Class:- M.com 1st Semester

MANAGERIAL ECONOMICS

I.K.Gujral Punjab Technical University
Master of Commerce Batch 2018 Onwards
MCOP 102-18
MANAGERIAL ECONOMICS

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: 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; Returns 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.

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.

Unit-III

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.
Supply: Introduction to supply and supply curves.
Pricing: Pricing practices; Commodity Pricing: Economics of advertisement costs; Types of pricing practices. Factor Pricing: Demand and supply of factors 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.

Unit-IV

Product market: Saving and Investment function, Consumption function, Aggregate supply and Aggregate demand, Investment multiplier, foreign trade and budget multiplier.
Money market: Motive for holding money; Liquidity preference, Money demand, Money market equilibrium. IS-LM Analysis: Derivation of nominal IS-LM and equilibrium.
National Income: Conceptual Framework, Measures of National Income, Methods of Measurement, Limitations of National Income.
Consumption Function: Meaning, and Nature, Determinants and Measures to Raise Propensity to Consume. Keynes Psychological Law of Consumption - Meaning, Properties and Implications,
Inflation: Meaning, Types, Theories, Causes, Effects and Control, Unemployment Trade off, Trade Cycles: Concept and Theories of trade cycles.

Note: Relevant Case Studies will be discussed in class
Suggested Readings/ Books:

- D. M. Mithani, Managerial Economics Theory and Applications, Himalaya
- Publication
- Peterson and Lewis, Managerial Economic, Prentice Hall of India
- Gupta, Managerial Economics, Tata McGraw Hills
- Geetika, Managerial Economics, Tata McGraw Hills
- Froeb, Managerial Economics, Cengage Learning

- Koutsoyiannis, A, Modern Micro Economics, Palgrave Macmillan Publishers, New Delhi. 2.
- Thomas Christopher R., and Maurice S. Charles, Managerial Economics – Concepts and Applications, 8th Edition,
- Peterson and Lewis, Managerial Economics, 4th Edition, Prentice Hall of India Pvt. Ltd., New Delhi.
- Shapiro, Macro Economics, Galgotia Publications.
- H. L Ahuja Advanced Economic Analysis, S. Chand & Co. Ltd, New Delhi. 7.
- G.S Gupta, Managerial Economics, Tata McGraw Hill.
- Goel Dean, Managerial Economics, Prentice Hall of India, Pvt. Ltd., New Delhi
- K.K. Dewett, Modern Economic Theory, S. Chand Publication.

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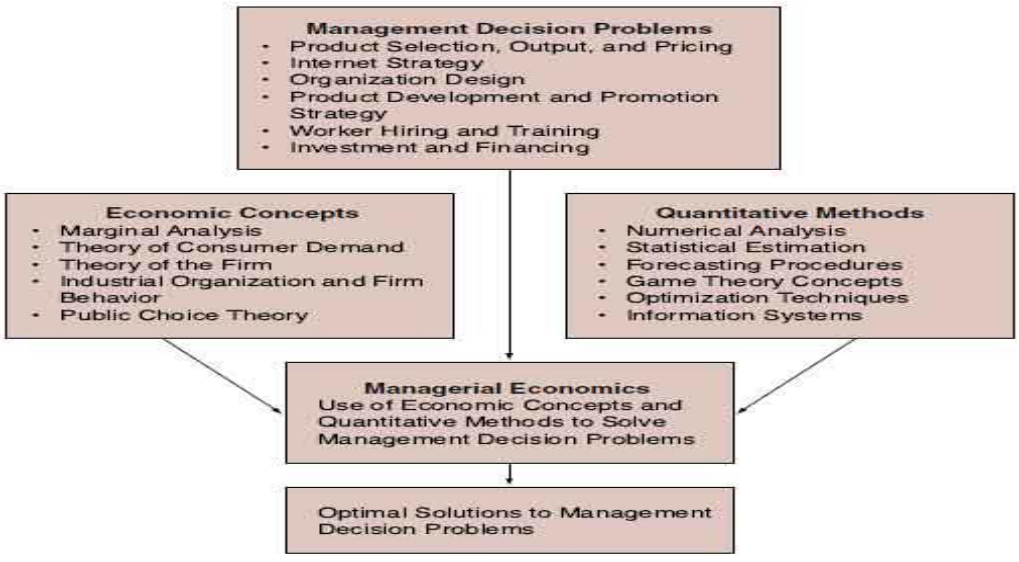
UNIT-I

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 favour 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.***

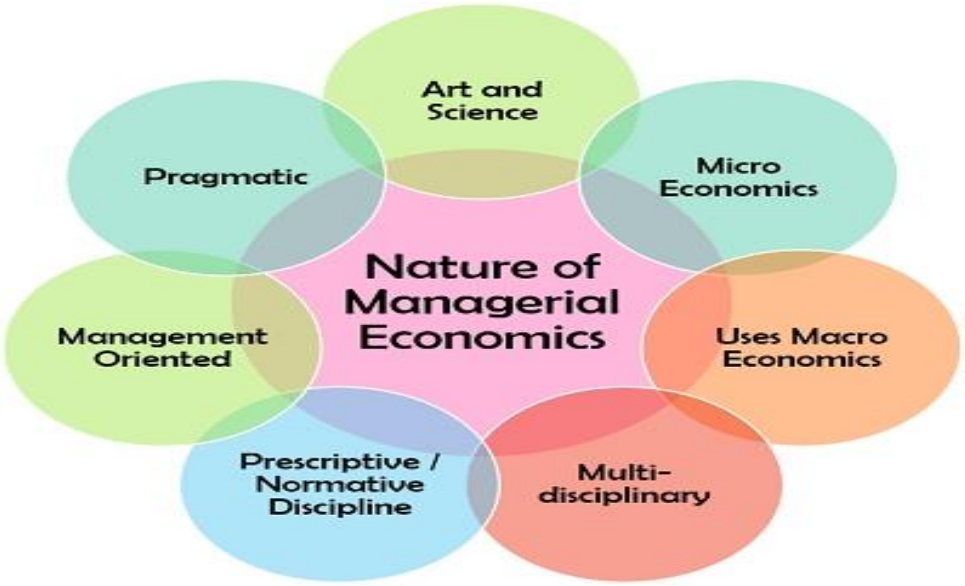
"Business Economics consists of the use of economic modes of thought to analyse business situations." - ***McNair*** **and** ***Meriam***

"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 organisation 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 analyse the different factors of macroeconomics such as market conditions, economic reforms, government policies, etc. and their impact on the organisation.

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:

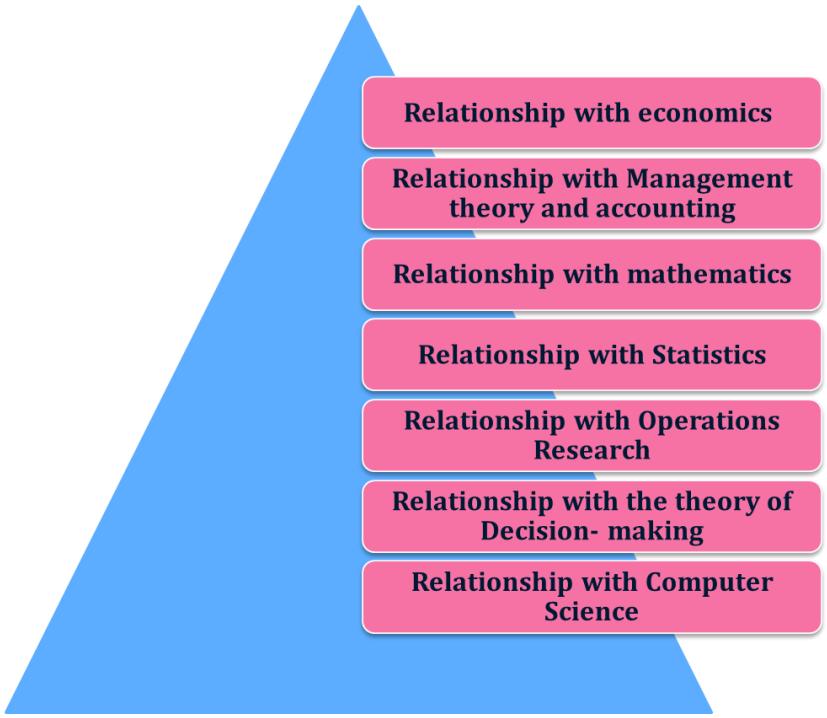
There are endless implications of government regulations on the business firm and at times the legal environment of business is as important as the economic environment. So, it is necessary to examine law-related applications of economic principles.

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 regression 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 maximisation 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.

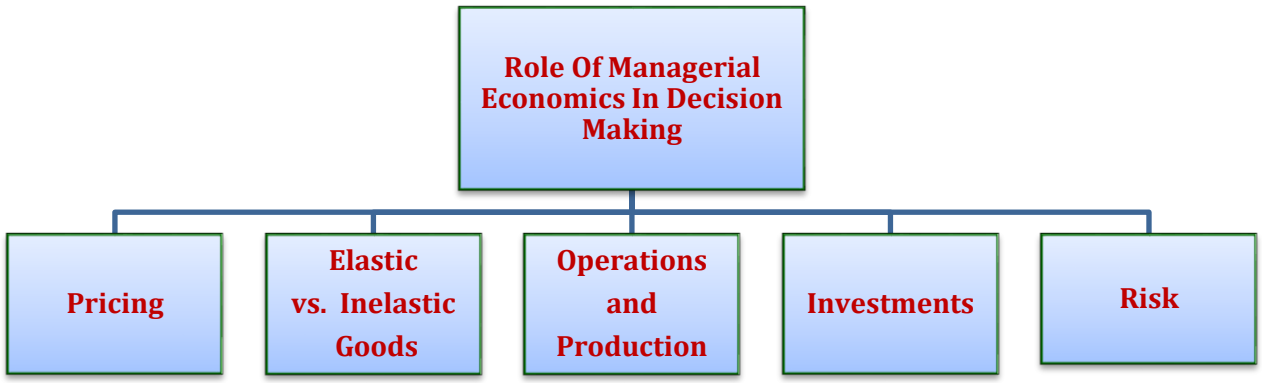
Managerial economics uses a wide variety of economic concepts, tools, and techniques in the decision-making process. These concepts can be placed in three broad categories:-

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)

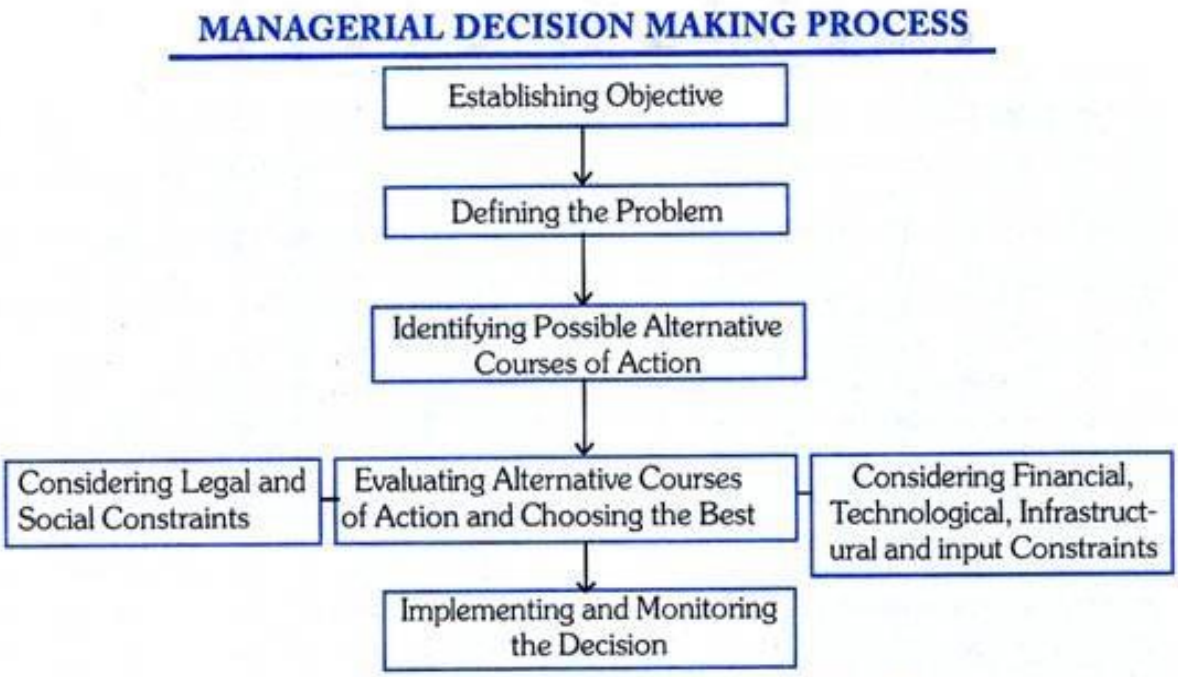


Fig. 1.2. *Managerial Decision Making Process : Various Steps*

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 maximise profits. However, a business firm may have some other objectives such as maximisation of sales or growth of the firm.

But the objective of a public enterprise is normally not of maximisation 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; they 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 Responsibilties 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/-

Option 2: 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.

- **What is Production Possibility Curve?**

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.

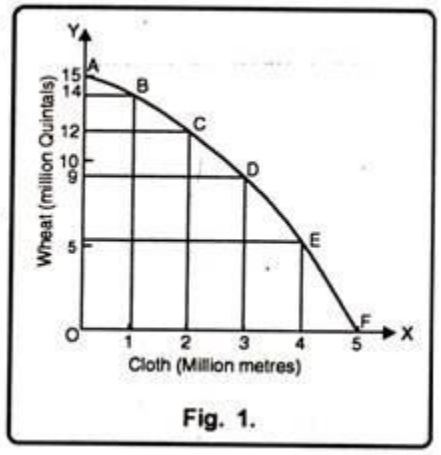


Fig. 1.

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. 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 metres of additional cloth.

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 metres of cloth.

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.

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.

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

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 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.

Concept of Choice

Choice is the process of selecting few goods or wants from the bundles of goods or wants. Human wants are unlimited. So, they are unable to fulfill all their wants at once. They can satisfy only some their wants. Some wants should be sacrificed to get some other wants. Hence, people postponed less urgent wants to satisfy more urgent wants. For example: a boy desiring to buy a book does not visit cinema hall. Thus, the problem of choice deals with utilization of scare resources in such a way that it satisfies human wants in the best possible way. If human wants were limited or resources were unlimited, then, there would be no scarcity and there would be no problem of choice. Because of scarcity we are forced to choose. Unlimited wants and limited resources lead economic problem and problem of choice which can be shown as follows:

Allocation of Resources

Allocation of resource means scientific management of resources in the production, distribution and exchange. It deals with how much of resource is necessary in what sector. It is the basic problem of every economy. We can satisfy only limited wants because we have limited resources. So, these limited resources are used in such a manner that the satisfaction derived from it is maximum. As the resources are limited in comparison to wants, the proper allocation of resources is necessary. The proper allocation of resources deals with the following fundamental problems of an economy.

1. What to produce: This means what amount of goods to be produced. Every demand of every individual can't be satisfied. So, before producing anything, a decision should be made what goods are to be produced and to what extent.

2. How to produce: This means which techniques of production (labour intensive or capital intensive technique to be selected). After the decision of

what to produce we must next determine what techniques should be adopted to produce goods.

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.

4. Problem of full employment: This means the efficient use of scare resources that is no waste or misuse of resources. Since, resources are scare in relation to human wants. It is necessary to utilize the available resources to achieve full employment for maximum possible satisfaction.

5. Problem of growth: This means how to achieve the growth of resources. The growth of resources is related to increase the level of production. Each economy faced the problem of how to increase its production capacity. For this, the economy has to decide about the rate of capital formation, investment, and savings.

Demand

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.

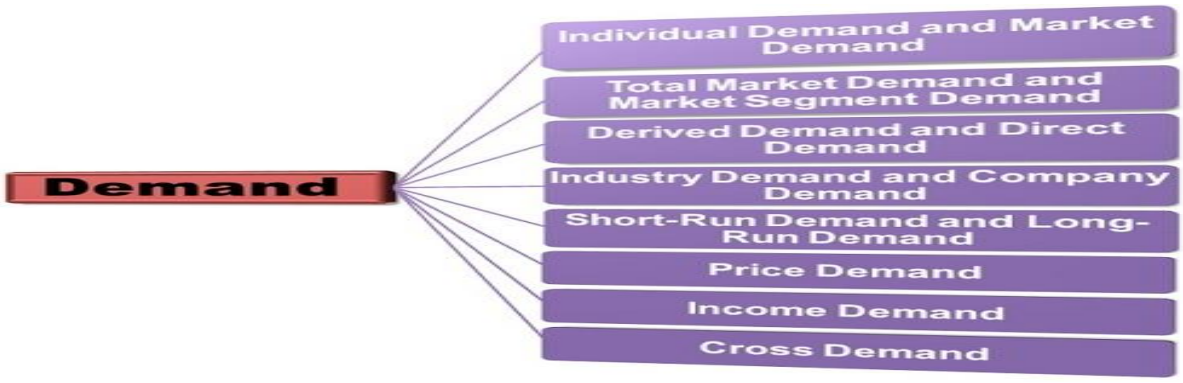
(i) Willingness and ability to pay. Demand is the amount of a commodity for which a consumer has the willingness and also the ability to buy.

(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.

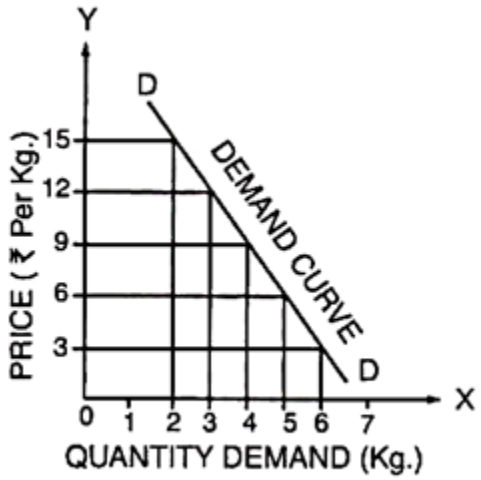


Fig. 7·1

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.

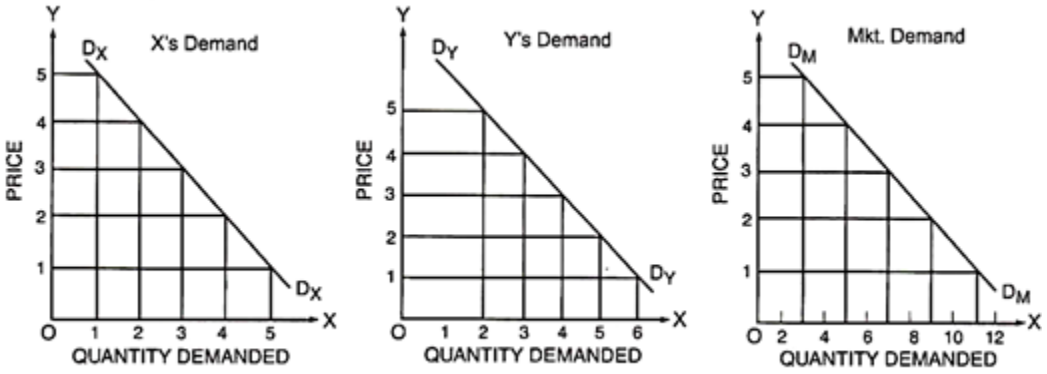


Fig. 7·2 Market Demand Curve

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.

