form and follow a realistic labor policy. They should treat the trade union fairly. They should regularly check the rules and regulations to determine the attitude and comfort of its employees. Must agree to reform the trade union without any reservations. The management should not wait for the trade union to bring employees problems.

2. **PRINCIPLES FOR THE TRADE UNIONS:-** The trade union should eliminate racketeering and other undemocratic practices within their own organization Trade union leaders should resort to strike only when all other methods of the settlement of a dispute have failed. Trade union leaders should not imagine that their only function is to secure higher wages, shorter hours of work and better working conditions for their members. Trade union leaders should assist in the removal of such restrictive rules and regulations that are likely to increase costs and prices and reduce the amount that can be paid out as wages.

3. **PRINCIPAL OF UNION AND MANAGEMENT:-** Collective bargaining should be made an education well as a bargaining process. It should offer to trade union leaders an opportunity to present to the managements. There should be an honest, able and responsible leadership for only this kind of leadership which make collective bargaining effective and meaningful. There must be mutual confidence and good faith and a desire to make collective bargaining effective in practice.

ADVANCTAGE OF COLLECTIVE BARGAINING:-

1) PROVIDE SECURITY TO WORKERS:- Since collective bargaining contracts are legally binding agreement the employee can be sure of their work condition. As longs as all terms are followed the management cannot be go back or changed of the condition.

2**) PROHIBITS THE STRIKES:-** This is the security is provided by the management. Collective bargaining agreement prevents any employees from striking or not working try to get different benefits. Strikes can cause huge problems within company. so this is a big draw for management for collective bargaining.

3) GIVE EMPLOYEE A VOICE:- All the employee that the agreement will affects are allowed to have a say in the condition. All voice are heard, which promotes a much better moral in workplace. This also ensures that they want and need of the majority are met.

4) REDUCED BIAS AND FAVORITISMS:- All too often you heard stories of someone getting additional benefits simply because with their boss or other irrelevant things. This is greatly reduced and possibly eliminated with the use of collective bargaining

DISADVANTAGE OF COLLECTIVE BARGAINING:-

1) NOT ALL PEOPLE WILL AGREE:- Collective bargaining cater to need of the many and disagree the few. The terms in the agreement could negatively affects employee who have special circumstances or simply do not agree.

2) A LOSS OF AUTHORITY:- When the employee knows the exactly how much power management has, and has say in things that they can and cannot do, their role as the authority figure is greatly diminished.

3) REDUCED MANAGEMENT HAND IN BUSSINESS:- Constructive development is hindered when the collective bargaining is used. If the policy or the terms of the agreements truly need to be received or removed, it is nearly possible to do**.**

RENT OR THEORIES OF RENT

MEANING

In simple words, 'rent' is used as a part of the produce which is paid to the owner of land for the use of his goods and services.

But, in economics, rent has been differently defined from time to time.

Thus rent refers only to make payments for factors of production which are in imperfectly elastic supply. For instance, it is the price paid for the use of land.

Rent is the price or reward given for the use of land or house or a machine to the owner. But, in Economics, "Rent" or "Economic Rent" refers to that part of payment made by a tenant to his landlords for the use of land only.

"Rent is the income derived from the ownership of land and other free gifts of Nature." He further called it 'Quasi Rent' which arises on the manmade equipment's and machines in the short period and tend to disappear in the long run. **– Marshall**

"Rent is the price paid for the use of land." **–Prof. Carver**

TYPES OF RENT

The main types of rent are as under:

1. Economic Rent:- Economic rent refers to the payment made for the use of land alone. But in economics the term rent is used in the sense of economic rent. In the words of Ricardo and other classical economists, economic rent refers to the payment for the use of land alone It is also called Economic Surplus because it emerges without any effort on the part of landlord. Prof. Boulding termed it "Economic Surplus".

2. Gross Rent:- Gross rent is the rent which is paid for the services of land and the capital invested on it.

Gross rent consists of:

(1) Economic rent. It refers to payment made for the use of land.

(2) Interest on capital invested for improvement of land.

(3) Reward for risk taken by landlord in investing his capital.

3. Scarcity Rent:- Scarcity rent refers to the price paid for the use of the homogeneous land when its supply is limited in relation to demand. If all land is homogeneous but demand for land exceeds its supply, the entire land will earn economic rent by virtue of its scarcity. In this way, rent will arise when supply of land is inelastic. Prof. Ricardo opined that land was beneficial but it was also scarce. Productivity of land was indicative of the generosity of nature but its total supply remaining more or less fixed symbolized niggardliness of nature.

4. Differential Rent:- Differential rent refers to the rent which arises due to the differences in the fertility of land. In every country, there exists a variety of land. Some lands are more fertile and some are less fertile. When the farmer's are compelled to cultivate less fertile land the owners of more fertile land get relatively more production. This surplus which arises due to difference in fertility of land is called the differential rent. This type of rent arises under extensive cultivation. According to Ricardo, "In order to increase production on same type of land, more units of labour and capital are employed."

5. Contract Rent:- Contract rent refers to that rent which is agreed upon between the landowner and the user of the land. On the basis of some contract, which may be verbal or written, contract rent may be more or less than the economic rent.

THEORIES OF RENT

1. Ricardian Theory of Rent:- The Classical Theory of Rent is called "Ricardian Theory of Rent". David Ricardo explained the theory of rent thus:

Assumptions

Ricardian theory of rent assumes the following:-

"Rent is that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil". **- *David Ricardo***

1. Land differs in fertility.
2. The law of diminishing returns operates in agriculture.
3. Rent depends upon fertility and location of land.
4. Theory assumes perfect competition.
5. It is based on the assumption of long period.
6. There is existence of marginal land or no-rent land.
7. Land has certain "original and indestructible powers".
8. Land is used for cultivation only.
9. Most fertile lands are cultivated first.

➢ Statement of the Theory with Illustration

Assume that some people go to a newly discovered island and settle down there. There are three grades of land, namely A, B and C in that island. 'A' being most fertile, 'B' less fertile and 'C' the least fertile. They will first cultivate all the most fertile land (A grade) available. Since the land is abundant and idle, there is no need to pay rent as long as such best lands are freely available. Given a certain amount of labour and capital, the yield per acre on 'A' grade land is 40 bags of paddy.

Suppose another group of people goes and settles down in the same island after some time. Hence the demand for agricultural produce will increase. The most fertile lands [A grade] alone cannot produce all the food grains that are needed on account of the operation of the law of diminishing returns. So the less fertile lands [B grade] will have to be brought under cultivation in order to meet the

growing population. For the same amount labour and capital employed in '**A**' grade land, the yield per acre on 'B' grade land is 30 bags of paddy. The surplus of 10 bags [40-30] per acre appears on 'A' grade land. This is "Economic Rent" of 'A' grade land.

Suppose yet another group of people goes and settles down in the same island. So the least fertile land (C grade) will have to be brought under cultivation. For the same amount of labour and capital, the yield per acre on 'C' grade land is 20 bags of paddy. This surplus of 'A' grade land is now raised to 20 bags [40-20], and it is the "Economic Rent" of 'A' grade land. The surplus of 'B' grade land is 10 bags [30-20]. This is the economic rent of 'B' grade land.

In the above illustration in 'C' grade land, cost of production is just equal to the price of its produce and therefore does not yield any rent (20 - 20). Hence, 'C' grade land is called "no-rent land or marginal land". Therefore, No-Rent Land or Marginal Land is the land in which cost of production is just equal to the price of its produce. The land which yields rent is called "intra –marginal land". Therefore, rent indicates the differential advantage of the superior land over the marginal land.

Table 6.1 Ricardian Theory of Rent

Grades of Lands	*Production (in bags)*	*Surplus (i.e., Rent in bags)*
A	40	40-20=20
B	30	30-20= 10
C	20	20-20= 0

➢ Diagrammatic Explanation

In diagram 6.3, X axis represents various grades of land and Y axis represents yield per acre (in bags). OA, AB and BC are the 'A' grade, 'B' grade and 'C' grade lands respectively. The application of equal amount of labour and capital on each of them gives a yield represented by the rectangles standing just above the respective bases. The 'C' grade land is the "no–rent land" 'A' and 'B' grade lands are "intra–marginal lands". The economic rent yielded by 'A' and 'B' grade lands is equal to the shaded area of their respective rectangles.

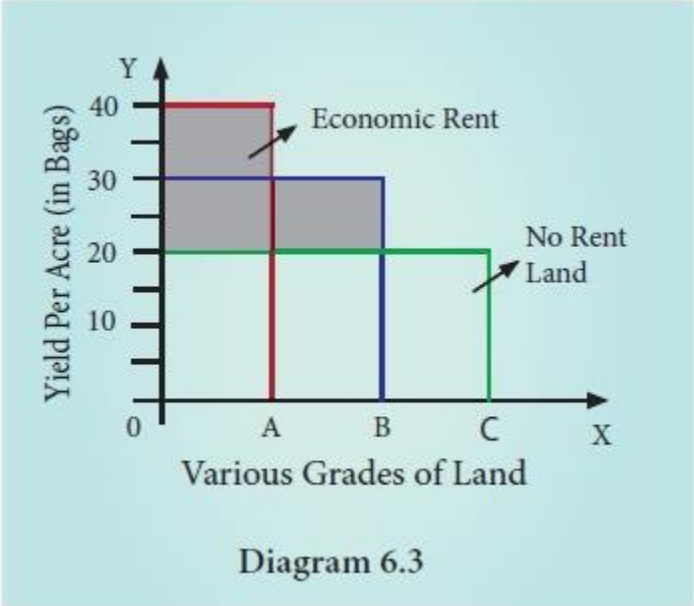


Diagram 6.3

➢ Criticisms

Following are the limitations of Ricardian theory of rent.

1. The order of cultivation from most fertile to least fertile lands is historically wrong.

2. This theory assumes that, rent does not enter into price. But in reality, rent enters into price.

2. Quasi-Rent

Marshall introduced the concept of Quasi rent. Factors other than land say plant and machinery are fixed in supply during short period. They earn surplus income when demand rises. It is purely temporary as it disappears in long run due to increase in supply. The quasi-rent is a surplus that a producer receives in the short period over variable costs from the sale of output.

➢ Distinction between "Rent" and "Quasi-Rent"

Sl. No.	*Rent*	*Quasi-Rent*
1.	Rent accrues to land	Quasi-Rent accrues to manmade appliances.
2.	The supply of land is fixed forever.	The supply of manmade appliances is fixed for a short period only.
3.	It enters into price	It does not enter into price.

QR= Total Revenue – Total Variable Cost

"Quasi-Rent is the income derived from machines and other appliances made by man".***-Alfred Marshall***

3. The Modern Theory of Rent / Demand & Supply Theory of Rent

The classical economists' thought that land as a factor of production was different from other factors of production. But modern economists thought that all the factors of production are alike and there is no basic difference between them. Hence, a special theory was rent, developed by Ricardo is not necessary. Therefore, economists like Joan Robinson and Boulding have contributed their ideas for the determination of rent, which is known as the "Modern Theory of Rent"

"The essence of the conception of rent is the conception of surplus earned by a particular part of a factor of production over and above the minimum earnings that is necessary to induce it to do work"***-Joan Robinson***

Rent is the difference between the actual earnings of a factor of production and its transfer earning.

Rent = Actual earning – Transfer earning.

The minimum payment that has to be made to a particular factor of production to retain it in its present use is known as transfer earnings.

PROFIT

The entrepreneur coordinates all the other three factors (land, labour and capital) of production. Entrepreneur is rewarded for his srvices in the form of profit.

MEANING OF PROFIT

Profit is a return to the entrepreneur for the use of his entrepreneurial ability. It is the net income of the organizer. In other words, profit is the amount left with the entrepreneur after he has payments made for all the other factors (land, labour and capital) used by him in the production process. However, there are other versions also.

KINDS OF PROFIT

1. Monopoly Profit: Profit earned by the firm because of its monopoly control.

2. Windfall Profit: Some times, profit arises due to changes in price level. Profit is due to unforeseen factors.

3. Profit as functional reward: Just like rent, wage and interest, profit is earned by the entrepreneur for his entrepreneurial function.

CONCEPTS OF PROFIT

a. Gross Profit

Gross Profit is the surplus which accrues to a firm when it subtracts its Total Expenditure from its Total Revenue.

Gross Profit = Total Revenue-Total cost

Here cost implies explicit costs only (Normally economic cost, social cost and environmental cost are not considered by the Accountants in India).

b. Net Profit or Pure Profit or Economic profit or True profit

Net or pure or economic or true profit is the residual left with entrepreneur after deducting from Gross profit the remuneration for the self-owned factors of production, which are called implicit cost.

Net Profit = Gross Profit-Implicit costs

c. Normal Profit

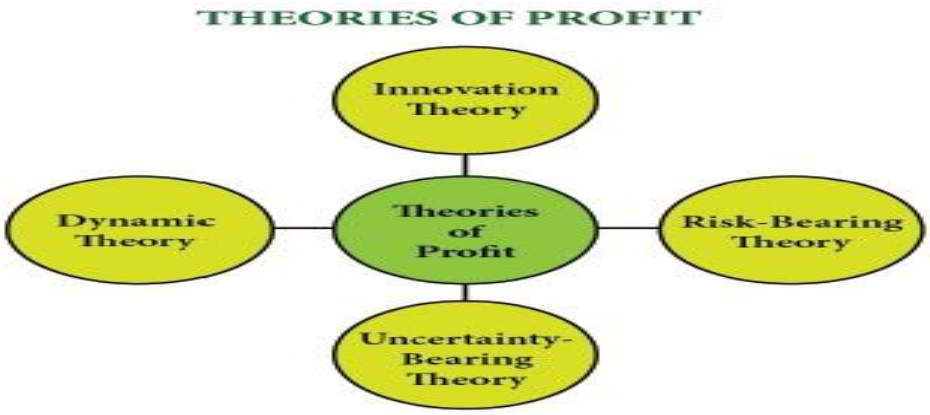
It refers to the minimum expected return to stay in business.

d. Super Normal Profit

Super normal profits are over and above the normal profit.

Super Normal Profit = Actual profit- Normal profit

THEORIES OF PROFIT



1. Dynamic Theory of Profit

This theory was propounded by the American economist J.B.Clark in 1900. To him, profit is the difference between price and cost of production of the commodity. Hence, profit is the reward for dynamic changes in society. Further

he points out that, profit cannot arise in a static society. Static society is one where everything is stationary or stagnant and there is no change at all. Therefore, there is no role for an entrepreneur in a static society. The price of the commodities in a static society would be equal to their cost of production. So, there would be no profit for the entrepreneur. The entrepreneur only gets wages for management and interest on his capital.

At present several changes are taking place in a dynamic society. Changes are permanent. According to Clark, the following five main changes are taking place in a dynamic society.