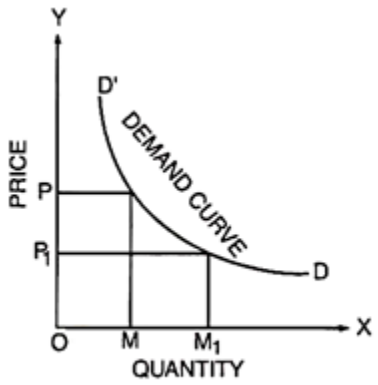


Fig. 7·3

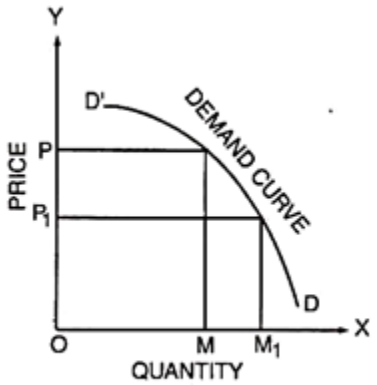


Fig. 7·4

❖ 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

- ***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.

- ***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

1. **Alfred Marshal** says that the amount demanded increase with a fall in price, diminishes with a rise in price.
2. **C.E. Ferguson** says that according to law of demand, the quantity demanded varies inversely with price.
3. **Paul A. Samuelson** says that law of demand states that people will buy more at a 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

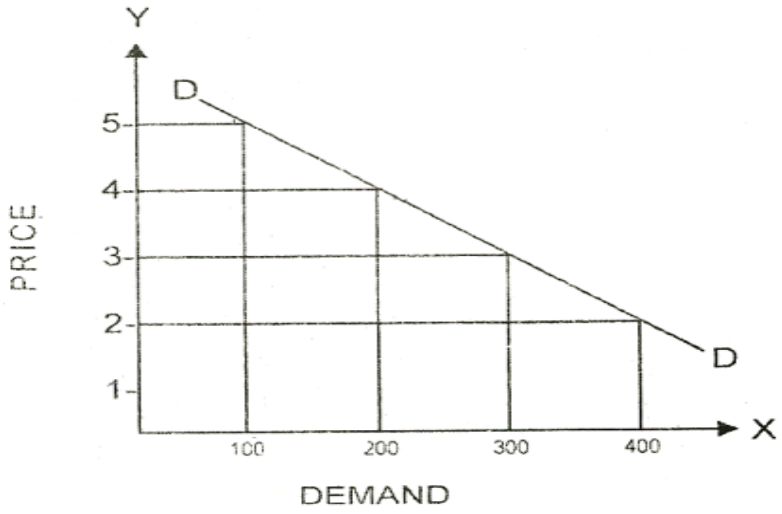
The relationship between price of a commodity and its demand depends upon many factors. The most important factor is nature of commodity. The demand schedule shows response of quantity demanded to change in price of that commodity. This is the table that shows prices per unit of commodity ands amount 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

- Individual Demand Function
- Market Demand Function

➢ 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.

- **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 mo0re 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 consumer 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.

Elasticity of Demand

The law of demand indicates the direction of change in quantity demanded to a change in price.

It states that when price falls, demand rises. But how much the quantity demanded rises (or falls) following a certain fall (or rise) in prices cannot be known from the law of demand. That is to say, how much quantity demanded

changes following a change in the price of a commodity can be known from the concept of elasticity of demand?

Meaning of Elasticity of Demand

The term 'elasticity 'of demand indicates responsiveness of quantity demanded due to change in any of its determinants. This is a measure of how sensitive the quantity demanded is to the change in any of the factors affecting demand.

There are three main types of elasticity of demand:

I. Price elasticity of demand.

II. Income elasticity of demand.

III. Cross elasticity of demand.

I. Price Elasticity of demand. Price elasticity of demand measure the degree of responsiveness of demand for a commodity due to change in its price

$$Ed = \frac{\text{Percentage Change in quantity demanded.}}{\text{Percentage Change in Price}}$$

The different kinds/ degree of Price Elasticity of demand

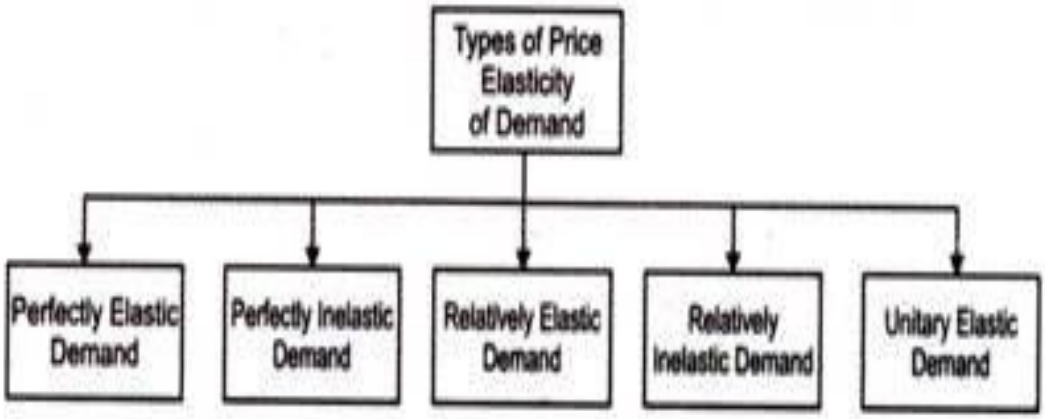


Figure-1: Different Types of Price Elasticity of Demand

1. Perfectly Elastic Demand:

When a small change in price of a product causes a major change in its demand, it is said to be perfectly elastic demand. In perfectly elastic demand, a small rise in price results in fall in demand to zero, while a small fall in price causes increase in demand to infinity. In such a case, the demand is perfectly elastic or $e_p = 00$.

The degree of elasticity of demand helps in defining the shape and slope of a demand curve. Therefore, the elasticity of demand can be determined by the slope of the demand curve. Flatter the slope of the demand curve, higher the elasticity of demand.

In perfectly elastic demand, the demand curve is represented as a horizontal straight line, which is shown in Figure-2:

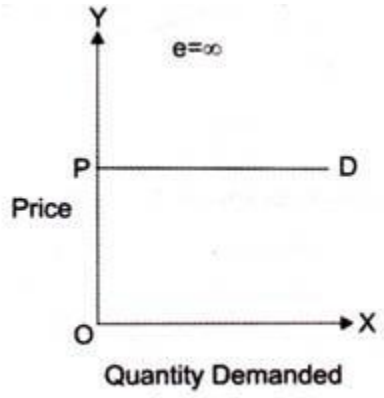


Figure-2: Perfectly Elastic Demand

From Figure-2 it can be interpreted that at price OP, demand is infinite; however, a slight rise in price would result in fall in demand to zero. It can also be interpreted from Figure-2 that at price P consumers are ready to buy as much quantity of the product as they want. However, a small rise in price would resist consumers to buy the product.

Though, perfectly elastic demand is a theoretical concept and cannot be applied in the real situation. However, it can be applied in cases, such as perfectly competitive market and homogeneity products. In such cases, the demand for a product of an organization is assumed to be perfectly elastic.

From an organization's point of view, in a perfectly elastic demand situation, the organization can sell as much as much as it wants as consumers are ready to purchase a large quantity of product. However, a slight increase in price would stop the demand.

2. Perfectly Inelastic Demand:

A perfectly inelastic demand is one when there is no change produced in the demand of a product with change in its price. The numerical value for perfectly inelastic demand is zero (e_p=0).

In case of perfectly inelastic demand, demand curve is represented as a straight vertical line, which is shown in Figure-3:

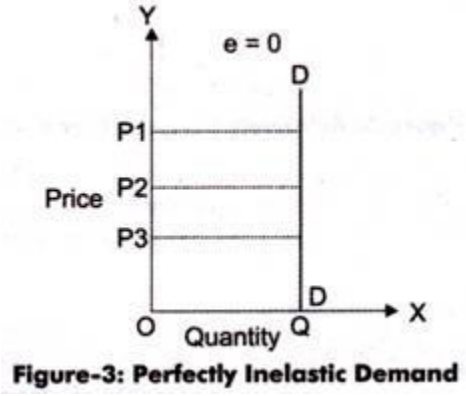


Figure-3: Perfectly Inelastic Demand

It can be interpreted from Figure-3 that the movement in price from OP1 to OP2 and OP2 to OP3 does not show any change in the demand of a product (OQ). The demand remains constant for any value of price. Perfectly inelastic demand is a theoretical concept and cannot be applied in a practical situation. However, in case of essential goods, such as salt, the demand does not change with change in price. Therefore, the demand for essential goods is perfectly inelastic.

3. Relatively Elastic Demand:

Relatively elastic demand refers to the demand when the proportionate change produced in demand is greater than the proportionate change in price of a product. The numerical value of relatively elastic demand ranges between one to infinity.

Mathematically, relatively elastic demand is known as more than unit elastic demand (e_p>1). For example, if the price of a product increases by 20% and the demand of the product decreases by 25%, then the demand would be relatively elastic.

The demand curve of relatively elastic demand is gradually sloping, as shown in Figure-4:

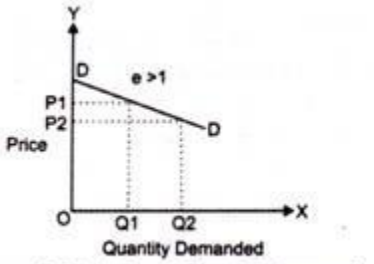


Figure-4: Relatively Elastic Demand

It can be interpreted from Figure-4 that the proportionate change in demand from OQ1 to OQ2 is relatively larger than the proportionate change in price from OP1 to OP2. Relatively elastic demand has a practical application as demand for many of products respond in the same manner with respect to change in their prices.

For example, the price of a particular brand of cold drink increases from Rs. 15 to Rs. 20. In such a case, consumers may switch to another brand of cold drink. However, some of the consumers still consume the same brand. Therefore, a small change in price produces a larger change in demand of the product.

4. Relatively Inelastic Demand:

Relatively inelastic demand is one when the percentage change produced in demand is less than the percentage change in the price of a product. For example, if the price of a product increases by 30% and the demand for the product decreases only by 10%, then the demand would be called relatively inelastic. The numerical value of relatively elastic demand ranges between zero to one (e_p<1). Marshall has termed relatively inelastic demand as elasticity being less than unity.

The demand curve of relatively inelastic demand is rapidly sloping, as shown in Figure-5:

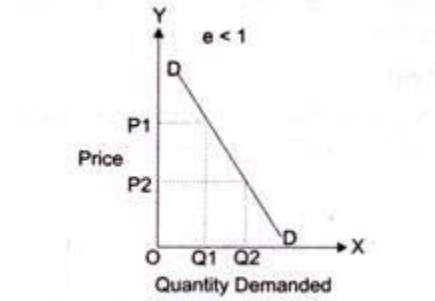


Figure-5: Relatively Inelastic Demand

Example-3:

The demand schedule for milk is given in Table-3:

Table-3: Demand Schedule for Milk

Price of Milk(per litre)	Quantity Demanded(litres)
15	100
20	90

Calculate the price elasticity of demand and determine the type of price elasticity.

Solution:

P= 15

Q = 100

P1 = 20

Q1 = 90

Therefore, change in the price of milk is:

$\Delta P = P1 - P$

$\Delta P = 20 - 15$

$\Delta P = 5$

Similarly, change in quantity demanded of milk is:

$\Delta Q = Q1 - Q$

$\Delta Q = 90 - 100$

$\Delta Q = -10$

The change in demand shows a negative sign, which can be ignored. This is because of the reason that the relationship between price and demand is inverse that can yield a negative value of price or demand.

Price elasticity of demand for milk is:

$e_p = \Delta Q/\Delta P * P/Q$

$e_p = 10/5 * 15/100$

$e_p = 0.3$

The price elasticity of demand for milk is 0.3, which is less than one. Therefore, in such a case, the demand for milk is relatively inelastic.

5. Unitary Elastic Demand:

When the proportionate change in demand produces the same change in the price of the product, the demand is referred as unitary elastic demand. The numerical value for unitary elastic demand is equal to one ($e_p=1$).

The demand curve for unitary elastic demand is represented as a rectangular hyperbola, as shown in Figure-6:

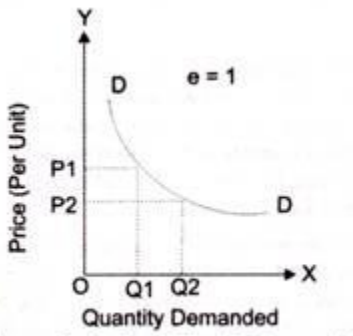


Figure-6: Unitary Elastic Demand

From Figure-6, it can be interpreted that change in price OP1 to OP2 produces the same change in demand from OQ1 to OQ2. Therefore, the demand is unitary elastic.

The different types of price elasticity of demand are summarized in Table-4

Table-4: Price Elasticity of Demand

Numerical Value	Type of Price Elasticity	Description
e_p -∞	Perfectly elastic demand	There is a greater change in demand in response to percentage or smaller change in the price. For example, the demand for a product decreases or completely stops, with a little change in its price and vice versa.
e_p -0	Perfectly inelastic demand	Consumers do not respond to the demand for a product with increase or decreases in its price. This implies that the demand remains the same with change in the price.
e_p >1	Relatively elastic demand	The percentage change in the quantity demanded of a product is greater than percentage change in its price. In such a case, consumers generally switch to new brands when the price of a particular brand increases. However, some consumers are loyal to the same brand.
e_p <1	Relatively inelastic demand	The change in the demand of a product is less than that of change in its price.
e_p -1	Unitary elastic demand	The change in the demand and change in the price of a product is same.

The income elasticity of demand:

The income elasticity is defined as the proportionate change in the quantity demanded resulting from a proportionate change in income. Symbolically we may write

$$e_Y = \frac{dQ}{Q} \Big/ \frac{dY}{Y} = \frac{dQ}{dY} \cdot \frac{Y}{Q} \qquad (2.6)$$

The income elasticity is positive for normal goods. Some writers have used income elasticity in order to classify goods into 'luxuries' and 'necessities'. A commodity is considered to be a 'luxury' if its income elasticity is greater than unity. A commodity is a 'necessity' if its income elasticity is small (less than unity, usually).

The main determinants of income elasticity are:

1. The nature of the need that the commodity covers the percentage of income spent on food declines as income increases (this is known as Engel's Law and has sometimes been used as a measure of welfare and of the development stage of an economy).

2. The initial level of income of a country. For example, a TV set is a luxury in an underdeveloped, poor country while it is a 'necessity' in a country with high per capita income.

3. The time period, because consumption patterns adjust with a time-lag to changes in income.

Types of Income Elasticity of demand

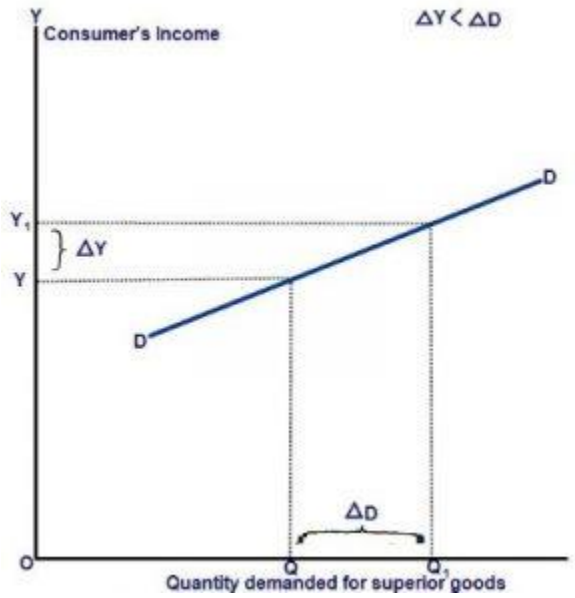
1. Positive income elasticity of demand (E_Y>0)

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:

- **Income elasticity greater than unity (E_Y > 1)**

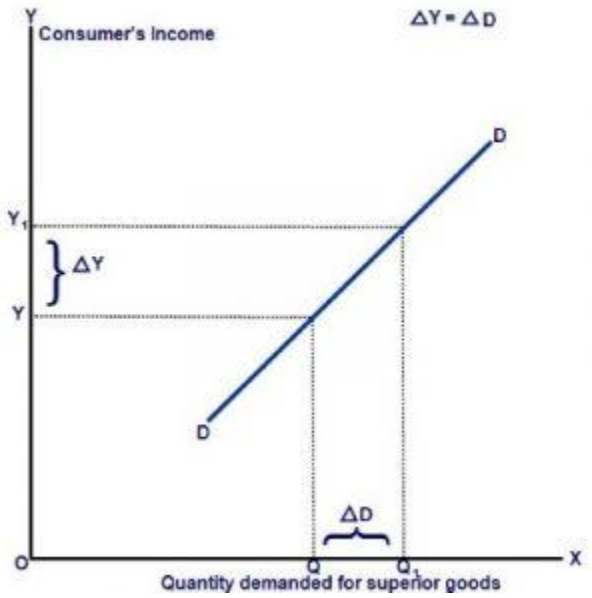
If the percentage change in quantity demanded for a commodity is greater than percentage change in income of the consumer, it is said to be income greater than unity. For example: When the consumer's income rises by 3% and the demand rises by 7%, it is the case of income elasticity greater than unity.



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.

- **Income elasticity equal to unity ($E_Y = 1$)**

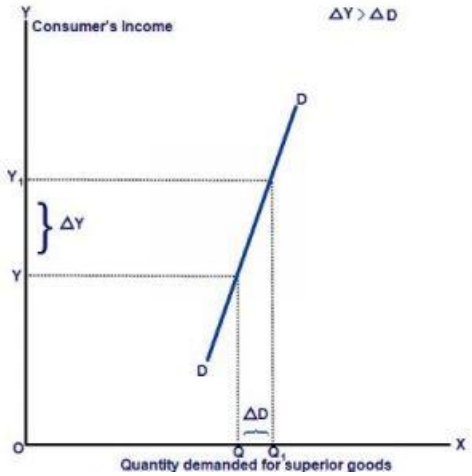
If the percentage change in quantity demanded for a commodity is equal to percentage change in income of the consumer, it is said to be income elasticity equal to unity. For example: When the consumer's income rises by 5% and the demand rises by 5%, it is the case of income elasticity equal to unity.



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 $\mathbf{OY_1}$ has caused equal rise in the quantity demanded from **OQ** to $\mathbf{OQ_1}$ and vice versa. Thus, the demand curve **DD** shows income elasticity equal to unity.

- **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.

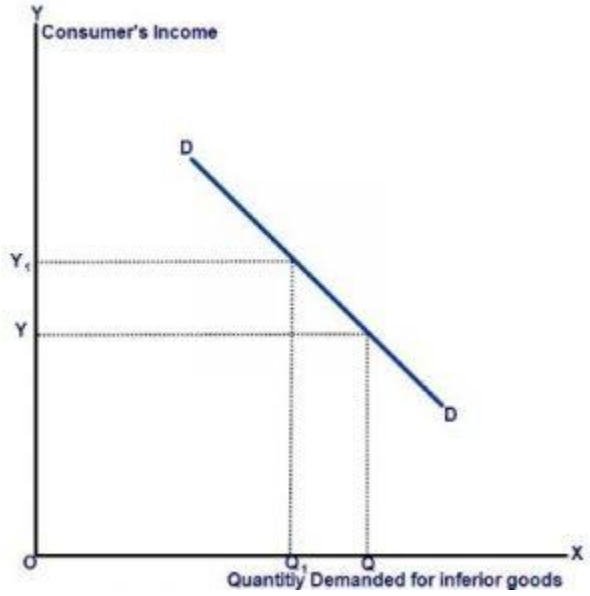


In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The greater rise in income from **OY** to **OY_1** has caused small rise in the quantity demanded from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows income elasticity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

Cross Elasticity of Demand

t is the ratio of proportionate change in the quantity demanded of Y to a given proportionate change in the price of the related commodity X.