1. Population is increasing
2. Volume of Capital is increasing.
3. Methods of production are improving.
4. Forms of industrial organization are changing.
5. The wants of consumer are multiplying.

2. Innovation Theory of Profit

Innovation theory of profit was propounded by Joesph. A.Schumpeter. To Schumpeter, an entrepreneur is not only an undertaker of a business, but also

an innovator in the process of production. To him, profit is the reward for "innovation". Innovation means invention put into commercial practice.

According to Schumpeter, an innovation may consist of the following:

1. Introduction of a new product.
2. Introduction of a new method of production.
3. Opening up of a new market.
4. Discovery of new raw materials
5. Reorganization of an industry / firm.

When any one of these innovations is introduced by an entrepreneur, it leads to reduction in the cost of production and thereby brings profit to an entrepreneur. To obtain profit continuously, the innovator needs to innovate continuously. The real innovators do so. Imitative entrepreneurs cannot innovate.

3. Risk Bearing Theory of Profit

Risk bearing theory of profit was propounded by the American economist F.B.Hawley in 1907. According to him, profit is the reward for "risk taking" in business. Risk taking is an essential function of the entrepreneur and is the basis of profit. It is a well known fact that every business involves some risks.

Since the entrepreneur undertakes the risks, he receives profits. If the entrepreneur does not receive the reward, he will not be prepared to undertake the risks. Thus, higher the risks, the greater are the profit.

Every entrepreneur produces goods in anticipation of demand. If his anticipation of demand is correct, then there will be profit and if it is incorrect, there will be loss. It is the profit that induces the entrepreneurs to undertake such risks.

4. Uncertainty Bearing Theory of Profit

Uncertainty theory was propounded by the American economist Frank H.Knight. To him, profit is the reward for "uncertainty bearing". He distinguishes between "insurable" and "non-insurable" risks.

Insurable Risks:- Certain risks are measurable or calculable. Some of the examples of these risks are the risk of fire, theft and natural disasters. Hence, they are insurable. Such risks are compensated by the Insurance Companies.

Non-Insurable Risks:- There are some risks which are immeasurable or incalculable. The probability of their occurrence cannot be anticipated because of the presence of uncertainty in them. Some of the examples of these risks are competition, market condition, technology change and public policy. No Insurance Company can undertake these risks. Hence, they are non-insurable. The term "risks" covers the first type of events (measurables - insurable) and the term "uncertainty" covers the second type of events (unforeseeable or incalculable or not measurable or non-insurable).

According to Knight, profit does not arise on account of risk taking, because the entrepreneur can guard himself against a risk by taking a suitable insurance policy. But uncertain events cannot be guarded against in that way. When an entrepreneur takes himself the burden of facing an uncertain event, he secures remuneration. That remuneration is "profit".

INTEREST

MEANING OF INTEREST

In simple meaning interest is a payment made by a borrower to the lender for the money borrowed and is expressed as a rate percent per year.

It is usually expressed as an annual rate in terms of money and is calculated on the principal of the loan. It is the price paid for the use of other's capital fund for a certain period of time.

In the real economic sense, however, interest implies the return to capital as a factor of production. But for all practical purposes, "interest is the price of capital." Capital as a factor of production, in real terms, refers to the stock of capital goods (machinery, raw-materials, factory plant etc.).

In the money economy, however for all practical purposes capital refers to finance or money capital i.e., the monetary fund's lent or borrowed for any purpose of expenditure from any source. In strict narrow sense, again, capital may refer to only funds borrowed for real investment in business by the business community from financial institutions.

Definition of Interest:

1. As Prof. Marshall has said – "The payment made by borrower for the use of a loan is called Interest."

2. According to Prof. J. S. Mill – "Interest is the remuneration for mere abstinences."

3. As Prof. Keynes has said – "Interest is the reward of parting with liquidity for a specified period."

4. According to Seligman – "Interest is the return from the fund of capital."

TYPES OF INTEREST

There are two types or kinds of Interest:
(a) Net Interest,

(b) Gross Interest.

(a) Net Interest:- The payment made exclusively for the use of capital is regarded as net Interest or pure Interest. According to Prof. Chapman—"Net Interest is the payment for the loan of capital when no risk, no inconveniences apart from that involved in saving and no work is entailed on the lender."

According to Prof. Marshall, **"Net Interest is the earnings of capital simply or the reward of waiting simply."**

Thus, **Net Interest = Gross Interest – (payment for risk + payment for inconvenience + cost of administering credit)**

i.e., Net Interest = Net Payment for the use of capital.

(b) Gross Interest:- Gross Interest according to Briggs and Jordan has said—"Gross Interest is the payment made by the borrowers to the lenders is called Gross Interest or Composite Interest."

It includes payments for the loan of capital payment to cover risks for loss which may be:

(i) A personal risks or

(ii) Business risks, payment for inconveniences of the investment and payment for the work and worry involved in watching—investments, calling them in and investing.

According to Prof. Marshall:

Gross Interest is that "Interest of which we speak when we say that interest is the earning of capital simply or the reward of waiting simply, is net Interest but what commonly passes by the name of interest, includes other elements besides this and may be called gross interest."

By seeing the above definitions when we add elements of payment for risk, payment for inconvenience and the cost of administering credit to the net Interest, it becomes gross interest.

Thus, Gross Interest = Net Interest + payment of risk + payment for inconvenience + cost of administrating credit

FACTORS INFLUENCING THE RATE OF INTEREST

Interest rates vary from person to person and from place to place.

There are many factors which causes variations in Interest rates which Eire as such:

1. Different Types of Borrowers:- There are different types of borrowers in the market. They offer different types of securities. Their borrowing motives and urgency are different. Thus, the risk elements differ in different cases, which have to be compensated for.
2. Due to Differences in Gross Interest:- Variations in the rate of Interest are due to differences in gross interest such as risk and inconveniences involved, cost of keeping records and accounts and collection of loans etc. The greater the risk and inconvenience and the cost of management of loans, the higher will be the rate of Interest and vice-versa.

3. The Money Market is not Homogeneous:- There are different types of lenders and institutions, specializing in different types of loans and the loan-able funds are not freely mobile between them. The ideals of these institutions are also different. Again, there are moneylenders and indigenous bankers in the unorganized sector of the money market who follow their distinct lending policies and charge different interest rates.

4. Duration of Loan or Period of Loan:- Rate of Interest also depends upon the duration or period of loan. Larger term loans carry higher rate of Interest than short-term loans. In a long-term loan, the money gets locked up for a longer duration. Naturally, the lender wants to be compensated by a higher rate of Interest.

5. Nature of Security:- Interest rate varies with the type of security. Loans against the security of gold carry less interest rates than loans against the security of gold carry less interest rate than loans against the security of immovable property like land or house. The more liquid are the assets the lower is the interest rate and vice-versa.

6. Goodwill or Credit of the Borrower:-Interest rate also depends upon the credit or goodwill of the borrower. Persons of better goodwill and known integrity and credibility can get loans on easy terms.

7. Amount of Loan:- The greater the amount of loan, the lower is the rate of Interest and vice-versa.

8. Interest Policy of the Monetary Authorities:-Monetary policy of the authorities may also lead to differences in Interest rates, e.g., the Reserve Bank of India has adopted differential interest rates policy for the deployment of credit to the priority sectors.

9. Difference Due to Distance:- Distance between the lender and the borrower also causes differences between Interest rates. People are willing to lend at a lower rate of Interest nearer home than at a long distance.