It is a measure of relative change in the quantity demanded of a commodity due to a change in the price of its substitute/complement. It can be expressed as:

$$Ce \frac{\text{Proportionate change in the quantity demanded of Y}}{\text{Proportionate change in the price of X}}$$

Cross elasticity may be infinite or zero if the slightest change in the price of X causes a substantial change in the quantity demanded of Y. It is always the case with goods which have perfect substitutes for one another. Cross elasticity is zero, if a change in the price of one commodity will not affect the quantity demanded of the other. In the case of goods which are not related to each other, cross elasticity of demand is zero.

Definition:

"The cross elasticity of demand is the proportional change in the quantity of X good demanded resulting from a given relative change in the price of a related good Y" Ferguson

"The cross elasticity of demand is a measure of the responsiveness of purchases of Y to change in the price of X" Leibafsky

Types of Cross Elasticity of Demand:

1. Positive:

When goods are substitute of each other then 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.

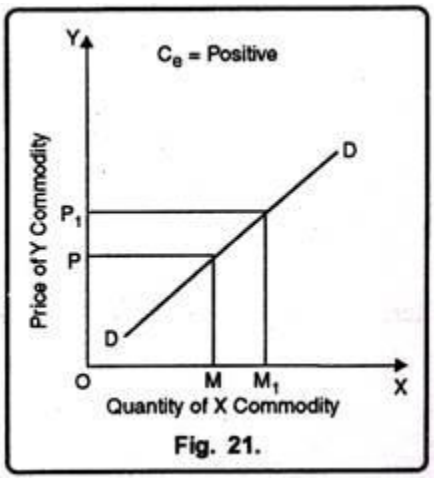


Fig. 21.

2. Negative:

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. 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.

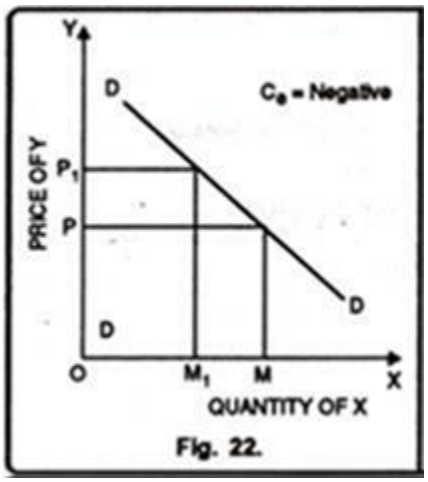


Fig. 22.

3. Zero:

Cross elasticity of demand 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.

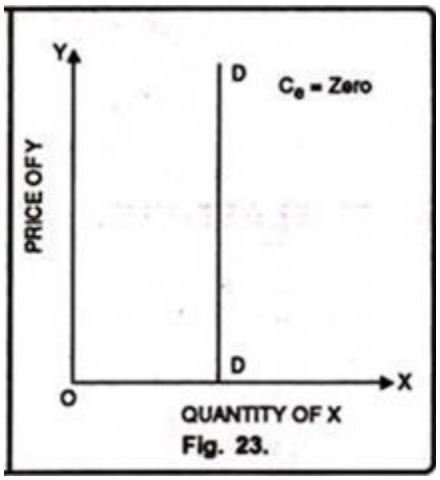


Fig. 23.

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

Measurement of Cross Elasticity of Demand:

Cross elasticity of demand can be measured by the following formula

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

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

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

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

Where

P_y = Original price of good-Y

ΔP_y = Change in price of good-Y

Q_x = Original quantity demanded of X

ΔQ_x = Change in the quantity demanded of X

Demand Forecasting

Definition: Demand forecasting refers to a scientific and creative approach for anticipating the demand of a particular commodity in the market based on past behaviour, experience, data and pattern of related events. It is not based on mere guessing or prediction but is backed up by evidence and past trends.

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.

Content: Demand Forecasting

1. Factors Affecting
2. Process
3. Objectives

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.

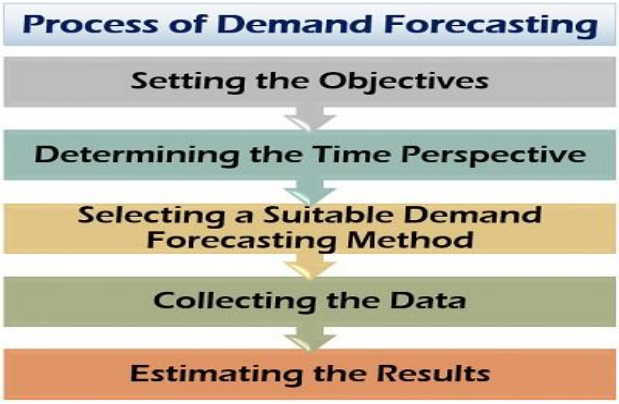
Following are some of the factors which influence the demand forecasting of a commodity:

- **Price of Goods**: Demand estimation is highly dependant 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.
- **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.
- **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.
- **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.
- **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.

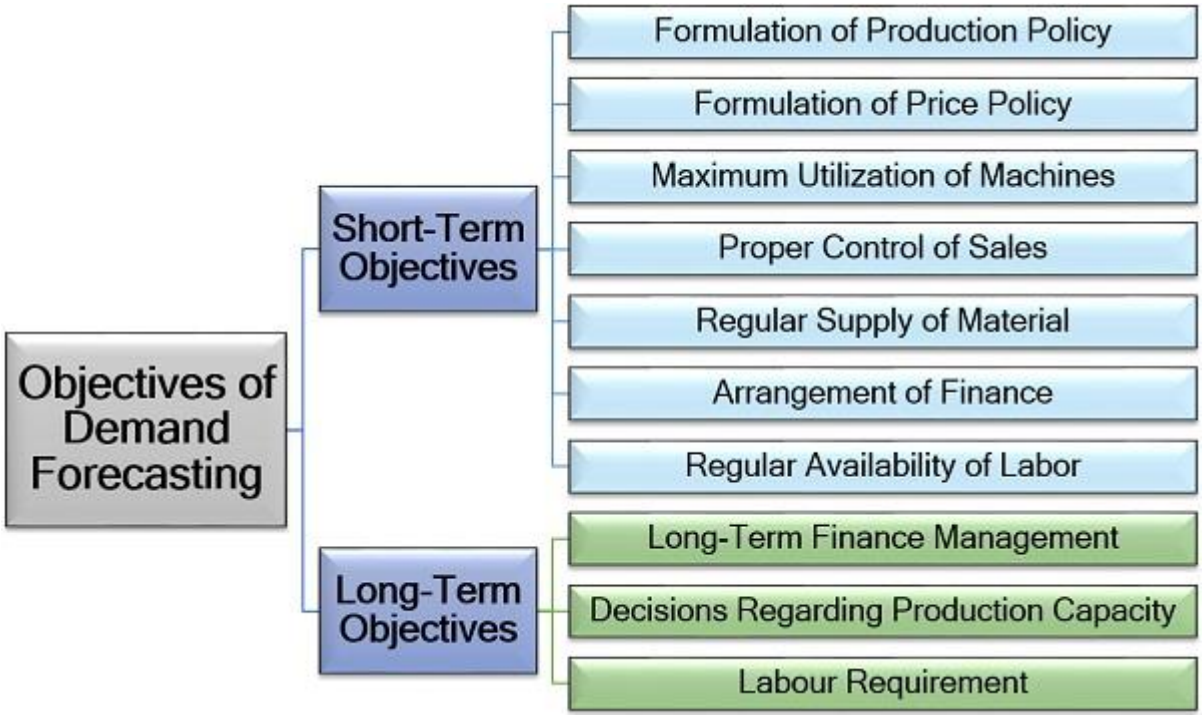
❖ Process of Demand Forecasting

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:



- **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.
- **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.
- **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 dependant on the information available, the purpose of predicting and the period it is done for.
- **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.
- **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 soo drew must be in a format which is easy to understand and apply by the management.
- Objectives of Demand Forecasting
- Demand forecasting is one of the major components in the success of any business. All organisational activities, whether they are short-term business operations or long-term strategic decisions are dependant on it.
- These objectives are illustrated under the following categories further sub-divided into points:



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:

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

- **Arrangement of Finance**: To maintain short-term cash in the organisation it is essential to forecast the sales as well as liquidity requirement accordingly.
- **Regular Availability of Labor**: Estimation of the production capacity provides for the acquisition of suitable skilled and unskilled labour.

1. **Long-Term Objectives**: Demand forecasting is inevitable for the long-term existence of an organisation. Following objectives justify the statement:
    - **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.
    - **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.
    - **Labour Requirement**: Demand forecasting initiates expansion of business thus leading to the estimation of required human resource to accomplish business goals and objectives.

Estimating demand with accuracy requires a lot of expertise and knowledge. Therefore experts are hired by the business organizations to ensure better results and proper utilization of resources

➢ 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.

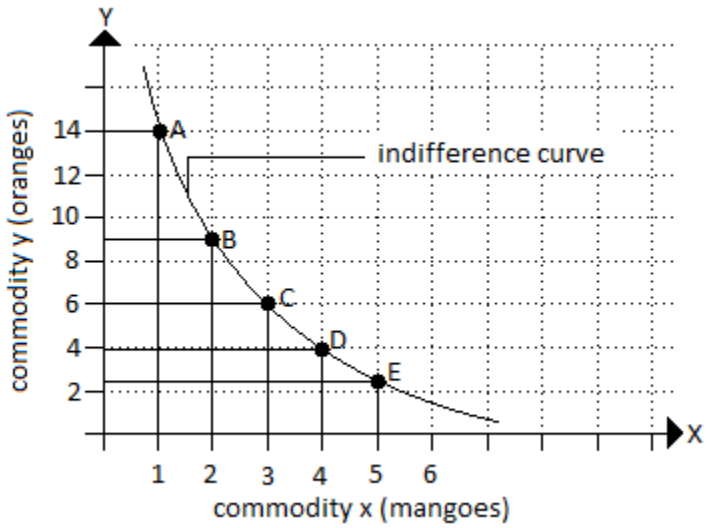
Since any combination of the two goods on an indifference curve gives equal level of satisfaction, the consumer is indifferent to any combination he consumes. Thus, an indifference curve is also known as 'equal satisfaction curve' or 'iso-utility curve'.

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.

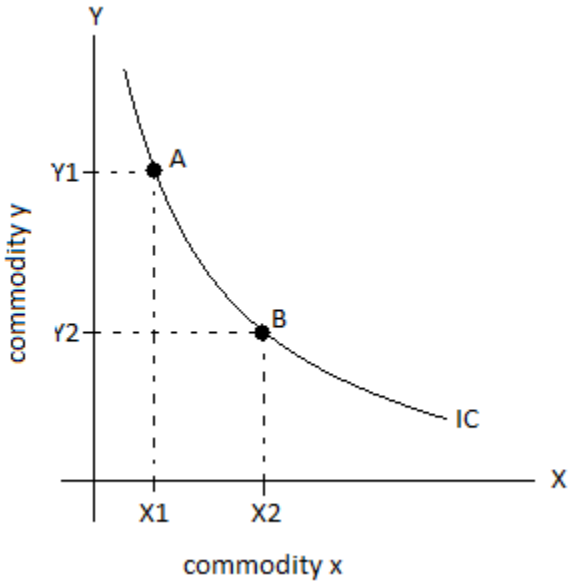
❖ Properties of indifference curve

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.

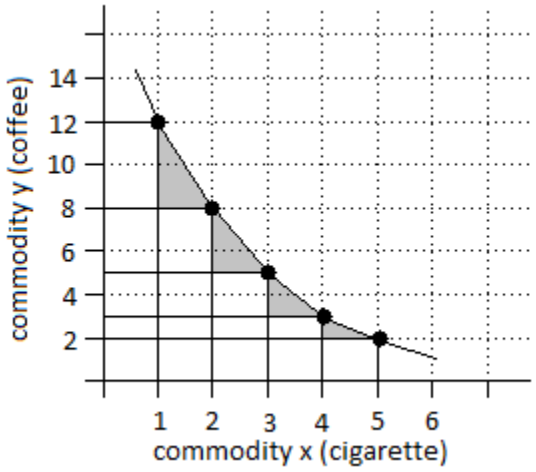
According to diminishing marginal rate of substitution, the rate of substitution of commodity X for Y decreases more and more with each successive substitution of X for Y.

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.

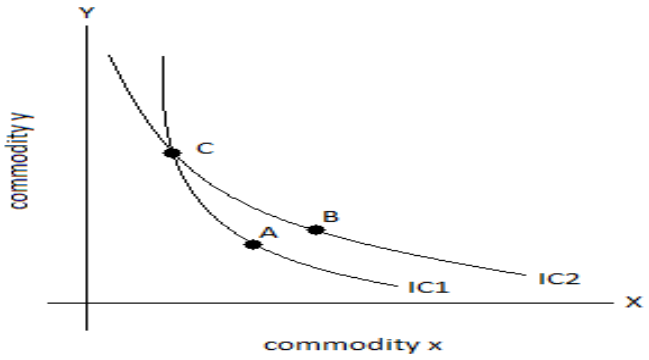
Thus, indifference curve is always convex (neither concave nor straight).

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.



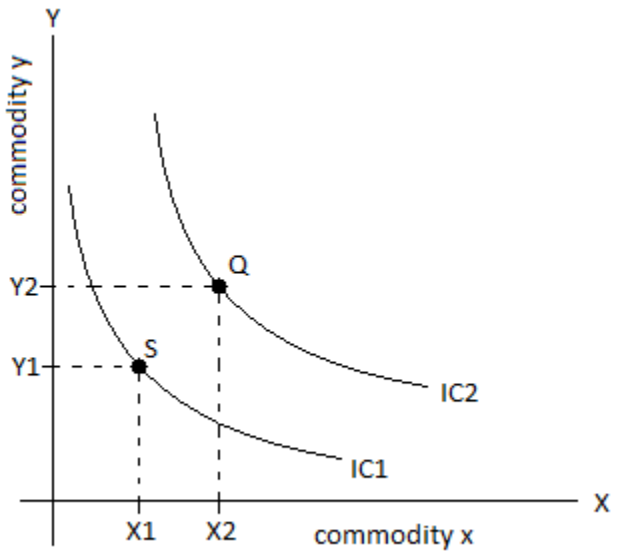
In the above image, IC1 and IC2 are two indifference curves and C is the point where both the curves intersect.

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.

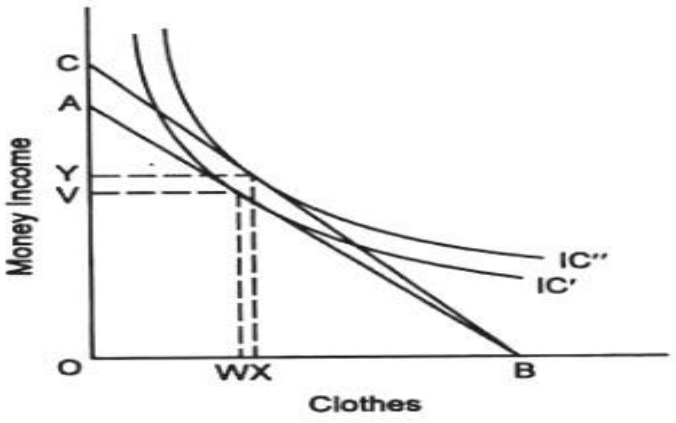


Fig. 16 : Inflation and constant real income

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.

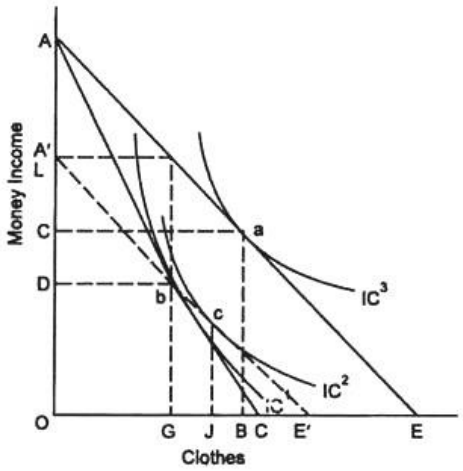


Fig. 17 : Income taxes and expenditure taxes

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:

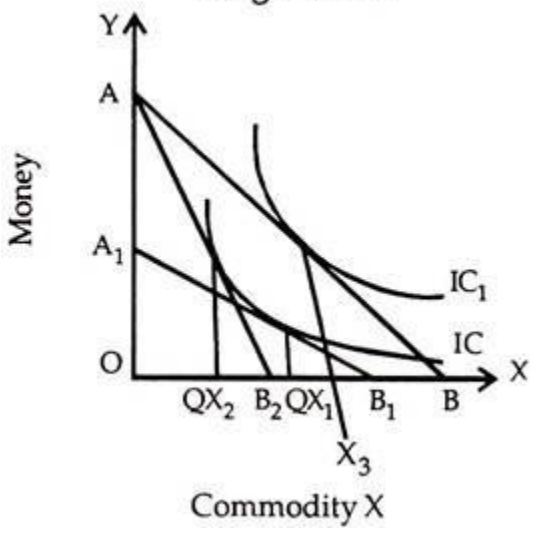
The technique is also applied to test preference between a direct and indirect tax. With the help of indifference curves it can be shown that a direct tax is preferable to an indirect tax as regards its effects on consumption and satisfaction of the tax payer.

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 Through Indifference Curve Analysis

❖ Definition:

"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".

The aim of the consumer is to get maximum satisfaction from his money income. Given the price line or budget line and the indifference map:

"A ***consumer is said to be in equilibrium*** at a point where the price line is touching the highest attainable indifference curve from below".

❖ Conditions:

Thus the consumer's equilibrium under the indifference curve theory must meet the following two conditions:-

First: A given price line should be tangent to an indifference curve or marginal rate of satisfaction of good X for good Y (MRS_{xy}) must be equal to the price ratio of the two goods. i.e.

$$\mathbf{MRS_{xy} = P_x / P_y}$$

Second: The second order condition is that indifference curve must be convex to the origin at the point of tangency.

❖ Assumptions:

The following assumptions are made to determine the consumer's equilibrium position.

(i) Rationality: The consumer is rational. He wants to obtain maximum satisfaction given his income and prices.

(ii) Utility is ordinal: It is assumed that the consumer can rank his preference according to the satisfaction of each combination of goods.

(iii) Consistency of choice: It is also assumed that the consumer is consistent in the choice of goods.

(iv) Perfect competition: There is perfect competition in the market from where the consumer is purchasing the goods.

(v) Total utility: The total utility of the consumer depends on the quantities of the good consumed.

❖ Explanation:

The consumer's consumption decision is explained by combining the budget line and the indifference map. The consumer's equilibrium position is only at a point where the price line is tangent to the highest attainable indifference curve from below.

(1) Budget Line Should be Tangent to the Indifference Curve:

The consumer's equilibrium in explained by combining the budget line and the indifference map.