10. Market Imperfections:-Differences in Interest rates are also due to market imperfections that may be found in a loan market. Money-lenders indigenous banks, mutual funds, commercial banks etc. follow different lending policies and charges various Interest rates.

11. Differences in Productivity:-Productivity of capital differs from work to work or from venture to venture. People are willing to borrow at a higher rate of Interest for productive purposes or productive ventures and vice-versa.

REAL V/S NOMINAL INTEREST

Basis	Nominal Rate	Real Rate
Formula	Nominal Rate = Real Rate + Inflation	Real Rate = Nominal Rate – Inflation
Definition	Nominal Rate is the simplest form of the rate which does not take inflation into account	Real rates are interest rates that have been adjusted to take into account the financial ripples caused by inflation
Inflation effect	They do not have any effect of inflation	When inflation is greater than the nominal rate the real rate will be negative and when the inflation is less than the nominal rate the real rate will be positive.
Investment Option	Bonds usually quote nominal rates. This type of rates is usually quoted as coupon rate for fixed income investments as this rate is the interest rate promised by the issuer that is stamped on the coupon to be redeemed by bondholders	Investors who want to seek protection from inflation invest in Treasury Inflation-Protected Securities (TIPS), the interest of these securities is indexed to inflation. There are also mutual funds available that invest in bonds, mortgages, and loans that are linked to the floating interest rate which are adjusted with current rates
Example	The rate of a Deposit is given as 2% p.a. on a $1000 investment. In nominal terms, the investor thinks that he is going to receive $200 as interest.	The rate of a Deposit is given as 2% p.a. on a $1000 investment and the rate of inflation is 3%. The actual percentage return the investor is going to earn is 2% – 3% = -1%. The return after considering the rate of inflation is negative.

THEORY OF INTEREST

Theory of Interest # 1. Productivity Theory of Interest:

This theory of Interest was expounded by J. B. Clark and F. H. Knight. Further Marshall, J. B. Say, Von-Thunen supported this theory.

According to this theory interest arises on account of the productivity of capital.

The amount that labour produces with the help of capital goods is generally larger than the amount it can produce when working by itself. Machinery and tools invariably add to the income of those that use them. That is why they are demanded by individual employers.

Further some classical economists hold that Interest is the reward paid to capital because it is productive. In fact, Interest is paid out of the productivity of capital. When more amount of capital is employed along with labour and other resources, the over-all productivity improves.

By employing capital the borrower (entrepreneur) obtains higher production, he ought to pay a part of this additional production to the owner of capital in the form of Interest. The theory implies that capital is demanded because it is productive. And, because is productive its price, i.e., Interest must be paid.

- **Its Criticisms:**

The important criticisms of this theory are as follows:

i. This theory is one sided:

Economists have called this theory as one-sided. It is half-truth, because it is related only to the demand aspect of capital and it completely ignores the supply side. If, however, the supply of capital is abundant, then, however great the capital productivity may be, the question of Interest will not arise, or at-least, Interest will be only normal.

ii. Considers only the higher productivity of capital:

Next, this theory suggests that when productivity of capital is higher, Interest is payable. On the contrary if capital is in short supply, greater will be the relative scarcity and higher will be the rate of Interest.

iii. Productivity of Capital Varies:

Again, productivity of capital varies in different industries and in different trades. This means that Interest rates should differ from industry to industry. However, the fact is that the pure Interest rate will be the same throughout the market and the borrower may borrow capital for any use.

iv. Difficult to measure the exact productivity:

It is difficult to measure the exact productivity of capital, as capital cannot produce anything without the help of labour and other factors.

v. How much interest for consumption loans?

This theory fails to explain the Interest paid for consumption loans. Because in practice we find that interest-bearing loans are also made for consumption purposes.

Theory of Interest # 2. Abstinence or Waiting Theory of Interest:

This theory was expounded in 18th century by an eminent economist N. W. Senior. According to him, **"Capital is the result of Saving".** He was the first economist to point-out that saving, which was later on embodied in capital goods, involved a sacrifice, an 'abstinence' as he called it.

People may spend the whole of their income in consuming present goods. But when they save they 'abstain' from present consumption. Such abstinence is disagreeable. Hence, in order to induce people to save, we must offer them some inducement as compensation for their sacrifice. Interest is therefore the compensation for abstinence.

Marshall substituted the word 'waiting' for abstinence. Saving connotes waiting, when an individual saves a part of his income, he does not thereby eternally refrain from consumption. He only defers his consumption for a certain period, i.e., till the fruits of his savings come in an increasing flow afterwards.

Meanwhile he must wait, and as a rule people do not like to wait. Not only saving, but all kinds of productive activity involve waiting. A farmer who sows his crops must wait till crops are harvested. The gardener who plants a seed must wait till it grows into a tree and begins yielding fruit.

Waiting is, therefore, a necessary condition for production. It is thus a separate factor of production and can be substituted for other factors. Since waiting is a factor of production, its price will be determined by the marginal analysis. That is, the rate of interest tends to equal the reward necessary to call forth marginal increment of saving.

Its Criticisms:

This theory has been criticised on the following grounds:

i. This theory takes no consideration of the productivity of capital:

In fact, here the borrower uses and pays for the capital because it is productive.

ii. In this sacrifice cannot be measured:

In this theory the feeling of sacrifice or real cost of saving cannot be measured so it is difficult to see how a given rate of Interest can be arrived at by this theory. This theory is subjective and not amenable in practice.

iii. In this rich hardly experience any inconvenience as they have enough money:

As we have experienced that a large part of capital comes from rich, wealthy lenders who have a surplus of income so that they hardly experience any inconvenience or sacrifice of consumption and they save because they do not know what to do with their fabulous income. So mere sacrifice is no justification for the payment of Interest.

iv. The intensity of feeling of sacrifice is also different for different individuals:

It has been seen that many times, a person with small means gets pleasure in saving, where as an extravagant, rich person may feel a great loss of pleasure if he has to save. In answer to this criticism, Marshall has suggested the term 'waiting' to replace 'abstinence' in his theory which implies that a person gets Interest as a reward for waiting i.e., by giving loans he passes on his resources and thereby postpones his consumption for the time being, and this has to be compensated. But Cannan was not in favour of the term 'waiting'. In his opinion 'waiting[1] means inaction and inaction would never produce anything in real life.

v. This theory has been called one-sided:

Because it emphasises only the supply side, ignoring the factors leading to the demand for saving or capital. Thus, Interest can be paid as a reward to abstain from consumption and save resources for capital formation. Perhaps, this is also true for certain backward modern economies.

Theory of Interest # 3. The Austrian or Agio Theory of Interest or Bohm-Bawerk's "The Time- Preference Theory":

John Rae expounded this theory in the year 1834. Further, Bohm Bawerk developed this theory in an elaborate way. Bohm-Bawerk, an Austrian economist, is the main exponent of this theory which seeks to explain Interest on the basis of time-preference.

According to this theory, Interest is the price of time of reward for agio, i.e., time preference. It has been argued that man generally prefers present income to a future income and consumption. There is an 'agio' or premium on present consumption as compared to a future one.

People prefer enjoyment of present goods to future goods because future satisfaction, when viewed from the present, undergoes a discount. Interest is this discount, which must be paid in order to induce people to lend money and thereby to postpone present satisfaction to a future date. Thus, Interest is the reward made for inducing people to change their time-preference from the present to the future.

According to Bohm-Bawerk, the positive time-preference of people may be attributed to the following reasons:

a. As compared to the future or remote wants, present wants are more intensely felt by the people.

b. Future wants are often under-estimated by people on account of various factors like lack of will power to resist temptation, deficiency of imagination, uncertainty about future as to whether they will be able to enjoy etc.

c. Present goods seem to have a technical superiority over future goods in a capitalist method of production because the present goods can be invested and re-invested immediately. Because of the higher productivity of capital, thus, more goods can be accrued in the immediate future while the future goods can be invested and re-invested in the remote future only.

Theory of Interest # 4. Prof. Fisher's Time Preference Theory:

Prof. Fisher's Time Preference Theory is the modified theory of Bohm-Bawerk. This theory is based on Bohm-Bawerk's theory of Interest. While explaining this theory Prof. Fisher has said that—Time preference theory stresses the idea that the supply of loans depends on the fact that most people prefer to have a certain sum of money now than at some future time.

People normally put a lower valuation on future goods than on present goods. Because of their time preference (i.e., preference for the present than the future) people are eager to spend their income on present consumption. Therefore, when somebody lends to someone, he has to forgo his present consumption.

He can be made prepared to leave his present consumption only when he is offered some sort of reward. This reward is Interest. Higher, the eagerness to spend on present consumption, higher will be the Interest rate. Thus, Interest rate depends on time-preference or an eagerness to spend income on present consumption.

In fact Fisher has defined Interest as "an index of the community's preference for a dollar of present over a dollar of future income." As he has said that the intensity of the people's preference for present income depends on a host of subjective and objective factors.

These have been grouped under:

(i) Willingness, and

(ii) Opportunity.

Thus, Fisher based his theory of Interest on two principles, viz.:

1. the impatience or the willingness principles, and

2. the investment opportunity principle.

He laid down that Interest is determined by the preference of the people for the present income against future income, which in turn is determined by the willingness principle and the investment opportunity principle.

(a) Impatience or the willingness principles:
This depends on several factors, such as:
(i) Size of income,

(ii) Composition of income,

(iii) Distribution of income,

(iv) Uncertainty element in the future earnings,

(v) Personal attributes like foresight, precaution etc.

Some of these factors encourage people's patience, some make them impatience. Say, for example, when income is enough, people will be satisfied more of current wants and discounting the future at a lower rate. If uncertainty of future is highly estimated, the rate of impatience will tend to be high.

When the rate of willingness is lower than the market rate of Interest a person will be willing to his income and wish to gain in future. But, if the market rate of Interest is lower than the rate of willingness, the person would like to borrow money and spend it on current consumption.

(b) The investment opportunity principle:
This principle is another determinant of the rate of Interest. This principle refers to the rate of return over cost, viewed in a specific sense. To explain this phenomenon, let us assume that an individual is confronted with alternative investment proposals which imply two income streams that are substitutes. Hence, when he withdraws one income stream to substitute it for another, the loss experienced in the with-drawl is the 'cost', while the gain accruing from the adopted new income stream is the 'return'.

The rate of return over cost is, therefore, the rate of discount, which equalizes the present net values of the investment opportunities. The rankings of different investment proposals are decided in relation to the rate of Interest.

If the discount rate is higher than the market rate of Interest, one of the two alternative proposals will be given up. The investment opportunity which

carries a higher rate of return over cost will be accepted and the one which has a lower return will be rejected.

In short, it can be said that the rate of willingness and the rate of marginal return over cost, together determine the people's preference for present income rather than future income, which in turn, determines the Interest rate, because Interest is the price paid for this preference. Fisher's Theory, in this way considers time-preference as the sole significant determinant of the supply of capital and the rate of Interest.

Its criticisms:
This Time Preference Theory of Fisher has been severely criticised by many eminent economists.

The important criticisms are as follows:
i. This theory is one sided:
Modern economists call this theory as one-sided. It explains why capital has a supply price, but it fails to explain why capital has a demand. It completely ignores the productivity aspect of capital.

ii. This theory fails to recognise the input of bank credit:
It considers and explains the supply of capital as the outcome of savings alone. It does not recognise the impact of the banking system and credit creation by commercial banks on investments and the rate of Interest.

iii. Here time-preference has little practical significance:
Economists like Erich Roll and others have stated that the very existence of time-preference is questionable and even if it exists, it is very difficult to see any precise significance of time-preference on the determination of Interest.

iv. This theory has been called as "Incorrect Visualization":
To some critics, it is not proper or it is incorrect to say that a person always prefers present consumption to the future one so that he always insist on a premium to be paid for postponement. On the contrary, strangely enough, very often a person is found to have realised greater satisfaction from future consumption than the present one. Therefore, with these arguments

economists do not call this theory as a correct principle of Interest determination.

Theory of Interest # 5. Classical Theory of Interest or Demand and Supply of Capital Theory of Interest:

This theory was expounded by eminent economists like Prof. Pigou, Prof. Marshall, Walras, Knight etc. According to this theory, Interest is the reward for the productive use of the capital which is equal to the marginal productivity of physical capital.

Therefore, those economists who hold classical view have said that "the rate of Interest is determined by the supply and demand of capital. The supply of capital is governed by the time preference and the demand for capital by the expected productivity of capital. Both time preference and productivity of capital depend upon waiting or saving. The theory is, therefore, also known as the supply and demand theory of waiting or saving."

Demand for Capital:

Demand for capital implies the demand for savings. Investors agree to pay interest on these savings because the capital projects which will be undertaken with the use of these funds, will be so productive that the returns on investment realised will be in excess of the cost of borrowing, i.e., Interest.

In short, capital is demanded because it is productive, i.e., it has the power to yield an income even after covering its cost, i.e., Interest. The marginal productivity curve of capital thus determines the demand curve for capital. This curve after a point is a downward sloping curve. While deciding about an investment, the entrepreneur, however, compares the marginal productivity of capital with the prevailing market rate of Interest.

Marginal Productivity of Capital = the marginal physical product of capital x the price of the product.

When, the rate of Interest falls, the entrepreneur will be induced to invest more till marginal productivity of capital is equal to the rate of Interest. Thus, the investment demand expands when the Interest rate falls and it contracts when

the Interest rate rises. As such, investment demand is regarded as the inverse function of the rate of Interest.

Supply of Capital:

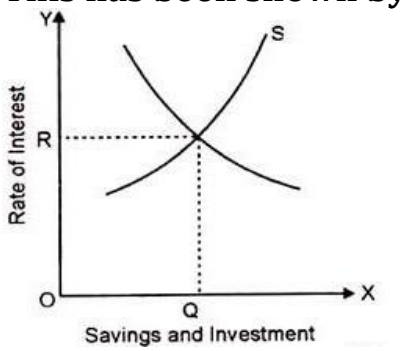
Supply of capital depends basically on the availability of savings in the economy. Savings emerge out of the people's desire and capacity to save. To some classical economists like Senior, abstinence from consumption is essential for the act of saving while economists like Fisher. Stress that time preference is the basic consideration of the people who save.

In both the views the rate of Interest plays an important role in the determination of savings. The chemical economists commonly hold that the rate of saving is the direct function of the rate of Interest. That is, savings expand with the rise in the rate of Interest and when the rate of Interest falls, savings contract. It must be noted that the saving-function or the supply of savings curve is an upward-sloping curve.

Equilibrium Rate of Interest:

The equilibrium rate of Interest is determined at that point at which both demand for and supply of capital are equal. In other words, at the point at which investment equals savings, the equilibrium rate of Interest is determined.