Diagram/Figure:

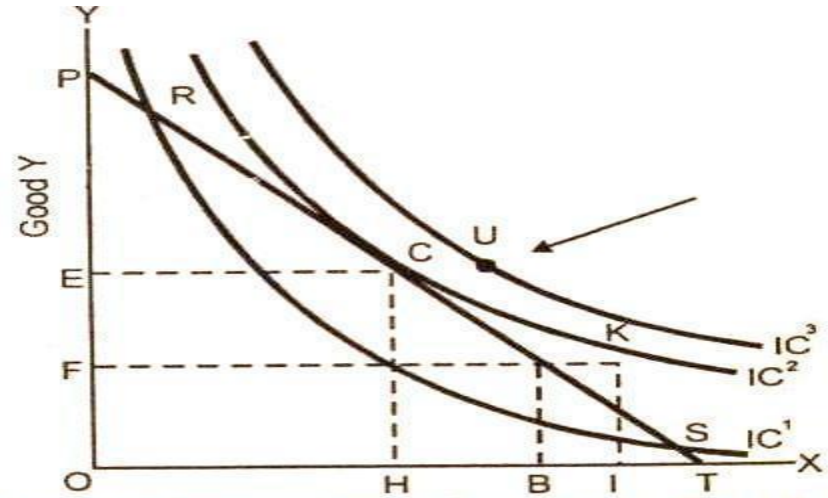


Fig. 3.11: Consumer's equilibrium through indifference Curves

In the diagram 3.11, there are three indifference curves IC^1, IC^2 and IC^3. The price line PT is tangent to the indifference curve IC^2 at point C. The consumer gets the maximum satisfaction or is in equilibrium at point C by purchasing OE units of good Y and OH units of good X with the given money income.

The consumer cannot be in equilibrium at any other point on indifference curves. For instance, point R and S lie on lower indifference curve IC^1 but yield less satisfaction. As regards point U on indifference curve IC^3, the consumer no doubt gets higher satisfaction but that is outside the budget line and hence not achievable to the consumer. The consumer's equilibrium position is only at point C where the price line is tangent to the highest attainable indifference curve IC^2 from below.

(2) Slope of the Price Line to be Equal to the Slope of Indifference Curve:

The second condition for the consumer to be in equilibrium and get the maximum possible satisfaction is only at a point where the price line is a

tangent to the highest possible indifference curve from below. In fig. 3.11, the price line PT is touching the highest possible indifferent curve IC_2 at point C. The point C shows the combination of the two commodities which the consumer is maximized when he buys OH units of good X and OE units of good Y.

Geometrically, at tangency point C, the consumer's substitution ratio is equal to price ratio $\mathbf{P_x / P_y}$. It implies that at point C, what the consumer is willing to pay i.e., his personal exchange rate between X and Y **(MRS_{xy})** is equal to what he actually pays i.e., the market exchange rate. So the equilibrium condition being $\mathbf{P_x / P_y}$ being satisfied at the point C is:

Price of X / Price of Y = MRS of X for Y

The equilibrium conditions given above states that the rate at which the individual is willing to substitute commodity X for commodity Y must equal the ratio at which he can substitute X for Y in the market at a given price.

(3) Indifference Curve Should be Convex to the Origin:

The third condition for the stable consumer equilibrium is that the indifference curve must be convex to the origin at the point of equilibrium. In other words, we can say that the MRS of X for Y must be diminishing at the point of equilibrium. It may be noticed that in fig. 3.11, the indifference curve IC_2 is convex to the origin at point C. So at point C, all three conditions for the stable-consumer's equilibrium are satisfied.

Summing up, the consumer is in equilibrium at point C where the budget line PT is tangent to the indifference IC_2. The market basket OH of good X and OE of good Y yields the greatest satisfaction because it is on the highest attainable indifference curve. At point C:

$\mathbf{MRS_{xy} = P_x / P_y}$

❖ 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 Indifference Curve?

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

Q10:- What Is Indifference Curve Analysis? Explain Its Assumptions, Properties, and Importance & Limitations?

UNIT-II

Production Function

❖ Meaning 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)

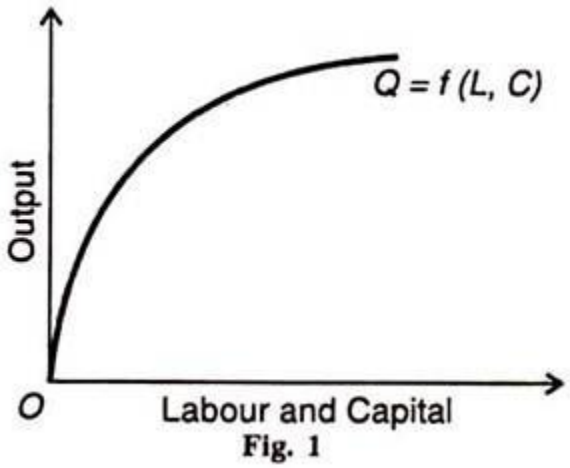
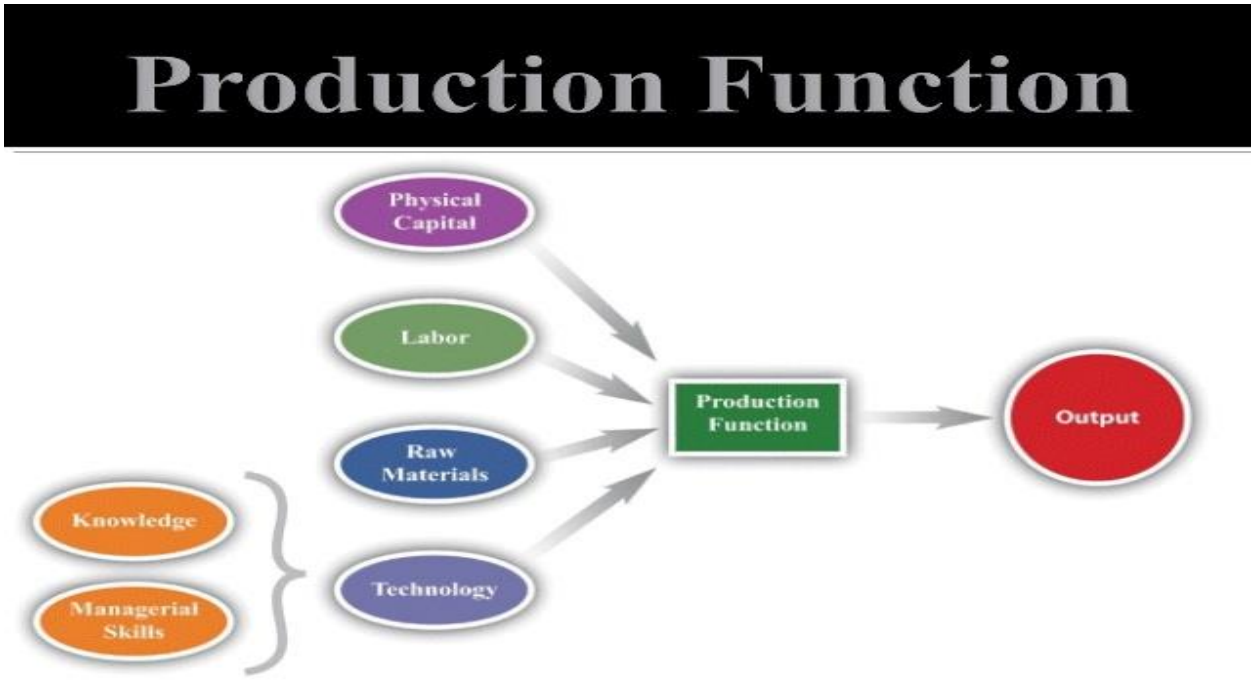


Fig. 1

"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.

❖ 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.

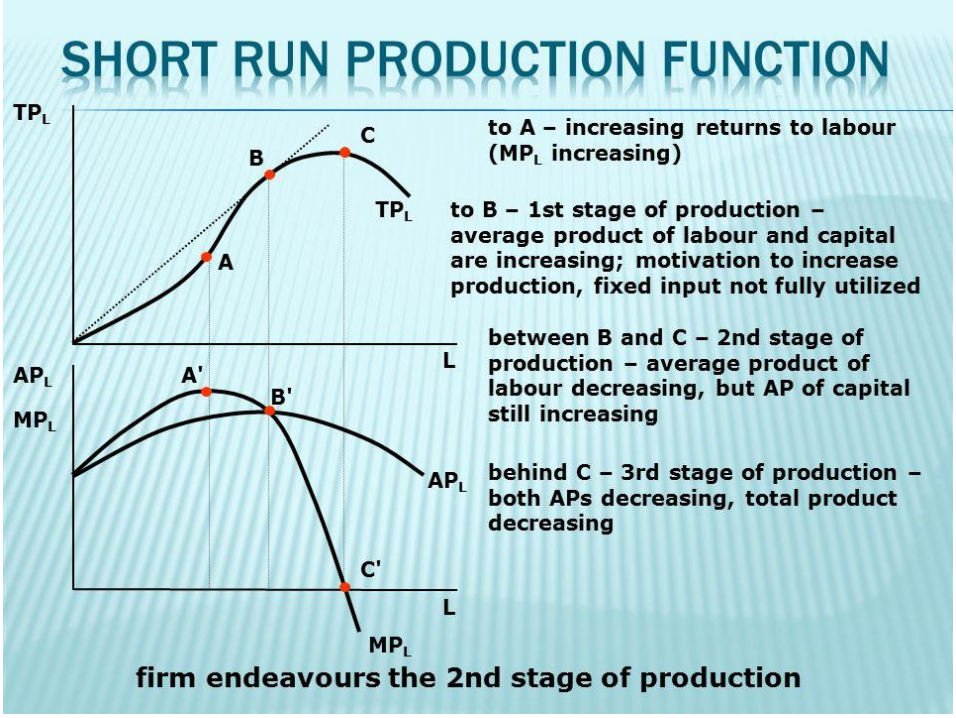
Definition

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

a. Only one factor is made variable and other factors are kept constant.
b. 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.
c. The variable factor units are homogenous i.e. all the units of variable factors are of equal efficiency.
d. Input prices remain unchanged
e. The state of technology does not change or remains the same at a given point of time.
f. 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.

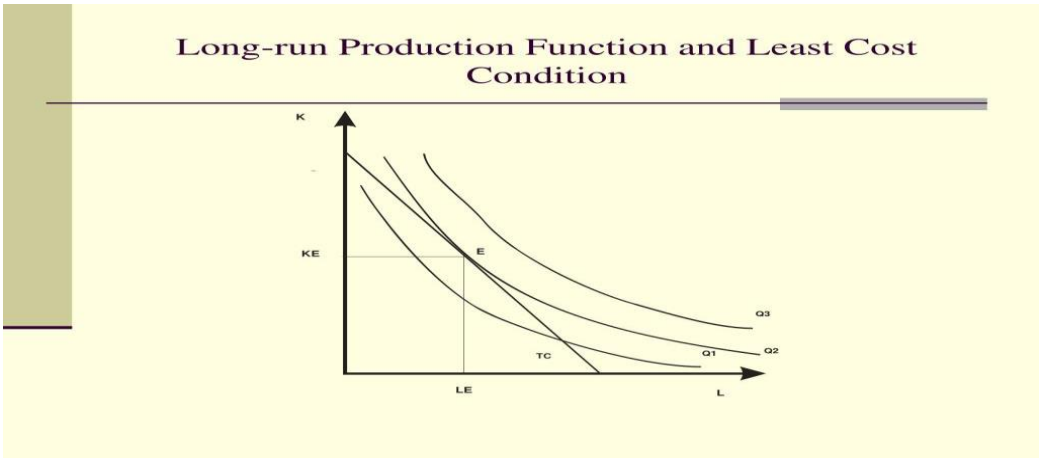
The stage of Operation

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.

❖ Iso-Quant 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:

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 before hand.

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 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

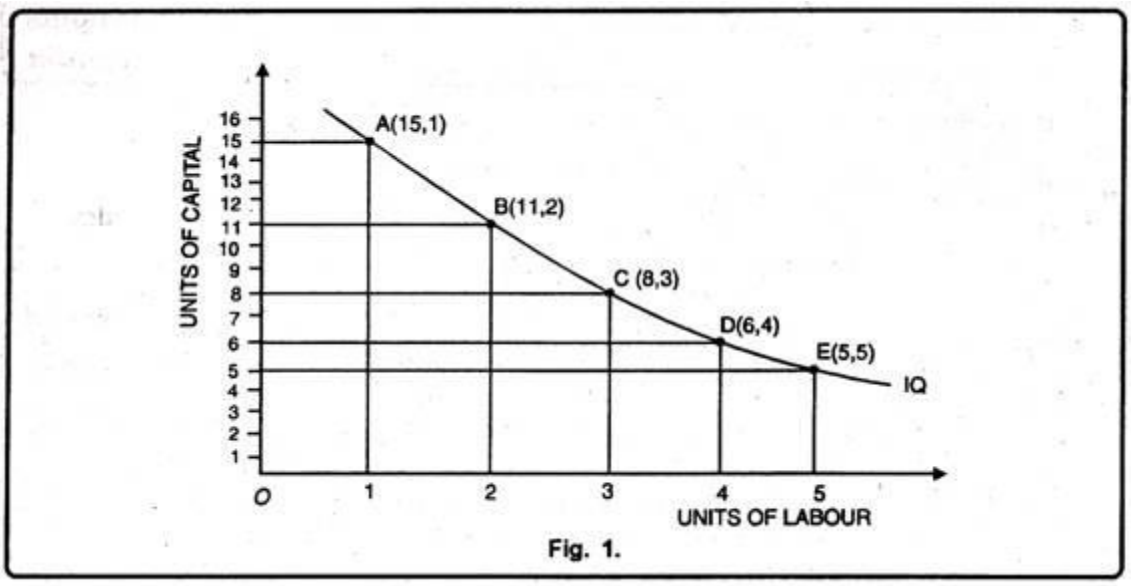


Fig. 1.

Iso-Product 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 shows the various combinations of labour and capital which give the same amount of output. A, B, C, D and E.

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. 2 we 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.

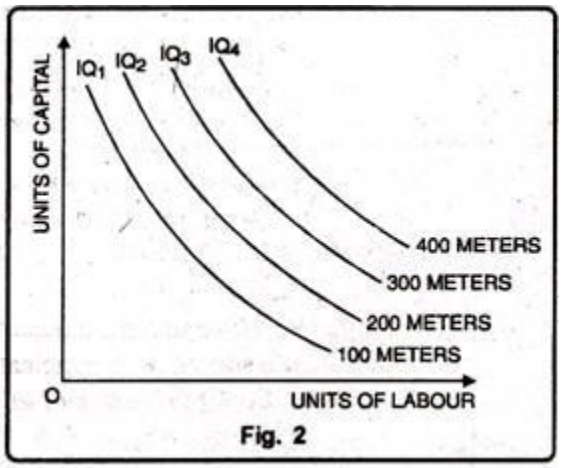


Fig. 2

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 labeled 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-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:

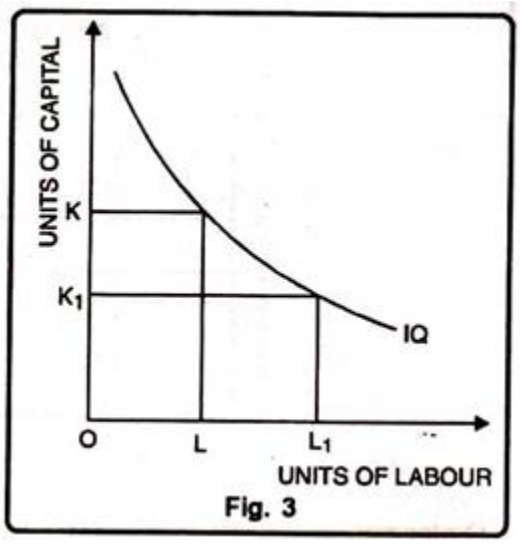


Fig. 3

The Fig. 3 shows that 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:

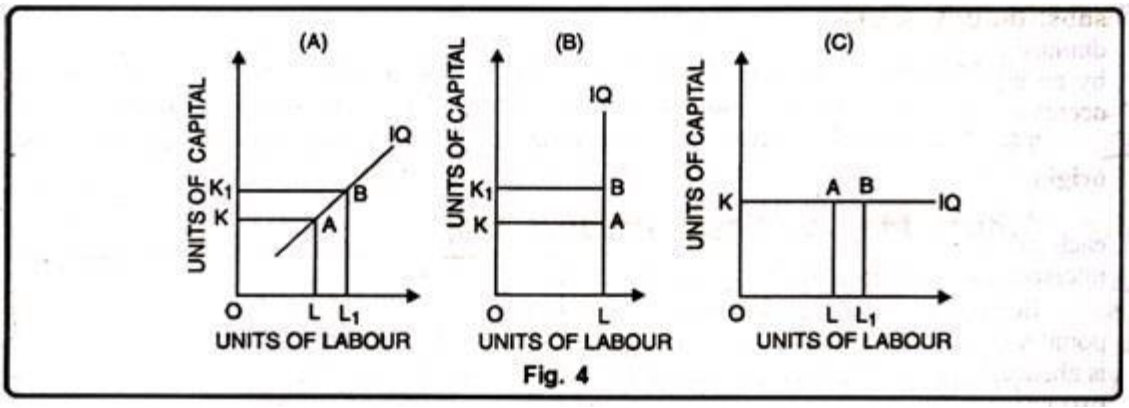


Fig. 4

(i) The figure (A) shows that 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:

$MRTSLK = -\Delta K/\Delta L = dK/dL$

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.

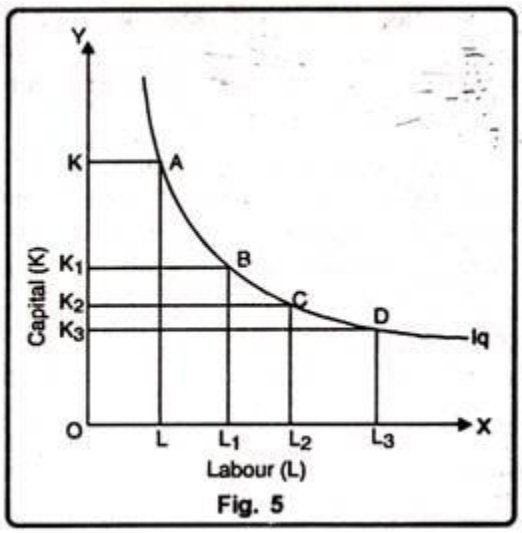


Fig. 5

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. Everytime 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.

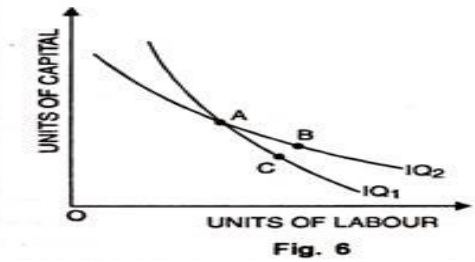


Fig. 6

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:

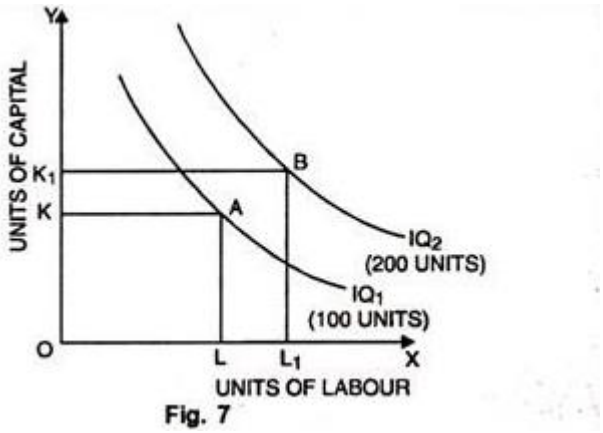


Fig. 7

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.