This has been shown by the diagram given below:



In the figure given here OR is the equilibrium rate of Interest which is determined at the point at which the supply of savings curve intersects the investment demand curve, so that OQ amount of savings is supplied as well as invested. This implies that the demand for capital OQ is equal to the supply of capital OQ at the equilibrium rate of Interest OR.

Indeed, the demand for capital is influenced by the productivity of capital and the supply of capital. In turn savings are conditioned by the thrift habits of the community. Thus, the classical theory of Interest implies that the real factor, thrift and productivity in the economy are the fundamental determinants of the rate of Interest.

Its Criticisms:
The theory of Interest of the classical economists has been severely criticised by Keynes and others.

The important criticisms are as under:
i. Interest is purely a monetary phenomenon:
According to Keynes—Interest is purely a money phenomenon, a payment for the use of money and that the rate of Interest is a reward for parting with liquid cash (i.e., dishoarding) rather than a return on saving. Keynes has said that one can get interest by lending money which has not been saved but has been inherited from one's forefathers.

It completely neglects the influence of monetary factors on the determination of the rate of Interest. The classical economists regarded money as a 'veil' as a medium of exchange over goods and services. They failed to take into account money as a store of value.

ii. The theory of interest is confusing and indeterminate:
Keynes has said that the classical theory of Interest is confusing and indeterminate. We cannot know the rate of Interest unless we know the savings and investment schedules which again, cannot be known unless the rate of Interest is known. Thus, it can be said that the theory fails to offer a determinate solution.

iii. This theory is unrealistic and inapplicable in a dynamic economy:
Because it assumes that income not spend on consumption should necessarily be diverted to investment, it ignores the possibility of saving being hoarded. It fails to integrate monetary theory into the general body of economic theory.

iv. Classicists have described the rate of interest as an equilibrating factor between savings and investment:
But according to Keynes, "the rate of interest is not the price which brings into equilibrium the demand for resources to invest with the readiness to abstain from present consumption. It is the price which equilibrates the desire to hold wealth in the form of cash."

v. This theory is narrow in scope:
Because it ignores consumption loans and takes into account only the capital used for productive purposes.

vi. Keynes differs with the classical economists even over the very definition and determination of the rate of interest:
Keynes has said that Interest is the reward of parting with liquidity for a specified period. He does not agree that Interest is determined by the demand for and supply of capital. With these arguments Keynes has completely dismissed the classical theory of Interest as absolutely wrong and inadequate. He has never been agreeable with the view of classists.

Theory of Interest # 6. The Loan-Able Fund Theory of Interest:
The Neo-classical or the Loan-able Fund Theory was expounded by the famous Swedish economist Knot Wick-sell. Further, this theory was elaborated by Ohlin, Roberson, Pigou and other new-classical economists. This theory is an attempt to improve upon the classical theory of Interest. According to this theory, the rate of Interest is the price of credit which is determined by the demand and supply for loanable funds.

In the words of Prof. Lerner:
"It is the price which equates the supply of 'Credit' or Saving Plus the Net increase in the amount of money in a period, to the demand for 'credit' or investment Plus net 'hoarding' in the period."

Demand for Loan-able Funds:
The demand for loanable funds has primarily three sources:
(i) Government,

(ii) Businessmen, and

(iii) Consumers who need them for purposes of investment, hoarding and consumption.

The Government borrows funds for constructing public works or for war preparations or for public consumption (to maintain law and order, administration, justice, education, health, entertainment etc.). To compensate deficit budget during depression or to invest in and for other development purposes. Generally government demand for loanable funds is not affected by the Interest rate.

The businessmen borrow for the purchase of capital goods and for starting investment projects. The businessmen or firms require different types of capital goods in order to run or expand their production. If the businessmen do not possess sufficient money to purchase these capital goods, they take loans.

Businessmen investment demand for loanable funds depends on the quantity of their production. Generally, the interest and firm's investment demand for loanable funds has also inverse relationship. It means there will be less demand on higher Interest and more demand on lower Interest.

The consumers take loans for consumption purposes. They prefer present consumption, they wish to purchase more consumption, goods than their present income allows and for that they take loans. They take loans to purchase mainly two types of consumption goods.

First, durable consumption goods and secondly to purchase consumption goods of daily use and they generally open their accounts with the seller and go on purchasing goods on credit basis. Besides these they take loans for investment or speculative purposes also. Behind this they have profit motive.

Supply to Loanable Funds:

The supply of loanable funds comes from savings, dis-hoardings and bank credit. Private savings, individual and corporate are the main source of savings. Though personal savings depend upon the income level, yet taking the level of

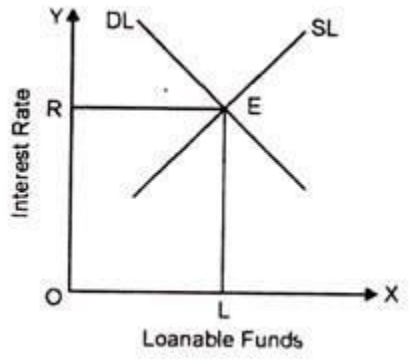
income as given, they are regarded as Interest elastic. The higher the rate of Interest, the greater will be the inducement to save and vice-versa.

There is a positive relationship between Interest-rate and the supply of loanable funds. It means there will be more supply of loanable funds at higher interest and less supply on lower interest. Hence the supply curve of loanable funds will be an upward sloping curve from left to right.

Determination of Interest Rate:

The equilibrium between the demand for and supply of loanable funds (or the intersection between demand and supply curves of loanable funds) indicates the determination of the market rate of interest. It has been shown in the diagram given here.

In the diagram demand curve for loanable funds (DL) and supply curve of loanable funds (SL) meet at point E. Therefore, E will be the equilibrium point and OR will be the equilibrium rate of interest. At this rate of interest demand for and supply of loanable funds both are equal to OL.



Given the supply of loanable funds, if the demand for loanable funds rises, the Interest rate will also rise and if the demand for loanable funds falls, the Interest rate will also fall. Similarly, given the demand for loanable funds, Interest rate will rise with the fall in the supply of loanable funds and will fall with the rise in the supply of loanable funds. The equilibrium rate of interest is thus determined where SL = DL.

Its Criticisms:

The important criticisms of this theory are as follows:

i. It has been called as indeterminate theory:
Prof. Hansen asserts that the loanable funds theory like the classical and the Keynesian theories of Interest are indeterminate. Because according to this theory Interest rate determination depends on savings. But saving depends on income, income depends on investment and investment itself depends on Interest rate.

ii. In this theory the equilibrium between demand for and supply of loanable funds cannot be brought by the changes in interest rate:
Investment in the demand for loanable funds and savings in the supply of loanable funds are important elements. Both saving and investment are not so much influenced by Interest as they are influenced by the changes in income-levels.

Besides this, it is not essential that banks would necessarily change their Interest rate with the changes in demand for and supply of loan-able funds. Banks determine their Interest rate keeping in view so many factors and they would not like to make frequent changes in it. In this situation it would be difficult to bring equilibrium in demand for and supply of loan-able funds through the changes in the Interest rate.

iii. This theory exaggerates the effect of the rate of interest on savings:
Regarding this theory critics argue that people usually save not for the sake of interest but out of precautionary motives and in that case, saving is Interest-inelastic.

iv. Availability of Cash balance which is not elastic:
The loanable funds theory states that the supply of loanable hands can be increased by releasing cash balances of savings and decreased by absorbing cash balances into savings. This implies that the cash balances are fairly elastic. But this does not seem to be correct view because the total cash balances available with the community are fixed and equal the total supply of money at any time. Whenever there are variations in the cash balances, they are, in fact, in the velocity of circulation of money, rather than in the amount of cash balances with community.

v. Government influence on the demand:
Government has an important influence on the demand for and supply of loanable funds. And it is not essential that government may always take the decisions in view of Interest rate. Rather government generally takes the decisions keeping in view the public Interest and not the Interest rate.