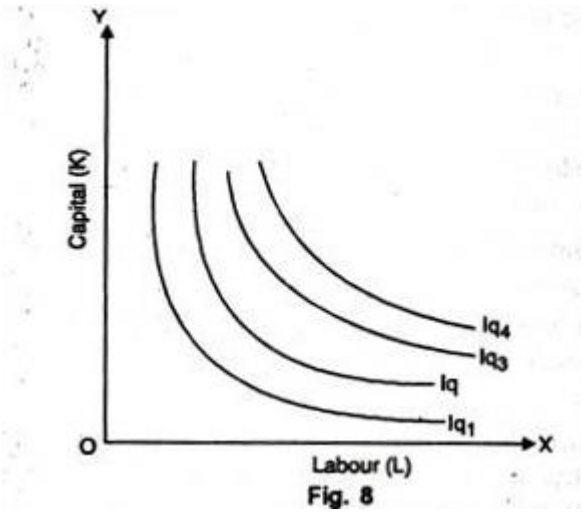


Fig. 8

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.

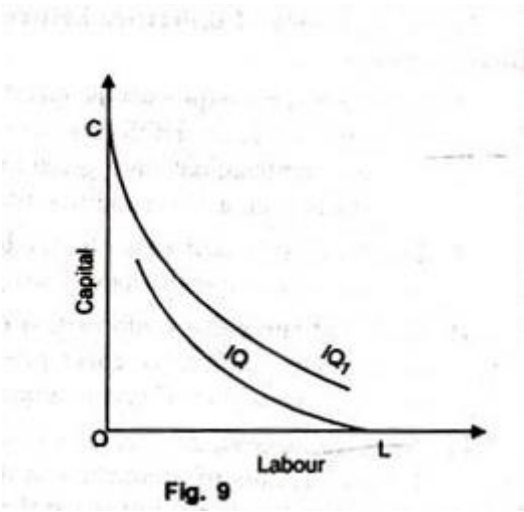


Fig. 9

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.

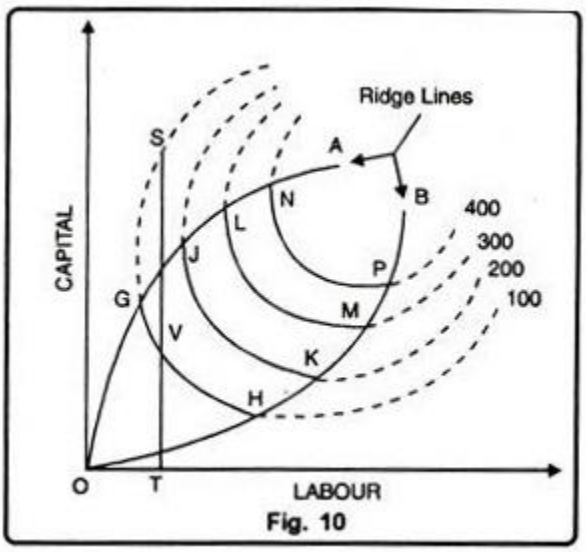


Fig. 10

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.

- **Optimum Factor Combination:**

Definition:

In the long run, all factors of production can be varied. The profit maximization firm will choose the least cost combination of factors to produce at any given level of output. The least cost combination or the optimum factor combination refers to the combination of factors with which a firm can produce a specific quantity of output at the lowest possible cost.

Explanation:

There are two methods of explaining the optimum combination of factor:

(i) The marginal product approach.

(ii) The isoquant / isocost approach.

These two approaches are now explained in brief:

(i) The Marginal Product Approach:

In the long run, a firm can vary the amounts of factors which it uses for the production of goods. It can choose what technique of production to use, what design of factory to build, what type of machinery to buy. The profit maximization will obviously want to use that mix of factors of combination which is least costly to it. In search of higher profits, a firm substitutes the factor whose gain is higher than the other. When the last rupee spent on each factor brings equal revenue, the profit of the firm is maximized. When a firm uses different factors of production or least cost combination or the optimum combination of factors is achieved when:

Formula:

$$\frac{Mppa}{Pa} = \frac{Mppb}{Pb} = \frac{Mppc}{Pc} = \frac{Mppn}{Pn}$$

In the above equation a, b, c, n are different factors of production. Mpp is the marginal physical product. A firm compares the Mpp / P ratios with that of another. A firm will reduce its cost by using more of those factors with a high Mpp / P ratios and less of those with a low Mpp / P ratio until they all become equal.

(ii) The Isoquant / Isocost Approach:

The least cost combination of-factors or producer's equilibrium is now explained with the help of iso-product curves and isocosts. The optimum factors combination or the least cost combination refers to the combination of

factors with which a firm can produce a specific quantity of output at the lowest possible cost.

As we know, there are a number of combinations of factors which can yield a given level of output. The producer has to choose, one combination out of these which yields a given level of output with least possible outlay. The least cost combination of factors for any level of output is that where the iso-product curve is tangent to an isocost curve. The analysis of producers equilibrium is based on the following assumptions.

❖ Assumptions of Optimum Factor Combination:

The main assumptions on which this analysis is based areas under:

(a) There are two factors X and Y in the combinations.

(b) All the units of factor X are homogeneous and so is the case with units of factor Y.

(c) The prices of factors X and Y are given and constants.

(d) The total money outlay is also given.

(e) In the factor market, it is the perfect completion which prevails. Under the conditions assumed above, the producer is in equilibrium, when the following two conditions are fulfilled.

(1) The isoquant must be convert to the origin.

(2) The slope of the Isoquant must be equal to the slope of isocost line.

Diagram/Figure:

The least cost combination of factors is now explained with the help of figure 12.9.

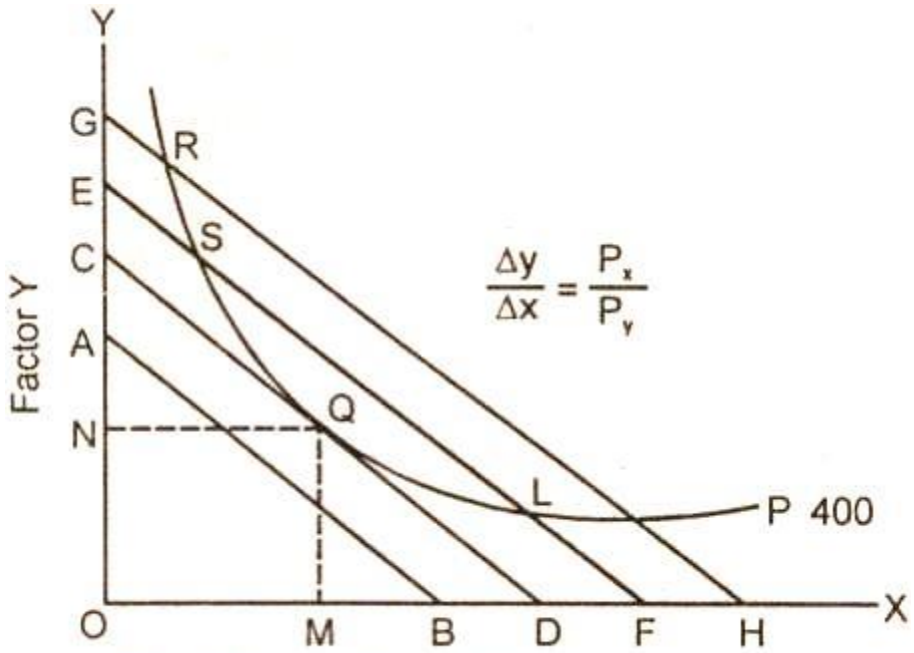


Fig. 12.9

Here the isocost line CD is tangent to the iso-product curve 400 units at point Q. The firm employs OC units of factor Y and OD units of factor X to produce 400 units of output. This is the optimum output which the firm can get from the cost outlay of Q. In this figure any point below Q on the price line AB is desirable as it shows lower cost, but it is not attainable for producing 400 units of output. As regards points RS above Q on isocost lines GH, EF, they show higher cost.

These are beyond the reach of the producer with CD outlay. Hence point Q is the least cost point. It is the point which is the least cost factor combination for producing 400 units of output with OC units of factor Y and OD units of factor X. Point Q is the equilibrium of the producer.

At this point, the slope of the isoquants equal to the slope of the isocost line. The MRT of the two inputs equals their price ratio.

Thus we find that at point Q, the two conditions of producer's, equilibrium in the choice of factor combinations, are satisfied.

(1) The isoquant (IP) is convex the origin.

(2) At point Q, the slope of the isoquant ΔY / ΔX (MTYSxy) is equal to the slope of the isocost in Px / Py. The producer gets the optimum output at least cost factor combination.

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.

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)

It must be noted that scope of syllabus is restricted to "Producer's Equilibrium by MR- MC Approach". Still, for better understanding, "Producer's Equilibrium by TR-TC approach" is given.

Before we proceed further, we must be clear about one more point. Producer can attain the equilibrium level under two different situations:

(i) When Price remains Constant (It happens under Perfect Competition). In this situation, firm has to accept the same price as determined by the industry. It means, any quantity of a commodity can be sold at that particular price.

(ii) When Price Falls with rise in output (It happens under Imperfect Competition). In this situation, firm follows its own pricing policy. However, it can increase sales only by reducing the price.

For detailed discussion on Perfect and Imperfect Competition, refer Chapter 10. Let us now discuss determination of 'Producer's Equilibrium' by both the methods under the two situations separately.

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.

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.

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.

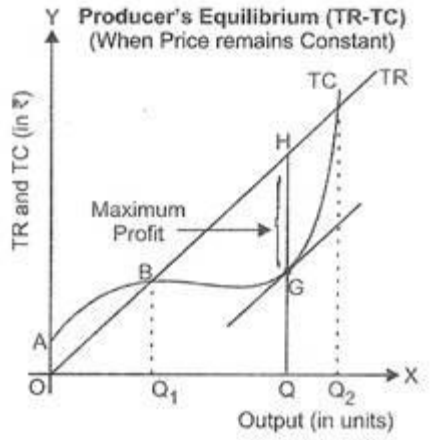


Fig. 8.1

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.

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:

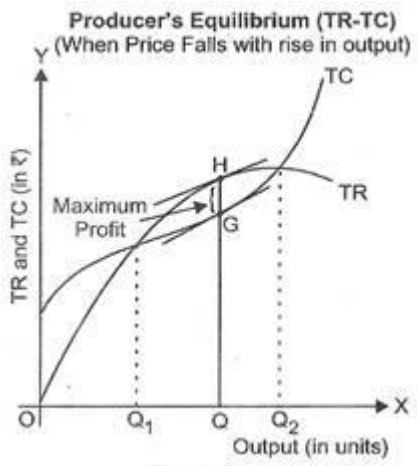


Fig. 8.2

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.

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.

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:

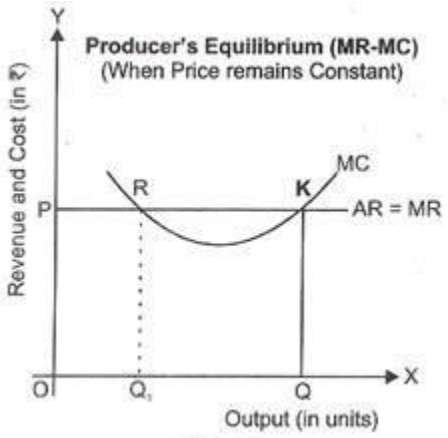


Fig. 8.3

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.

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:

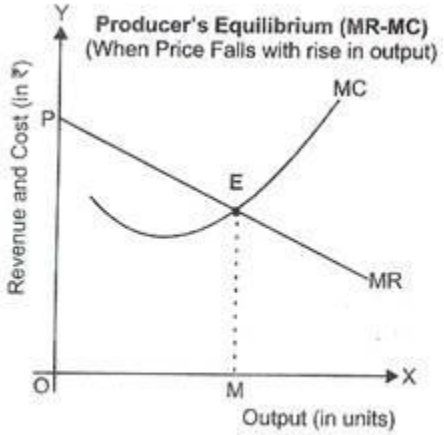


Fig. 8.4

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.

- **Meaning of Returns to Scale:**

The changes in output on account of the change in the factors of production in the same proportion are called the returns to scale. In the long run all the factors of production are variable and even the scale of production can be changed according to the demand for various goods and services in the economy. The returns to scale are concerned with long run production function. They are studied with the help of iso-product curves and iso-cost curves.

- **Types of Returns to Scale:**

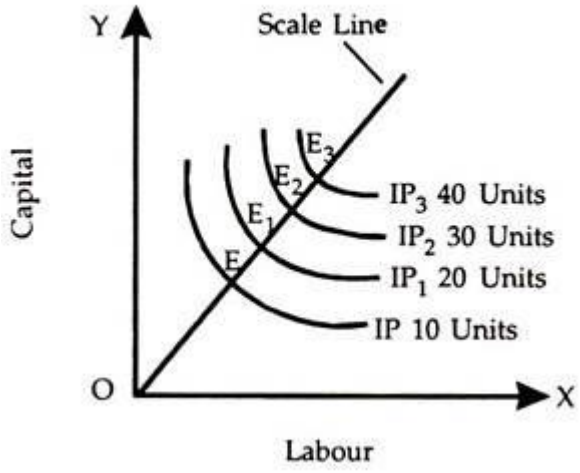
Returns to scale are of three types as follows:

1. Increasing Returns to Scale:

When the change in output is more than in proportion to the equi-proportional change in all the factors of production, then the operating law is called the increasing returns to scale. Thus, the rate of increase in output is faster than the increase in factors of production.

The distance between various iso-product curves decreases on the expansion path or scale line then the increasing returns to scale will operate. It reveals that the increase in output in the same proportion requires less ratio of labour and capital. Thus, output increases more than in proportion to the units of factors of production employed under this law. It can be explained with the help of Diagram 9.

Diagram 9 : Increasing Returns to Scale



Capital and labour are shown on OY-axis and OX-axis respectively. IP, IP1, IP2 and IP3 are different iso-product curves showing different levels of output, viz., 10 units, 20 units, 30 units and 40 units. The distance between successive iso-product curves diminishes as output is expanded by increasing the scale. The distance OE>EE1>E1E2>E2E3 which reveals that for equal increase in output, firm has to employ less and less amount of labour and capital.

- **Causes of Operating the Law:**

The increasing returns to scale operate on account of the following causes or reasons:

(i) Indivisibilities of Inputs:

There are some factors of production which are indivisible. Indivisibility means that they are available in a given shape or they cannot be divided into small pieces. Machine, managers, research, finance and marketing are such examples of individualities. With the increase in the scale of production the efficiency increases and the output increases more than in proportion to the change in inputs.

(ii) Division of Labour and Specialisation:

When the scale of production is increased the division of labour and specialisation is introduced. A process of production is divided into sub-processes and each process is completed by each group of workers and at the same time the specialist are appointed for different departments, viz., finance manager, marketing manager, personnel manager, purchasing manager and so on and so forth. Their services lead to increase in the production and the increasing returns to scale operates.

(iii) Dimensional Efficiency:

Increasing returns to scale is the result of operating dimensional efficiency in a business firm which is on account of the large size. The size increases the efficiency of all inputs and the increasing returns operates. Thus the investment in capital assets after a point will increase the output due to increased dimension of efficiency.

(iv) Economies of Large Scale:

When the scale of production is increased the internal and external economies of scale will operate and on account of it the increasing returns to scale will also operate.

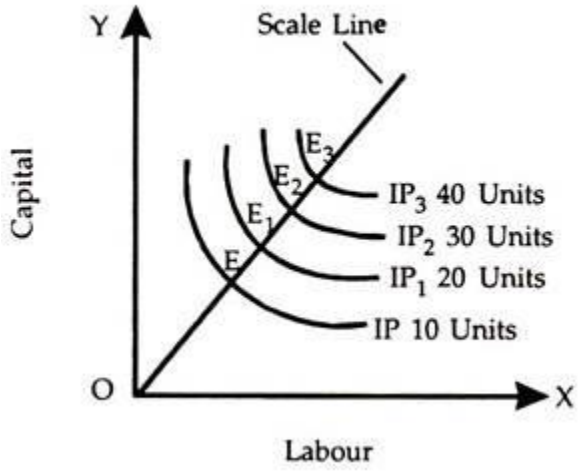
Internal economies are on account of firm's size and organisation while external economies are caused by the concentration and localisation of industries. All these economies lead to increase in output more than in proportion to the change in the ratio of two inputs.

2. Constant Returns to Scale:

When the output of a firm increases in the same proportion in which the change in inputs takes place the law is called constant returns to scale. The proportion of two inputs remains constant. When all iso-product curves showing the same level of output have the equal distance between them on the expansion path or scale line, the law operating is called constant returns to scale.

It is explained with the following diagram:

Diagram 9 : Increasing Returns to Scale



Capital and labour are shown on OY-axis and OX-axis respectively. IP, IP1, IP2 and IP3 are different iso-product curves showing different levels of output, viz., 10 units, 20 units, 30 units and 40 units.

The distance between iso-product curves is indicated by E, E1, E2 and E3. The distance on scale line (OP) are equal. OE = EE1 = E1E2 = E2E3. The distance between all iso-product curves remains constant which reveal that the production increases in the same proportion in which inputs are changed.

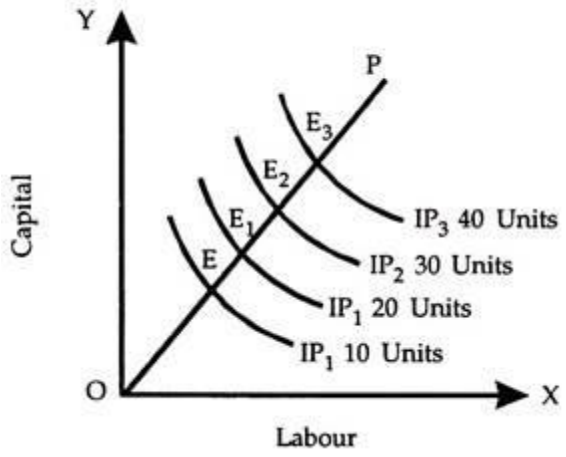
Hence, it is constant returns to scale. This law operates at the point where neither the internal and external economies nor internal and external diseconomies are enjoyed by the firm during long period.

3. Diminishing Returns to Scale:

When proportionate change in output is less than the proportionate change in all the factors of production their (inputs) ratio being equal, the diminishing returns to scale will operate. The distance between various iso-product curves on the scale line increases because for getting the same level of output we have to employ more of all inputs.

It is explained with the help of the following diagram:

Diagram 11 : Diminishing Returns to Scale



Labour and capital are employed on OX-axis an OY-axis. OP is the scale line on which E, E1, E2 and E3 different iso-product curves are showing different levels of output. The distance between these curves are increasing on the scale line which show that we have to employ more of inputs and the resultant output is less than in proportion to the change in inputs. OE<EE1<E1E2<E2E3 which show the diminishing returns to scale.

- **Causes of Operating the Law:**

The diminishing returns to scale operate on account of the following reasons:

(i) Diseconomies of Large Scale:

When the scale of production is increased the internal and external diseconomies of scale operate. On account of these diseconomies the output increases less than in proportion to the change in the inputs and the diminishing returns to scale operates.

(ii) Delay in Decision-Making and Its Implementation:

With the size of scale of production the decisions are taken at different levels of management. Delay in decision-making and its implementation lead to increase in output less than in proportion to the change in all variable inputs. Pressure from top management, red-tapism and diseconomies of managerial skill lead to diminishing returns to scale.

(iii) Managerial Inefficiency:

With the increase in the size and scale of production in the long period the management becomes a complicated process. It results into managerial inefficiency leading to operation of diminishing returns to scale.

(iv) Industrial Unrest:

With the increase in the size and scale of production the number of workers increases. There will be political affiliation of trade unions leading to strikes, lockouts, go slow tactics, gheraos, etc. These labour problems are not easily solved by the management. It adversely affects the production of individual firms or industries and diminishing returns to scale operates.

(v) Entrepreneur not Variable:

Entrepreneur is one of the factors of production. He is neither variable nor divisible input. In practice he is fixed and indivisible input and on account of change in other variable inputs the ratio under the large scale leads to imbalances and the law of diminishing returns to scale operates.

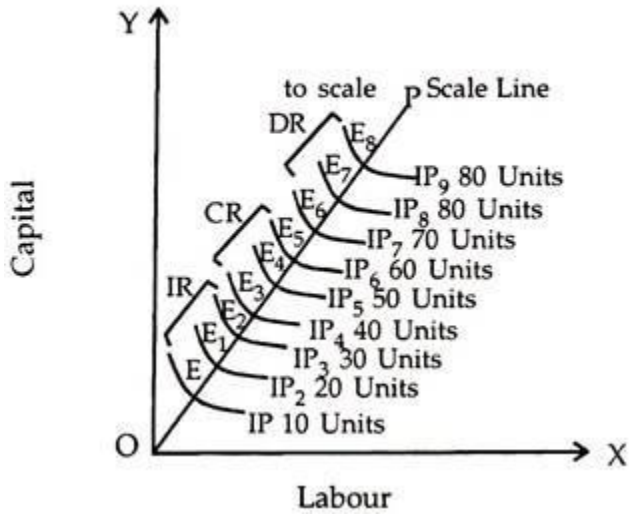
(vi) Over-Exploitation of Scarce Inputs:

When the scale of production is increased and some of the scarce inputs are exploited to unlimited extent the increase in output is less in proportion to change in all inputs during long period and diminishing return to scale operates.

➢ Variation in Returns to Scale:

We have explained the various phases or stages of returns to scale when the long run production function operates. It is revealed in practice that with the increase in the scale of production the firm gets the operation of increasing returns to scale and thereafter constant returns to scale and ultimately the diminishing returns to scale operates. These varying returns to scale or phases of returns to scale can be seen from Diagram 12.

Diagram 12 : Varying Returns to Scale



The above diagram shows varying returns to scale, namely, increasing returns to scale, constant returns to scale and diminishing returns to scale. Capital and labour are shown on OY-axis and OX-axis respectively. IP to IP9 are different iso-product curves showing different levels of output. E to E8 are different points on the scale line (OP) showing the different distances among the product curves.

From OE to OE2 the increasing returns to scale is operating while from E3 to E5 the constant returns to scale operates and the last phase of production is the diminishing returns to scale from E6 to E8 on the scale line.

The above diagram shows varying returns to scale, namely, increasing returns to scale, constant returns to scale and diminishing returns to scale. Capital and labour are shown on OY-axis and OX-axis respectively. IP to IP9 are different iso-product curves showing different levels of output. E to E8 are different points on the scale line (OP) showing the different distances among the product curves.

From OE to OE2 the increasing returns to scale is operating while from E3 to E5 the constant returns to scale operates and the last phase of production is the diminishing returns to scale from E6 to E8 on the scale line.

THEORY OF COST

➢ Meaning of Theory of Cost

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) Actual Cost

Actual cost is defined as the cost or expenditure which a firm incurs for producing or acquiring a good or service. The actual costs or expenditures are recorded in the books of accounts of a business unit. Actual costs are also called as "Outlay Costs" or "Absolute Costs" or "Acquisition Costs". **Examples:** Cost of raw materials, Wage Bill etc.

(2) Opportunity Cost

Opportunity cost is concerned with the cost of forgone opportunities/alternatives. In other words, it is the return from the second best use of the firms resources which the firms forgoes in order to avail of the return from the best use of the resources. It can also be said as the comparison between the policy that was chosen and the policy that was rejected. The concept of opportunity cost focuses on the net revenue that could be generated in the next best use of a scare input. Opportunity cost is also called as "Alternative Cost". If a firm owns a land, there is no cost of using the land (ie., the rent) in the firms account. But the firm has an opportunity cost of using the

land, which is equal to the rent forgone by not letting the land out on rent.

(3) Sunk Cost

Sunk costs are those do not alter by varying the nature or level of business activity. Sunk costs are generally not taken into consideration in decision - making as they do not vary with the changes in the future. Sunk costs are a part of the outlay/actual costs. Sunk costs are also called as "Non-Avoidable costs" or "Inescapable costs". **Examples:** All the past costs are considered as sunk costs. The best example is amortization of past expenses, like depreciation.

(4) Incremental Cost

Incremental costs are addition to costs resulting from a change in the nature of level of business activity. As the costs can be avoided by not bringing any variation in the activity in the activity, they are also called as "Avoidable Costs" or "Escapable Costs". More ever incremental costs resulting from a contemplated change is the Future, they are also called as "Differential Costs" **Example:** Change in distribution channels adding or deleting a product in the productline.

(5) Explicit Cost

Explicit costs are those expenses/expenditures that are actually paid by the firm. These costs are recorded in the books of accounts. Explicit costs are important for calculating the profit and loss accounts and guide in economic decision-making. Explicit costs are also called as "Paid out costs" **Example**: Interest payment on borrowed funds, rent payment, wages, utility expenses etc.

(6) Implicit Cost

Implicit costs are a part of opportunity cost. They are the theoretical costs ie., they are not recognised by the accounting system and are not recorded in the books of accounts but are very important in certain decisions. They are also called as the earnings of those employed resources which belong to the owner

himself. Implicit costs are also called as "Imputed costs". **Examples:** Rent on idle land, depreciation on dully depreciated property still in use, interest on equity capital etc.

(7) Book Cost

Book costs are those business costs which don't involve any cash payments but a provision is made in the books of accounts in order to include them in the profit and loss account and take tax advantages, like provision for depreciation and for unpaid amount of the interest on the owners capital.

(8) Out Of Pocket Costs

Out of pocket costs are those costs are expenses which are current payments to the outsiders of the firm. All the explicit costs fall into the category of out of pocket costs. **Examples:** Rent Paid, wages, salaries, interest etc

(9) Accounting Costs

Accounting costs are the actual or outlay costs that point out the amount of expenditure that has already been incurred on a particular process or on production as such accounting costs facilitate for managing the taxation need and profitability of the firm. **Examples:** All Sunk costs are accounting costs

(10) Economic Costs

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

(11) Direct Cost

Direct costs are those which have direct relationship with a unit of operation like manufacturing a product, organizing a process or an activity etc. In other words, direct costs are those which are directly and definitely identifiable. The nature of the direct costs are related with a particular product/process, they

vary with variations in them. Therefore all direct costs are variable in nature. It is also called as "Traceable Costs"
Examples: In operating railway services, the costs of wagons, coaches and engines are direct costs.

(12) Indirect Costs

Indirect costs are those which cannot be easily and definitely identifiable in relation to a plant, a product, a process or a department. Like the direct costs indirect costs, do not vary ie., they may or may not be variable in nature. However, the nature of indirect costs depend upon the costing under consideration. Indirect costs are both the fixed and the variable type as they may or may not vary as a result of the proposed changes in the production process etc. Indirect costs are also called as Non-traceable costs.
Example: The cost of factory building, the track of a railway system etc., are fixed indirect costs and the costs of machinery, labour etc.

(13) Controllable Cost:

Cost which can control

Example: Usage of raw material, Human Resources.

(14) Uncontrollable Cost: Cost which cannot be control

Example: Obsolescence of machinery, repairs of the machinery.

(15)Original or Historical Cost:

Cost of equipment at the time of purchase.

(16)Replacement Cost:

The Cost incurred for replacing the new machinery in the place of old machinery in the firm.

(17)Abandonment Cost:

Cost incurred for disposal of asset or machinery is called abandonment Cost.

(18) Shutdown Cost:

Cost which would be incurred in the event of suspension of plant.

Example: Storage of plant or machinery, construction of buildings, training the employees.

(19)Urgent Cost:

Must be incurred so that the production goes on.

Example: Raw material cost fuel, power and wages for the labour.

(20)Postpone able Cost:

Cost whose postponement does not effect at least for some time on the firm and on production process and this coast can be paid after sometime.

Example: Transportation charges, rent, interest.

(21)Fixed Cost:

Cost which does not change when there is change in the production. It remains constant.

Example: Rent of the building, interest on capital, salaries, and wages.

(22)Variable cost:

Cost which changes in accordance with production change.

Example: Raw material, power, fuel.

(23)Average Cost:

Cost incurred for single unit of production in the total production.

(24)Marginal Cost:

Additional cost incurred by the firm by producing one more units extra.

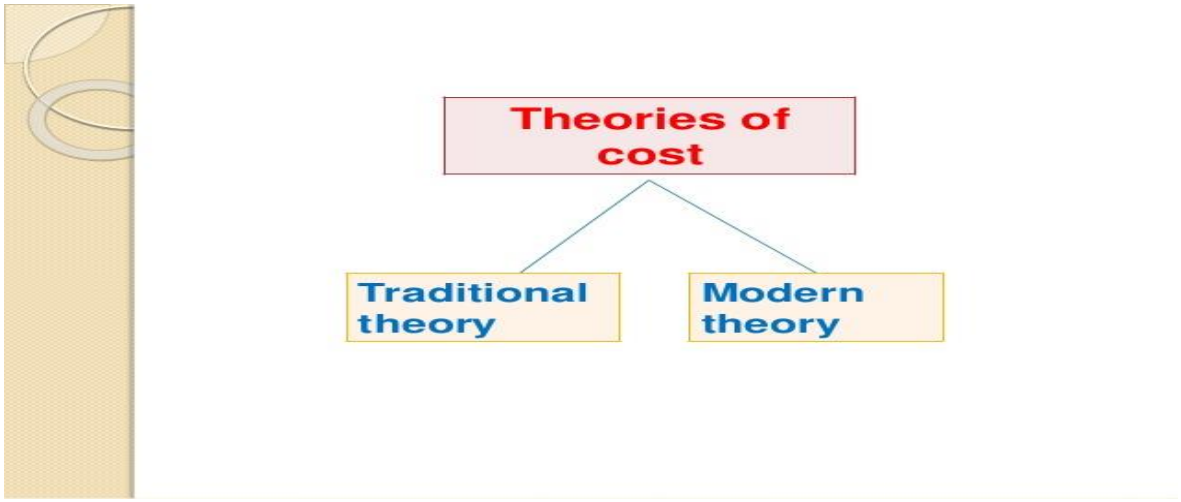
(25)Long run Cost:

Cost incurred for the expansion of plant, for increase in the production of goods.

(26)Short run Cost:

Cost incurred for the production of extra units with the existing plant capacity without purchasing new machinery.

➢ Theories of Cost



A. Traditional Theory

Traditional theory distinguishes between the short run and the long run. The short run is the period during which some factors) is fixed; usually capital equipment and entrepreneurship are considered as fixed in the short run.

The long run is the period over which all factors become variable.

1. Short-Run Costs of the Traditional Theory:

In the traditional theory of the firm total costs are split into two groups total fixed costs and total variable costs:

TC = TFC + TVC

The fixed costs include:

(a) Salaries of administrative staff

(b) Depreciation (wear and tear) of machinery

(c) Expenses for building depreciation and repairs

(d) Expenses for land maintenance and depreciation (if any).

Another element that may be treated in the same way as fixed costs is the normal profit, which is a lump sum including a percentage return on fixed capital and allowance for risk.

The variable costs include:

(a) The raw materials

(b) The cost of direct labour

(c) The running expenses of fixed capital, such as fuel, ordinary repairs and routine maintenance.

The total fixed cost is graphically denoted by a straight line parallel to the output axis (figure 4.1). The total variable cost in the traditional theory of the firm has broadly an inverse-S shape (figure 4.2) which reflects the law of variable proportions. According to this law, at the initial stages of production with a given plant, as more of the variable factors) is employed, its productivity increases and the average variable cost falls.

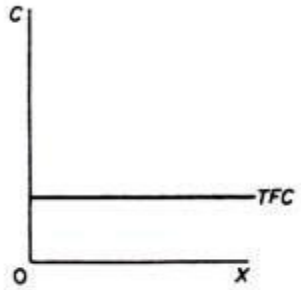


Figure 4.1

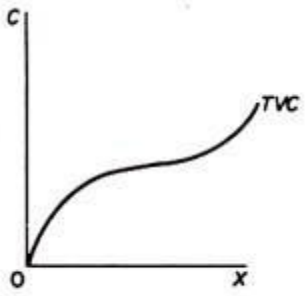


Figure 4.2

This continues until the optimal combination of the fixed and variable factors is reached. Beyond this point as increased quantities of the variable factors(s) are combined with the fixed factors) the productivity of the variable factors) declines (and the A VC rises). By adding the TFC and TVC we obtain the TC of the firm (figure 4.3). From the total-cost curves we obtain average-cost curves.

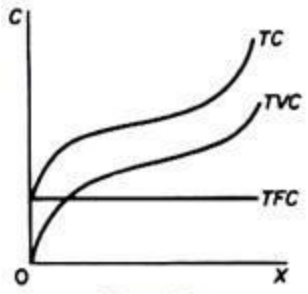


Figure 4.3

The average fixed cost is found by dividing TFC by the level of output:

AFC = TFC / X

Graphically the AFC is a rectangular hyperbola, showing at all its points the same magnitude, that is, the level of TFC (figure 4.4).

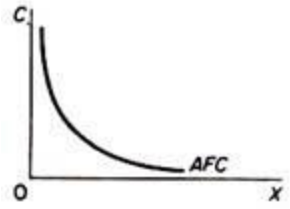


Figure 4.4

The average variable cost is similarly obtained by dividing the TVC with the corresponding level of output:

AVC = TVC / X

Graphically the A VC at each level of output is derived from the slope of a line drawn from the origin to the point on the TVC curve corresponding to the particular level of output. For example, in figure 4.5 the AVC at X_1 is the slope of the ray 0a, the A VC at X_2 is the slope of the ray Ob, and so on. It is clear from figure 4.5 that the slope of a ray through the origin declines continuously until

the ray becomes tangent to the TVC curve at c. To the right of this point the slope of rays through the origin starts increasing. Thus the SA VC curve falls initially as the productivity of the variable factors) increases, reaches a minimum when the plant is operated optimally (with the optimal combination of fixed and variable factors), and rises beyond that point (figure 4.6).

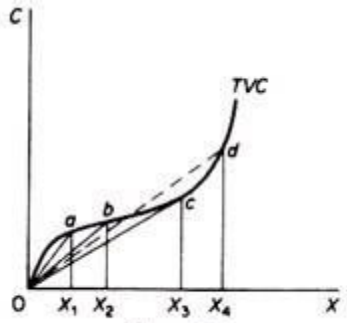


Figure 4.5

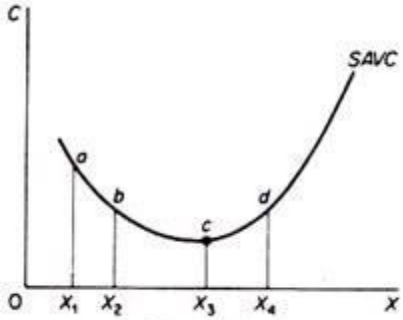


Figure 4.6

The ATC is obtained by dividing the TC by the corresponding level of output:

ATC = TC / X = TFC + TVC / X = AFC + AVC

Graphically the ATC curve is derived in the same way as the SAVC. The ATC at any level of output is the slope of the straight line from the origin to the point on the TC curve corresponding to that particular level of output (figure 4.7). The shape of the A TC is similar to that of the AVC (both being U-shaped). Initially the ATC declines, it reaches a minimum at the level of optimal operation of the plant (X_M) and subsequently rises again (figure 4.8).

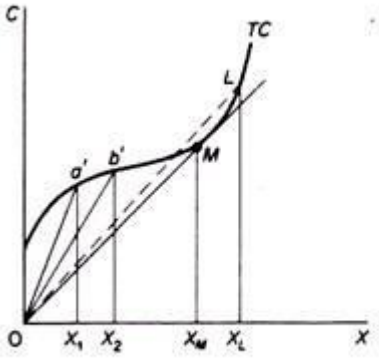


Figure 4.7

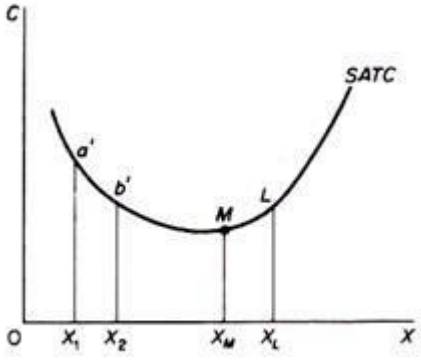


Figure 4.8

The U shape of both the AVC and the ATC reflects the law of variable proportions or law of eventually decreasing returns to the variable factor(s) of production. The marginal cost is defined as the change in TC which results from a unit change in output. Mathematically the marginal cost is the first derivative of the TC function. Denoting total cost by C and output by X we have

$MC = \partial C / \partial X$

Graphically the MC is the slope of the TC curve (which of course is the same at any point as the slope of the TVC). The slope of a curve at any one of its points is the slope of the tangent at that point. With an inverse-S shape of the TC (and TVC) the MC curve will be U-shaped. In figure 4.9 we observe that the slope of the tangent to the total-cost curve declines gradually, until it becomes parallel to the X-axis (with its slope being equal to zero at this point), and then starts rising. Accordingly we picture the MC curve in figure 4.10 as U-shaped.

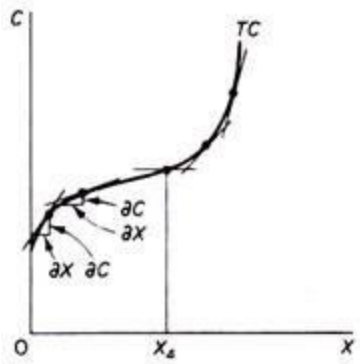


Figure 4.9

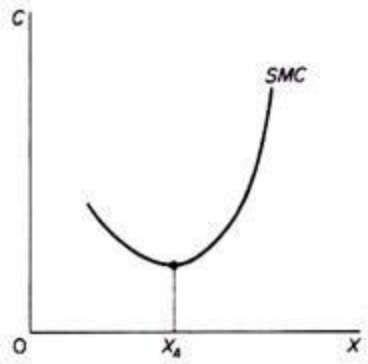


Figure 4.10

In summary: the traditional theory of costs postulates that in the short run the cost curves (AVC, ATC and MC) is U-shaped, reflecting the law of variable proportions. In the short run with a fixed plant there is a phase of increasing productivity (falling unit costs) and a phase of decreasing productivity (increasing unit costs) of the variable factor(s).

Between these two phases of plant operation there is a single point at which unit costs are at a minimum. When this point on the SATC is reached the plant is utilized optimally, that is, with the optimal combination (proportions) of fixed and variable factors.