Is Loanable Funds Theory Superior over The Classical Theory?

In-spite of the weaknesses, the loanable funds theory is better and more realistic than the classical theory on the following grounds:

a. The loanable-funds theory is more realistic than the classical theory:
The Loanable funds theory is stated in real as well as in money terms, whereas the classical theory is stated only in real terms. The rate of interest is a monetary phenomenon. Therefore, a theory stated in money terms seems more realistic.

b. The loanable funds theory recognises the active role of money in a modern economy:
To the classical school money is merely a 'veil', a passive factor influencing the rate of interest. The loanable funds theory is superior because it regards money as an active factor in the determination of the Interest rate.

c. Role of bank credit as a constituent of money supply:
Classical school of thought neglects the role of bank credit as a constituent of money supply influencing the rate of Interest which is an important factor in the loanable funds theory

d. Role of hoarding:
The classicists are also of this opinion and they also do not consider the role of hoarding. By including the desire to hoard money in the demand for loanable funds, the loanable funds theory becomes more realistic and brings us nearer to Keynes's liquidity preference theory.

Theory of Interest # 7. Keynes's Liquidity Preference Theory of Interest or Interest is Purely a Monetary Phenomenon:
According to Keynes, Interest is purely a monetary phenomenon. It is the reward of not hoarding but the reward for parting with liquidity for the

specified period. It is not the 'Price' which brings into equilibrium the demand for resources to invest with the readiness to abstain from consumption. It is the 'Price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash.

Here Liquidity Preference Theory is determined by the supply of and demand for money. Supply of money comes from banks and the government. On the other hand, demand for money is the preference for liquidity. According to Keynes people like to hoard money because it possesses liquidity.

Hence, when somebody lends money he has to sacrifice this liquidity. A reward which is offered to make him prepared for parting with liquidity is called Interest. Therefore, in the eyes of Keynes—"Interest is the reward for parting with liquidity for a specific period."

Liquidity Preference or Demand for Money:

Liquidity preference means demand for cash or money. People prefer to keep their resources **"Liquid".** It is because of this reason that among various forms of assets money is the most liquid form. Money can easily and quickly be changed in any form as and when we like. Suppose, you have a ten rupee note now you can change it into either wheat, rice, sugar, milk, book or in any other form you like. It is because of this feature of liquidity of money, people generally prefer to have cash money.

The desire for liquidity arises because of three motives:

(i) The transaction motive;

(ii) The precautionary motive; and

(iii) The speculative motive.

(i) Transactions Motive:

The transactions motive relates to "the need of cash for the current transactions of personal and business exchanges". It is further divided into the income and business motives. The income motive is meant "to bridge the interval between the receipt of income and its disbursement", and similarly, the business motive as "the interval between the time of incurring business costs and that of the

receipt of the sale proceeds." If the time between the incurring of expenditure and receipt of income is small, less cash will be held by the people for current transactions and vice-versa.

(ii) Precautionary Motive:

The precautionary motive relates to **"the desire to provide for contingencies requiring sudden expenditures and for unforeseen opportunities of advantageous purchases."** Both individual and businessmen keep cash in reserve to meet unexpected needs. Individual hold some cash to provide for illness, accidents, unemployment and other unforeseen contingencies. Similarly, businessmen keep cash in reserve to tide over unfavorable conditions or to gain from unexpected deals.

(iii) Speculative Motive:

Money held under the speculative motive is for "securing profit from knowing better than market what the future will bring forth." Individuals and businessmen have funds, after keeping enough for transactions and precautionary purposes, like to gain by investing in bonds.

Money held for speculative purposes is a liquid store of value which can be invested at an opportune moment in Interest bearing bonds on securities. There is an inverse relationship between interest rate and the demand for money i.e., more demands for money at lower Interest rate and less demand at higher interest rate. Hence, the liquidity preferences curve becomes a downward sloping curve.

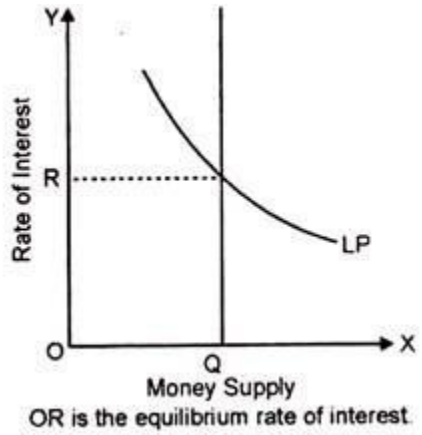
Supply of Money:

The supply of money refers to the total quantity of money in the country for all purposes at any time. Though the supply of money is a function of the rate of Interest to a degree, yet it is considered to be fixed by the monetary authorities, that is, the supply curve of money is taken as perfectly inelastic.

The supply of money in an economy is determined by the policies of the government and the Central Bank of the country. It consists of coins, currency notes and bank deposits. The supply of money is not affected by the Interest rate, hence, the supply of money remains constant in the short period.

Determination of Interest Rate:

According to the Liquidity-Preference Theory the equilibrium rate of interest is determined by the interaction between the liquidity preference function (the demand for money) and the supply of money, as presented in figure below:



OR is the equilibrium rate of interest.

OR is the equilibrium rate of interest. The theory further states that any change in the liquidity preferences function (LP) or change in money supply or changes in both respectively cause changes in the rate of interest. Thus as shown in figure below, it given the money supply the liquidity preference curve (LP) shifts from LP_1 to LP_2 implying thereby an increase in demand for money, the equilibrium rate of interest also rises from to R%.

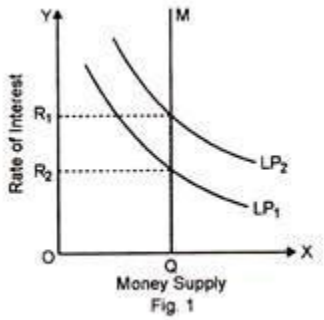


Fig. 1

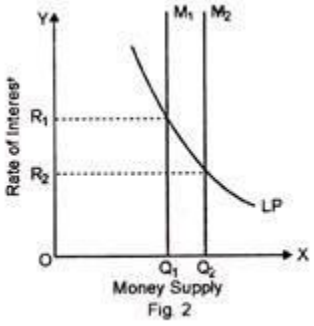


Fig. 2

Similarly, assuming a given liquidity preference function (LP) as in fig. (b) when the money supply increases from M_1 to the rate of interest falls from R_1 to R_2.

Its Criticisms:

The following major criticisms have been levelled against the Keynesian Liquidity Preference theory of interest. By Hansen, Robertson, Knight and Hazlitt etc. This theory has been characterised as "a college bursar's theory", "at best an inadequate and at worst a misleading account".

Important among them are as follows:

1. This theory is indeterminate, inadequate and misleading:

Prof. Hansen and Robertson maintain that the Keynesian theory of interest rate, like the classical theory is indeterminate, inadequate and misleading. In the Keynesian version, the liquidity preference function will shift up or down with changes in the level of income. Particularly the liquidity preference for transactions and out of precautionary motive. This being the function of income and with this we know the income level. And to know the level of income we must know the rate of interest. Robertson regards the liquidity preference theory, "as at best inadequate and at worst a misleading account."