- **The relationship between ATC and AVC:**

The AVC is a part of the ATC, given ATC = AFC + AVC. Both AVC and ATC are U-shaped, reflecting the law of variable proportions. However, the minimum point of the ATC occurs to the right of the minimum point of the AVC (figure 4.11). This is due to the fact that ATC includes AFC, and the latter falls continuously with increases in output.

After the AVC has reached its lowest point and starts rising, its rise is over a certain range offset by the fall in the AFC, so that the ATC continues to fall (over that range) despite the increase in AVC. However, the rise in AVC eventually becomes greater than the fall in the AFC so that the A TC starts increasing. The A VC approaches the A TC asymptotically as X increases.

In figure 4.11 the minimum AVC is reached at X_1 while the ATC is at its minimum at X_2. Between X_1 and X_2 the fall in AFC more than offsets the rise in AVC so that the ATC continues to fall. Beyond X_2 the increase in AVC is not offset by the fall in AFC, so that ATC rises.

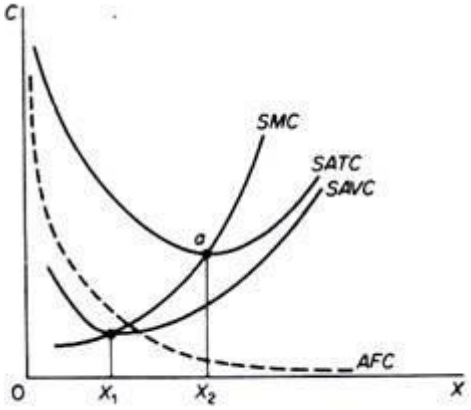


Figure 4.11

➢ The relationship between MC and ATC:

The MC cuts the ATC and the AVC at their lowest points. We will establish this relation only for the ATC and MC, but the relation between MC and AVC can be established on the same lines of reasoning.

We said that the MC is the change in the TC for producing an extra unit of output. Assume that we start from a level of n units of output. If we increase the output by one unit the MC is the change in total cost resulting from the production of the $(n + l)^{th}$ unit.

The AC at each level of output is found by dividing TC by X. Thus the AC at the level of X_n is

$$AC_n = \frac{TC_n}{X_n}$$

and the AC at the level X_{n+1} is

$$AC_{n+1} = \frac{TC_{n+1}}{X_{n+1}}$$

Clearly

$$TC_{n+1} = TC_n + MC$$

Thus:

(a) If the MC of the $(n + 1)^{th}$ unit is less than AC_n (the AC of the previous n units) the AC_{n+1} will be smaller than the AC_n.

(b) If the MC of the $(n + 1)^{th}$ unit is higher than AC_n (the AC of the previous n units) the AC_{n+1} will be higher than the AC_n.

So long as the MC lies below the AC curve, it pulls the latter downwards; when the MC rises above the AC, it pulls the latter upwards. In figure 4.11 to the left of a the MC lies below the AC curve, and hence the latter falls downwards. To the right of a the MC curve lie above the AC curve, so that AC rises. It follows that at point a, where the intersection of the MC and AC occurs, the AC has reached its minimum level.

1. Long-Run Costs of the Traditional Theory: The 'Envelope' Curve:

In the long run all factors are assumed to become variable. We said that the long-run cost curve is a planning curve, in the sense that it is a guide to the entrepreneur in his decision to plan the future expansion of his output. The long-run average-cost curve is derived from short-run cost curves. Each point on the LAC corresponds to a point on a short-run cost curve, which is tangent to the LAC at that point. Let us examine in detail how the LAC is derived from the SRC curves.

Assume, as a first approximation, that the available technology to the firm at a particular point of time includes three methods of production, each with a

different plant size: a small plant, medium plant and large plant. The small plant operates with costs denoted by the curve SAC_1, the medium-size plant operates with the costs on SAC_2 and the large-size plant gives rise to the costs shown on SAC_3 (figure 4.12). If the firm plans to produce output X_3 it will choose the small plant. If it plans to produce X_2 it will choose the medium plant. If it wishes to produce X_1 it will choose the large- size plant.

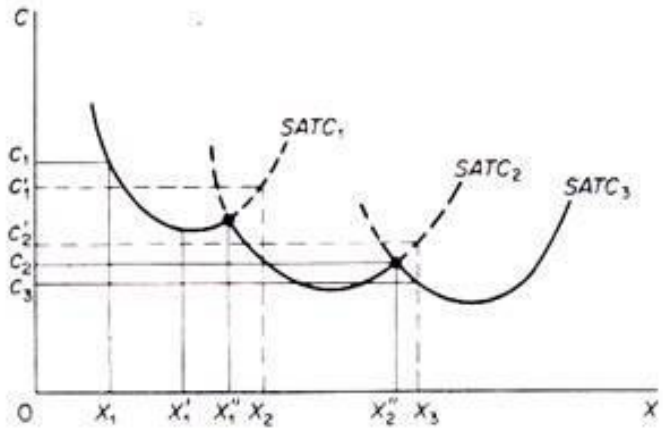


Figure 4.12

If the firm starts with the small plant and its demand gradually increases, it will produce at lower costs (up to level X'_1). Beyond that point costs start increasing. If its demand reaches the level $X"_1$ the firm can either continue to produce with the small plant or it can install the medium-size plant. The decision at this point depends not on costs but on the firm's expectations about its future demand. If the firm expects that the demand will expand further than $X"_1$ it will install the medium plant, because with this plant outputs larger than X'_1 are produced with a lower cost.

Similar considerations hold for the decision of the firm when it reaches the level $X"_2$. If it expects its demand to stay constant at this level, the firm will not install the large plant, given that it involves a larger investment which is profitable only if demand expands beyond $X"_2$. For example, the level of output X_3 is produced at a cost c_3 with the large plant, while it costs c'_2 if produced with the medium-size plant ($c'_2 > c_3$).

Now if we relax the assumption of the existence of only three plants and assume that the available technology includes many plant sizes, each suitable for a certain level of output, the points of intersection of consecutive plants (which

are the crucial points for the decision of whether to switch to a larger plant) are more numerous. In the limit, if we assume that there is a very large number (infinite number) of plants, we obtain a continuous curve, which is the planning LAC curve of the firm.

Each point of this curve shows the minimum (optimal) cost for producing the corresponding level of output. The LAC curve is the locus of points denoting the least cost of producing the corresponding output. It is a planning curve because on the basis of this curve the firm decides what plant to set up in order to produce optimally (at minimum cost) the expected level of output.

The firm chooses the short-run plant which allows it to produce the anticipated (in the long run) output at the least possible cost. In the traditional theory of the firm the LAC curve is U-shaped and it is often called the 'envelope curve' because it 'envelopes' the SRC curves (figure 4.13).

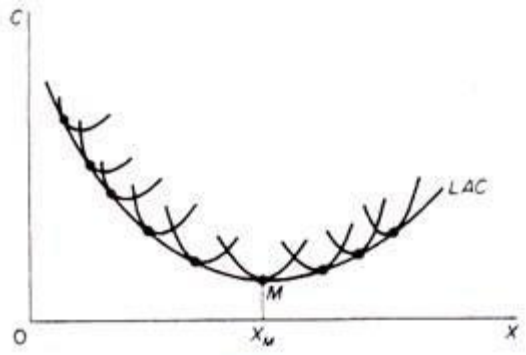


Figure 4.13

Let us examine the U shape of the LAC. This shape reflects the laws of returns to scale. According to these laws the unit costs of production decrease as plant size increases, due to the economies of scale which the larger plant sizes make possible. The traditional theory of the firm assumes that economies of scale exist only up to a certain size of plant, which is known as the optimum plant size, because with this plant size all possible economies of scale are fully exploited.

If the plant increases further than this optimum size there are diseconomies of scale, arising from managerial inefficiencies. It is argued that management becomes highly complex, managers are overworked and the decision-making process becomes less efficient. The turning-up of the LAC curve is due to

managerial diseconomies of scale, since the technical diseconomies can be avoided by duplicating the optimum technical plant size.

A serious implicit assumption of the traditional U-shaped cost curves is that each plant size is designed to produce optimally a single level of output (e.g. 1000 units of X). Any departure from that X, no matter how small (e.g. an increase by 1 unit of X) leads to increased costs. The plant is completely inflexible. There is no reserve capacity, not even to meet seasonal variations in demand.

As a consequence of this assumption the LAC curve 'envelopes' the SRAC. Each point of the LAC is a point of tangency with the corresponding SRAC curve. The point of tangency occurs to the falling part of the SRAC curves for points lying to the left of the minimum point of the LAC since the slope of the LAC is negative up to M (figure 4.13) the slope of the SRMC curves must also be negative, since at the point of their tangency the two curves have the same slope.

The point of tangency for outputs larger than X_M occurs to the rising part of the SRAC curves since the LAC rises, the SAC must rise at the point of their tangency with the LAC. Only at the minimum point M of the LAC is the corresponding SAC also at a minimum. Thus at the falling part of the LAC the plants are not worked to full capacity; to the rising part of the LAC the plants are overworked; only at the minimum point M is the (short-run) plant optimally employed.

We stress once more the optimality implied by the LAC planning curve each point represents the least unit-cost for producing the corresponding level of output. Any point above the LAC is inefficient in that it shows a higher cost for producing the corresponding level of output. Any point below the LAC is economically desirable because it implies a lower unit-cost, but it is not attainable in the current state of technology and with the prevailing market prices of factors of production. (Recall that each cost curve is drawn under a ceteris paribus clause, which implies given state of technology and given factor prices.)

The long-run marginal cost is derived from the SRMC curves, but does not 'en-velope' them. The LRMC is formed from points of intersection of the SRMC curves with vertical lines (to the X-axis) drawn from the points of tangency of the corresponding SAC curves and the LRA cost curve (figure 4.14). The LMC

must be equal to the SMC for the output at which the corresponding SAC is tangent to the LAC. For levels of X to the left of tangency a the SAC > LAC.

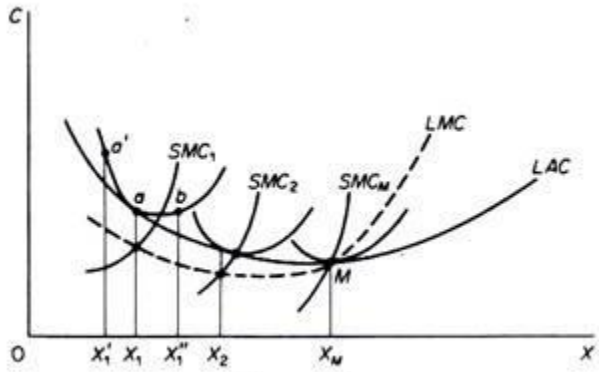


Figure 4.14

At the point of tangency SAC = LAC. As we move from point a' to a, we actually move from a position of inequality of SRAC and LRAC to a position of equality. Hence the change in total cost (i.e. the MC) must be smaller for the short-run curve than for the long-run curve. Thus LMC > SMC to the left of a. For an increase in output beyond X, (e.g. X'_1) the SAC > LAC. That is, we move from the position a of equality of the two costs to the position b where SAC is greater than LAC. Hence the addition to total cost (= MC) must be larger for the short-run curve than for the long-run curve. Thus LMC < SMC to the right of a.

Since to the left of a, LMC > SMC, and to the right of a, LMC < SMC, it follows that at a, LMC – SMC. If we draw a vertical line from a to the X-axis the point at which it intersects the SMC (point A for SAC_1) is a point of the LMC.

If we repeat this procedure for all points of tangency of SRAC and LAC curves to the left of the minimum point of the LAC, we obtain points of the section of the LMC which lies below the LAC. At the minimum point M the LMC intersects the LAC. To the right of M the LMC lies above the LAC curve. At point M we have

$SAC_M = SMC_M = LAC = LMC$

There are various mathematical forms which give rise to U-shaped unit cost curves. The simplest total cost function which would incorporate the law of variable proportions is the cubic polynomial

$$C = \underbrace{b_0}_{TFC} + \underbrace{b_1X - b_2X^2 + b_3X^3}_{TVC}$$

$$TC = TFC + TVC$$

The AVC is

$$AVC = \frac{TVC}{X} = b_1 - b_2X + b_3X^2$$

The MC is

$$MC = \frac{\partial C}{\partial X} = b_1 - 2b_2X + 3b_3X^2$$

The ATC is

$$\frac{C}{X} = \frac{b_0}{X} + b_1 - b_2X + b_3X^2$$

The TC curve is roughly S-shaped , while the ATC, the AVC and the MC are all U-shaped; the MC curve intersects the other two curves at their minimum points (figure 4.11).

B. The Modern Theory of Costs

The modem theory of costs differs from the traditional theory of costs with regard to the shapes of the cost curves. In the traditional theory, the cost curves are U-shaped. But in the modem theory which is based on empirical evidences, the short-run SAVC curve and the SMC curve coincide with each other and are a horizontal straight line over a wide range of output. So far as the LAC and LMC curves are concerned, they are L-shaped rather than U-shaped. We discuss below the nature of short- run and long-run cost curves according to the modem theory.

(1) Short-Run Cost Curves:

As in the traditional theory, the short-run cost curves in the modem theory of costs are the AFC, SAVC, SAC and SMC curves. As usual, they are derived from the total costs which are divided into total fixed costs and total variable costs.

But in the modem theory, the SAVC and SMC curves have a saucer-type shape or bowl-shape rather than a U-shape. As the AFC curve is a rectangular hyperbola, the SAC curve has a U-shape even in the modem version. Economists have investigated on the basis of empirical studies this behaviour pattern of the short-run cost curves.

According to them, a modern firm chooses such a plant which it can operate easily with the available variable direct factors. Such a plant possesses some reserve capacity and much flexibility. The firm installs this type of plant in order to produce the maximum rate of output over a wide range to meet any increase in demand for its product.

The saucer-shaped SAVC and SMC curves are shown in Figure 7. To begin with, both the curves first fall upto point A and the SMC curvelies below the SAVC curve. "The falling part of the SAVC shows the reduction in costs due to the better utilisation of the fixed factor and the consequent increase in skills and productivity of the variable factor (labour).

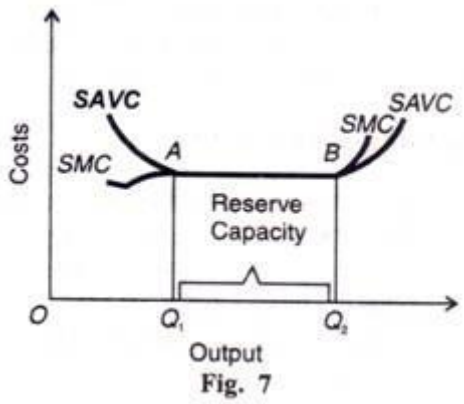


Fig. 7

With better skills, the wastes in raw materials are also being reduced and a better utilisation of the whole plant is reached." So far as the flat stretch of the saucer-shaped SAVC curve over Q:1Q2 range of output is concerned, the empirical evidence reveals that the operation of a plant within this wide range exhibits constant returns to scale.

The reason for the saucer-shaped SAVC curve is that the fixed factor is divisible. The SAV costs are constant over a large range, up to the point at which all of the fixed factor is used. Moreover, the firm's SAV costs tend to be constant over a wide range of output because there is no need to depart from the optimal combination of labour and capital in those plants that are kept in operation.

Thus there is a large range of output over which the SAVC curve will be flat. Over that range, SMC and SAVC are equal and are constant per unit of output. The firm will, therefore, continue to produce within Q1Q2 reserve capacity of the plant, as shown in Figure 7.

After point B, both the SAVC and SMC curves start rising. When the firm departs from its normal or the load factor of the plant in order to obtain higher rates of output beyond Q2, it leads to higher SAVC and SMC. The increase in costs may be due to the overtime operations of the old and less efficient plant leading to frequent breakdowns, wastage of raw materials, reduction in labour productivity and increase in labour cost due to overtime operations. In the rising portion of the SAVC curve beyond point B, the SMC curve lies above it.

The short-run average total cost curve (SATC or SAC) is obtained by adding vertically the average fixed cost curve (AFC) and the SAVC curve at each level of output. The SAC curve, as shown in Figure 8, continues to fall up to the OQ level of output at which the reserve capacity of the plant is fully exhausted.

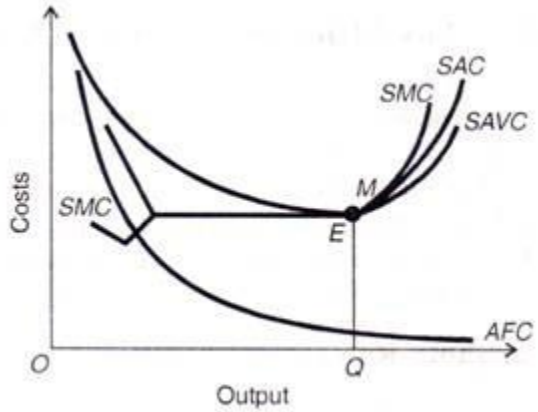


Fig. 8

Beyond that output level, the SAC curve rises as output increases. The smooth and continuous fall in the SAC curve upto the OQ level of output is due to the fact that the AFC curve is a rectangular hyperbola and the SAVC curve first falls and then becomes horizontal within the range of reserve capacity. Beyond the OQ output level, it starts rising steeply. But the minimum point M of the SAC curve where the SMC curve intersects it, is to the right of point E of the SAVC curve. This is because the SAVC curve starts rising steeply from point E while the AFC curve is falling at a very low rate.

(2) Long-Run Cost Curves:

Empirical evidence about the long-run average cost curve reveals that the LAC curve is L-shaped rather than U-shaped. In the beginning, the LAC curve rapidly falls but after a point "the curve remains flat, or may slope gently downwards,

at its right-hand end." Economists have assigned the following reasons for the L-shape of the LAC curve.

1. **Production and Managerial Costs:**

In the long run, all costs being variable, production costs and managerial costs of a firm are taken into account when considering the effect of expansion of output on average costs. As output increases, production costs fall continuously while managerial costs may rise at very large scales of output. But the fall in production costs outweighs the increase in managerial costs so that the LAC curve falls with increases in output. We analyse the behaviour of production and managerial costs in explaining the L-shape of the LAC curve.

✓ **Production Costs:**

As a firm increases its scale of production, its production costs fall steeply in the beginning and then gradually. The is due to the technical economies of large scale production enjoyed by the firm. Initially, these economies are substantial. But after a certain level of output when all or most of these economies have been achieved, the firm reaches the minimum optimal scale or mini mum efficient scale (MES).

Given the technology of the industry, the firm can continue to enjoy some technical economies at outputs larger than the MES for the following reasons:

(a) from further decentralisation and improvement in skills and productivity of labour;

(b) from lower repair costs after the firm reaches a certain size; and

(c) by itself producing some of the materials and equipment cheaply which the firm needs instead of buying them from other firms.

✓ **Managerial Costs:**

In modern firms, for each plant there is a corresponding managerial set-up for its smooth operation. There are various levels of management, each having a separate management technique applicable to a certain range of output. Thus, given a managerial set-up for a plant, its managerial costs first fall with the expansion of output and it is only at a very large scale output, they rise very slowly.

To sum up, production costs fall smoothly and managerial costs rise slowly at very large scales of output. But the fall in production costs more than offsets the rise in managerial costs so that the LAC curve falls smoothly or becomes flat at very large scales of output, thereby giving rise to the L-shape of the LAC curve.

In order to draw such an LAC curve, we take three short-run average cost curves SAC1 SA C2, and SAC3representing three plants with the same technology in Figure 9. Each SAC curve includes production costs, managerial costs, other fixed costs and a margin for normal profits. Each scale of plant (SAC) is subject to a typical load factor capacity so that points A, B and C represent the minimal optimal scale of output of each plant.