2. Hazlitt's Criticism:

Professor Hazlitt has vehemently criticised the Keynesian theory of interest on the following grounds:

(i) It is one sided theory:

According to Hazlitt, the Keynesian theory of interest appeared to be one sided as it ignored real factors. Keynes considered Interest to be a purely monetary phenomenon and refused to believe that real factors like productivity and time preference, had any influence on the rate of interest. Similarly, the classicists also were wrong in considering Interest purely as a real phenomenon and ignoring the monetary factors.

(ii) Role of saving has been ignored:

Keynes has ignored the element of saving, which he considered Interest as a reward for parting with liquidity. Professor Jacob Viner has said that "without saving there can be no liquidity to surrender. The rate of interest is the return for saving without liquidity." As such the element of saving cannot be ignored in any theory of Interest.

(iii) The theory has completely failed to explain depressionary situation:

It goes directly contrary to the facts that it presumes to explain. If the theory were right, the rate of interest would be the highest precisely at the bottom of a depression when, due to falling prices, people's preference for liquidity is the strongest. On the contrary the rate of interest is at the bottom during a depression.

(iv) This theory is vague and confusing:
This concept is vague and confusing, because when a man holds funds in the form of time deposits, he will be paid Interest on them; therefore he receives both i.e., Interest cum Liquidity.

3. This theory furnishes narrow explanation of the rate of interest:
Keynes' Liquidity-Preference Theory of Interest furnishes too narrow an explanation of the rate of interest. In his view the desire for liquidity—an important factor in determining the rate of interest—arises not only from three main motives (transactions, precautionary and speculative) mentioned by Keynes, but also from several other factors which he has not mentioned in his theory.

4. This theory ignores productivity of capital:
Some critics are of this opinion that Interest is not a reward for parting with liquidity as stressed by Keynes. They have written that Interest is the reward paid to the lender for the productivity of capital. As such, Interest is mostly paid because capital is productive.

5. It focuses attention on short-run ignores the long-period:
The Keynesian theory concentrates only on the short-run and completely ignores the long-period of time. But from capital investment point, it is a long-term rather than a short-term rate of interest which is of course significant.

6. There is fundamental error in Keynesian analysis:
There is confusion in Keynes's analysis about the relation between rate of interest and the amount of money. On the one hand, he says that the demand for money is inversely dependent on the rate of interest and on the other, that the equilibrium rate of Interest is inversely dependent upon the amount of money. Keynes has not made any distinction between the two propositions and often uses them in an identical manner.

In the end it can be said that the Keynesian Theory of Interest is not only indeterminate but is also an inadequate explanation of the determination of the rate of interest. He has emphasised that Interest is purely monetary

phenomenon. That is why his theory has been named as "narrow and unrealistic theory.

MEASUREMENT OF PROFIT

 # MEANING:- A firm's profit may be defined as the difference between its total revenue and its total cost i.e.

Profit = Total Revenue - Total Cost

The aim of any firm is to maximise its profit i.e. to maximise the positive difference between the Total Revenue (TR) and Total Cost (TC). At that point the producer will be in equilibrium.

TABLE MAXIMISING PROFITS:-

Output (units)	Total Revenue (units)	Total Cost (units)	Total Profit (units)
1	40	45	-5
2	80	70	10
3	130	90	40
4	175	105	70
5	210	130	80
6	240	155	85
7	265	200	65
8	285	255	30
9	290	270	20
10	300	310	-10

From Table it can be understood the firm will earn maximum profit of Rs 85 when it produces 6 units of output. Thus the firm will be in equilibrium by producing 6 units of output.

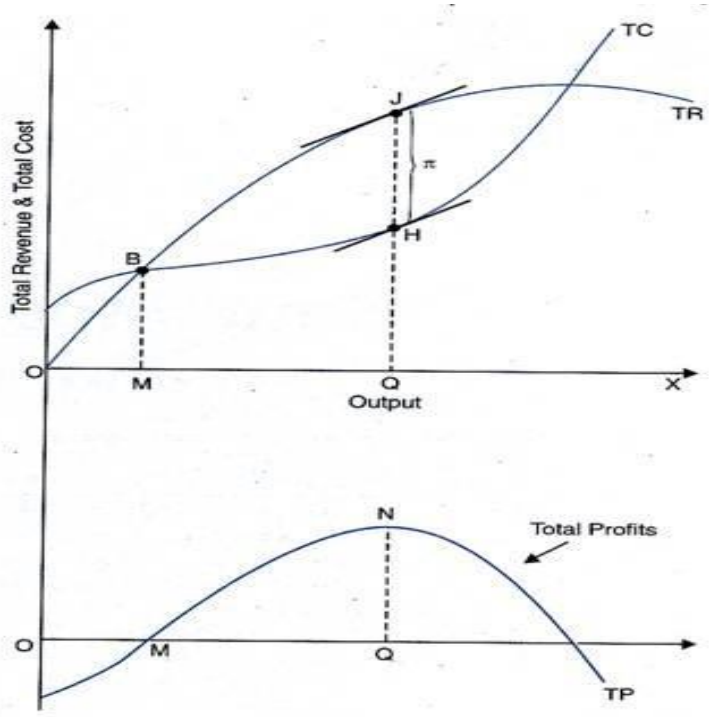


Fig. 2.1. *Profit-Maximising Model of the Firm*

1. Total Revenue:- Total Revenue refers to the total amount of money that a firm receives from the sale of its products.

Mathematically TR = PQ
where
TR = Total Revenue;
P = Price;
Q = Quantity sold.

Suppose a firm sells 1000 units of a product at the price of Rs 10 each, the total revenue will be 1000 x Rs 10 = Rs 10,000/-

2. Average Revenue:- Average revenue is the revenue per unit of the commodity sold. It is calculated by dividing the total revenue by the number of units sold.
Mathematically AR **= TR / Q**
Where
AR = Average Revenue

TR = Total Revenue
Q = Quantity sold

Eg: Average Revenue = Rs 10 ,000 / 1000 = Rs 100 / –
Thus average revenue means price of the product.

3. Marginal Revenue:- Marginal Revenue is the addition made to the total revenue by selling one more unit of a commodity.
For example, if 10 units of a product are sold at the price of Rs 15 and 11 units are sold at Rs14/-, the marginal revenue will be:

MRn = TRn - TRn-1
Rs (11x 14) - Rs (10x 15)
Rs 154 - 150
Rs 4/-

 # IMPORTANT QUESTIONS:-

➢ Short Questions (2marks):-

Q1:- Pricing.
Q2:- Cost Plus Pricing.
Q3:- Collective Bargaining.
Q4:- Profit.
Q5:- Interest.
Q6:- Rent.
Q7:- Real v/s Nominal Interest.
Q8:- Rate of Return.
Q9:- Return on Capital.
Q10:- Measurement of Profit.
Q11:- Interest Rates.
Q12:- Explain Five Factors of Demand & Supply of Production.

➢ Long Questions (10marks):-

Q1:- Write the detailed Note on Pricing?

Q2:- Define Pricing? Discuss its features, factors & Types?

Q3:- Define Pricing? Explain its types, Advantages & limitations?

Q4:- What Is Rent? Write the detailed note on same?

Q5:- Define Interest? Discuss Its Features, Types, and Limitations?

Q6:- What Is Profit? Write the detailed note on same?

Q7:- Write a short note:-

a) Real v/s Nominal Interest.
b) Measurement of Profit.

Q8:- Write a short note:-

a) Return on Capital.
b) Interest Rate.

Last page

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