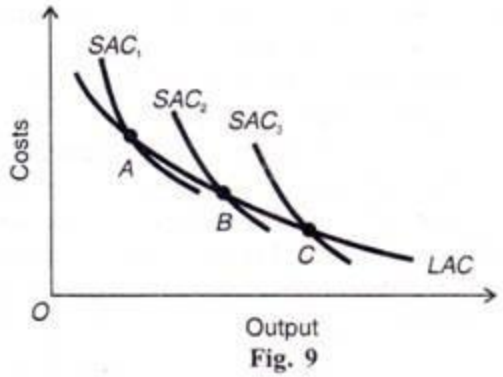


Fig. 9

By joining all such points as A, B and C of a large number of SACs, we trace out a smooth and continuous LAC curve, as shown in Figure 9. This curve does not turn up at very large scales of output. It does not envelope the SAC curves but intersects them at the optimal level of output of each plant.

2. Technical Progress:

Another reason for the existence of the L-shaped LAC curve in the modern theory of costs is technical progress. The traditional theory of costs assumes no technical progress while explaining the U-shaped LAC curve. The empirical results on long-run costs conform the widespread existence of economies of scale due to technical progress in firms.

The period between which technical progress has taken place, the long-run average costs show a falling trend. The evidence of diseconomies is much less certain. So an upturn of the LAC at the top end of the size scale has not been observed. The L-shape of the LAC curve due to technical progress is explained in Figure 10.

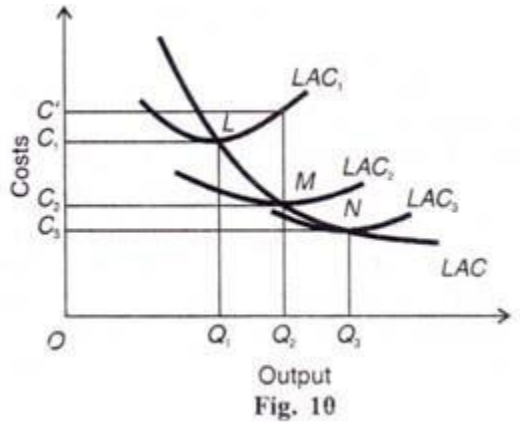


Fig. 10

Suppose the firm is producing OQ1 output on LAC1curve at a per unit cost of OC1 If there is an increase in demand for the firm's product to OQ2,with no change in technology, the firm will produce OQ2 output along the LAC1 curve at a per unit cost of OC2. If, however, there is technical progress in the firm, it will install a new plant having LAC2 as the long-run average cost curve. On this plant, it produces OQ2 output at a lower cost OC2 per unit.

Similarly, if the firm decides to increase its output to OQ3 to meet further rise in demand technical progress may have advanced to such a level that it installs the plant with the LAC3 curve. Now it produces OQ3output at a still lower cost OC3 per unit. If the minimum points, L, M and N of these U- shaped long-run average cost curves LAC1, LAC2 and LAC3are joined by a line, it forms an L-shaped gently sloping downward curve LAC.

3. **Learning:**

Another reason for the L-shaped long- run average cost curve is the learning process. Learning is the product of experience. If experience, in this context, can be measured by the amount of a commodity produced, then higher the production is, the lower is per unit cost.

The consequences of learning are similar to increasing returns. First, the knowledge gained from working on a large scale cannot be forgotten. Second, learning increases the rate of productivity. Third, experience is measured by the aggregate output produced since the firm first started to produce the product.

Learning-by-doing has been observed when firms start producing new products. After they have produced the first unit, they are able to reduce the time required for production and thus reduce their per unit costs. For example, if a firm manufactures airframes, the fall observed in long-run average costs is a function of experience in producing one particular kind of airframe, not airframes in general.

One can, therefore, draw a "learning curve" which relates cost per airframe to the aggregate number of airframes manufactured so far, since the firm started manufacturing them. Figure 11 shows a learning curve LAC which relates the cost of producing a given output to the total output over the entire time period.

Growing experience with making the product leads to falling costs as more and more of it is produced. When the firm has exploited all learning possibilities, costs reach a minimum level, M in the figure. Thus, the LAC curve is L-shaped due to learning by doing.

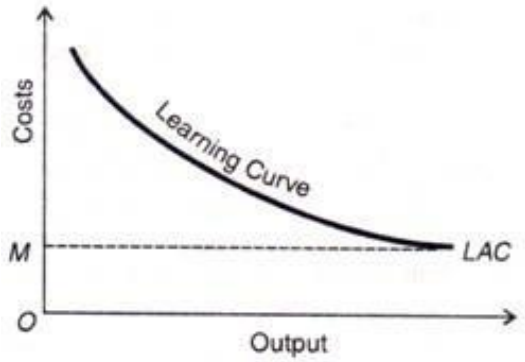


Fig. 11.

- **Relation between LAC and LMC Curves:**

In the modern theory of costs, if the LAC curve falls smoothly and continuously even at very large scales of output, the LMC curve will lie below the LAC curve throughout its length, as shown in Figure 12.

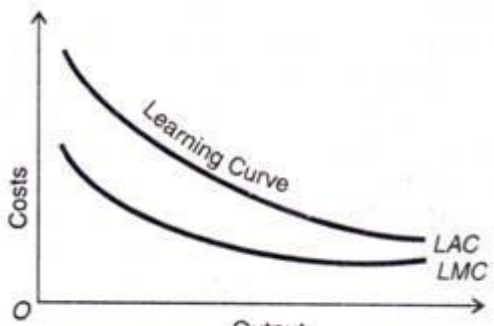


Fig. 12.

If the LAC curve is downward sloping up to the point of a minimum optimal scale of plant or a minimum efficient scale (MES) of plant beyond which no further scale economies exist, the LAC curve becomes horizontal. In this case, the LMC curve lies below the LAC curve until the MES point M is reached, and beyond this point the LMC curve coincides with the LA C curve, as shown in Figure 13.

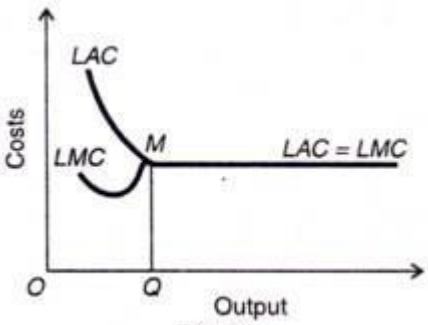


Fig. 13.

Conclusion:

The majority of empirical cost studies suggest that the U-shaped cost curves postulated by the traditional theory are not observed in the real world. Two

major results emerge predominantly from most studies. First, the SAVC and SMC curves are constant over a wide-range of output.

Second, the LAC curve falls sharply over low levels of output, and subsequently remains practically constant as the scale of output increases. This means that the LAC curve is L-shaped rather than U-shaped. Only in very few cases diseconomies of scale were observed, and these at very high levels of output.

➢ 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.

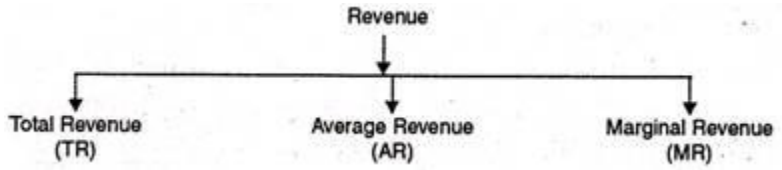
Revenue is a very important concept in economic analysis. It is directly influenced by sales level, i.e., as sales increases, revenue also increases.

➢ 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 chairs is Rs. 1,780, then MR of the 11th chair will be:

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.

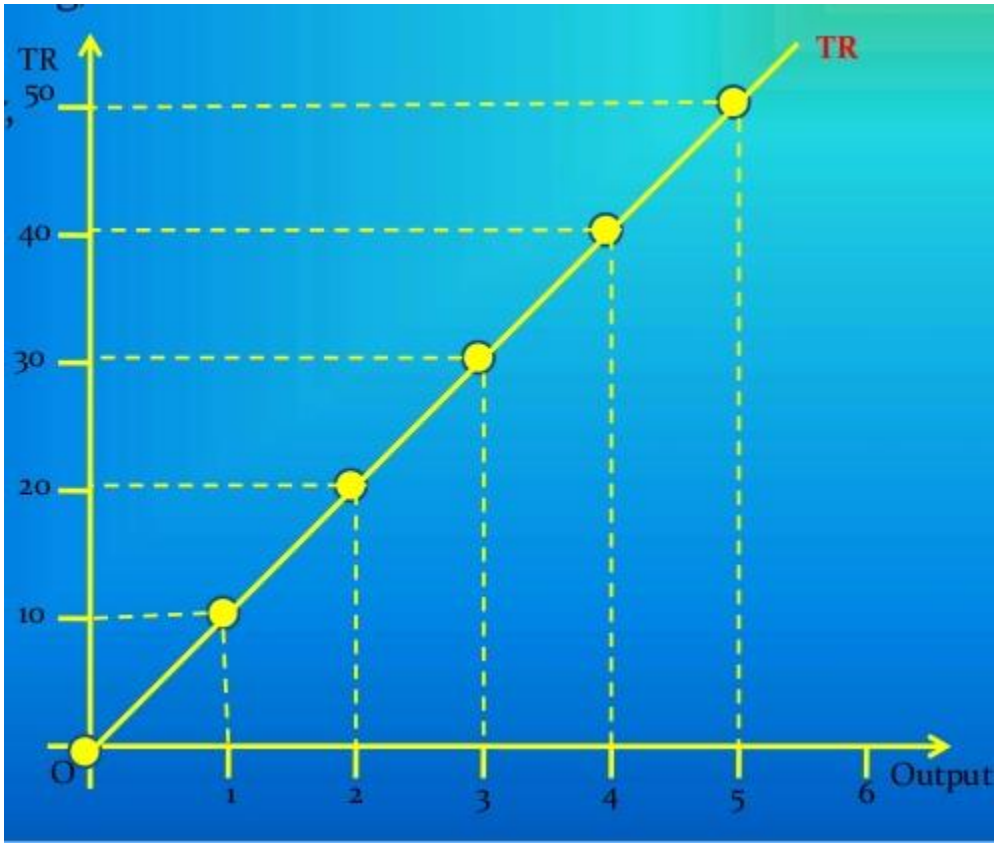
It can be explained with the help of following table and graph.

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

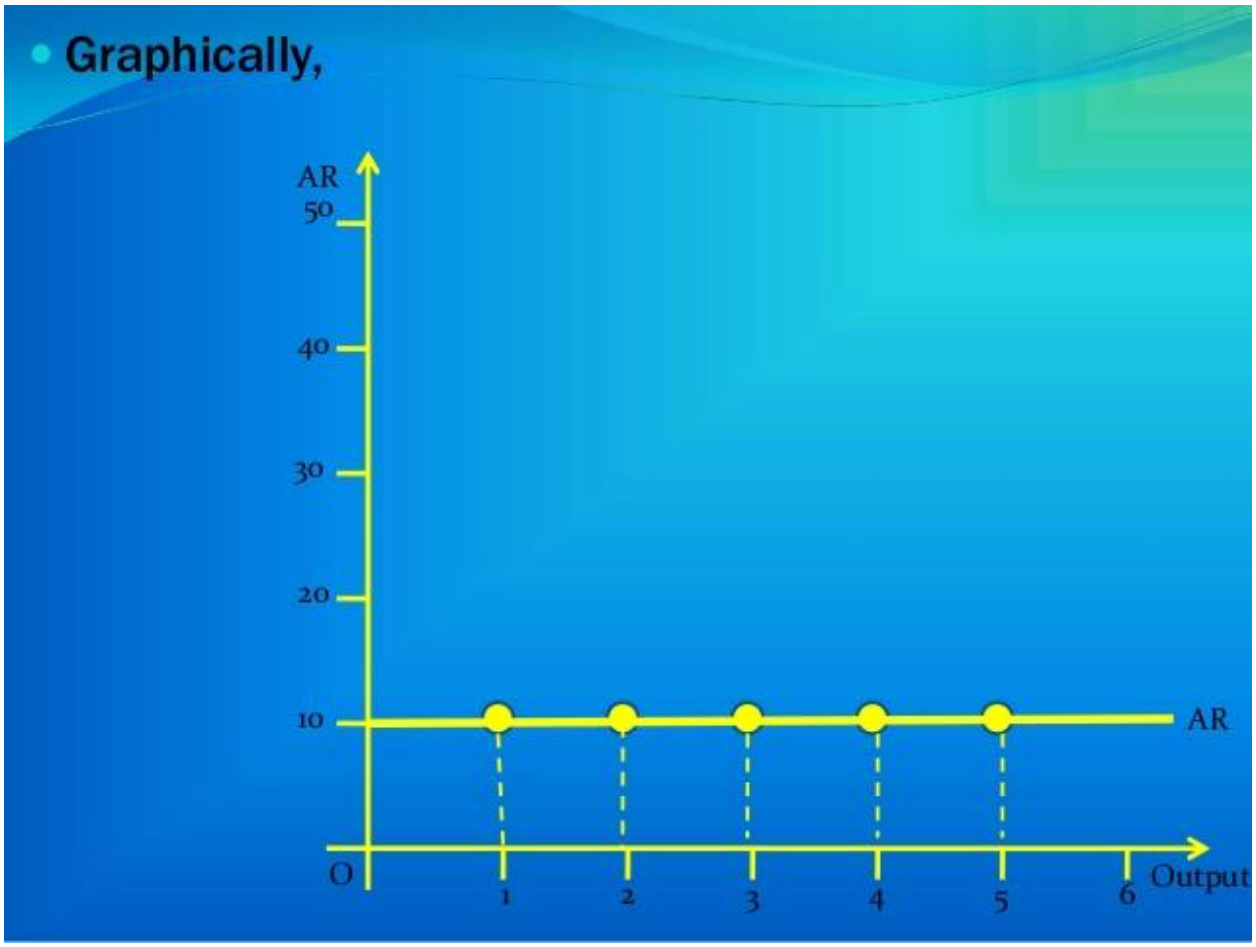
Units of Output (Q)	Per Unit Price (P)	Total Revenue (TR)	Average Revenue (AR) = TR/Q
0	10	0	-
1	10	10	10
2	10	20	10
3	10	30	10
4	10	40	10
5	10	50	10

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.

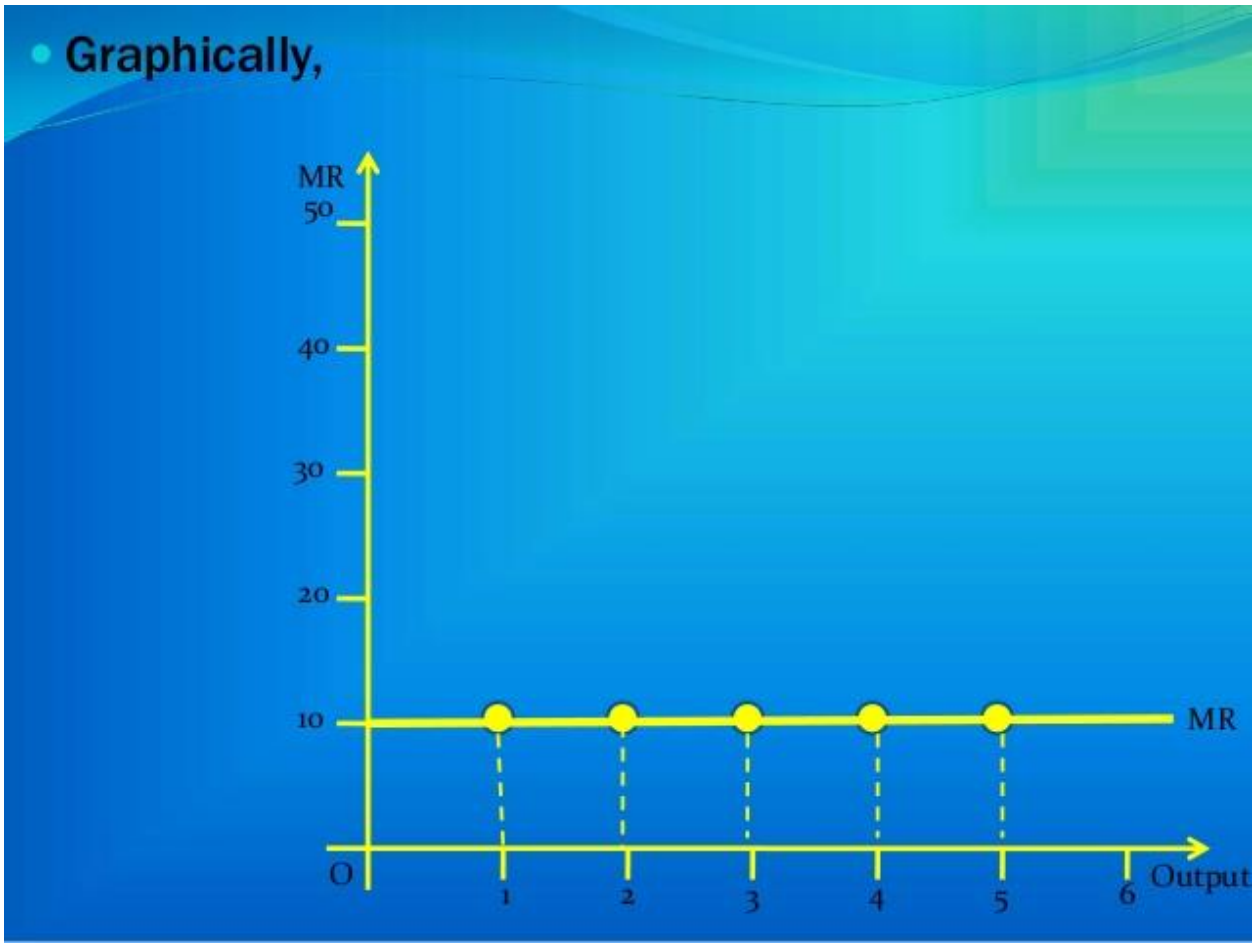
It can be explained with the help of following table and graph.

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.

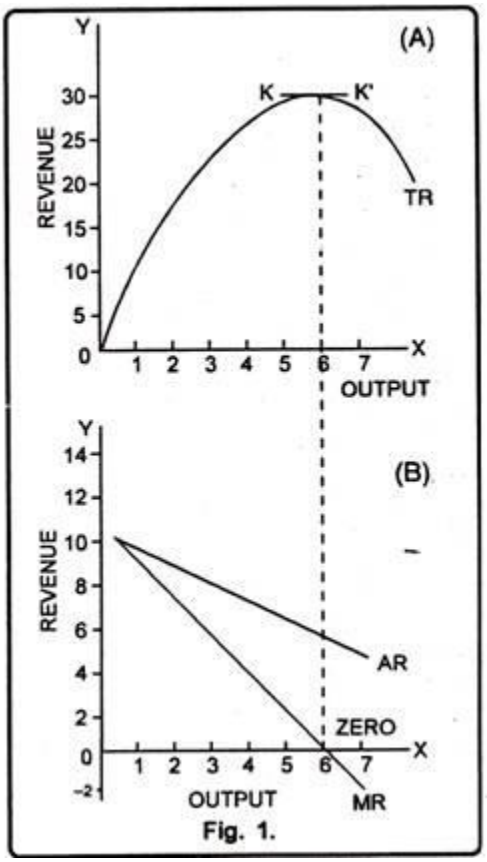


Fig. 1.

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.

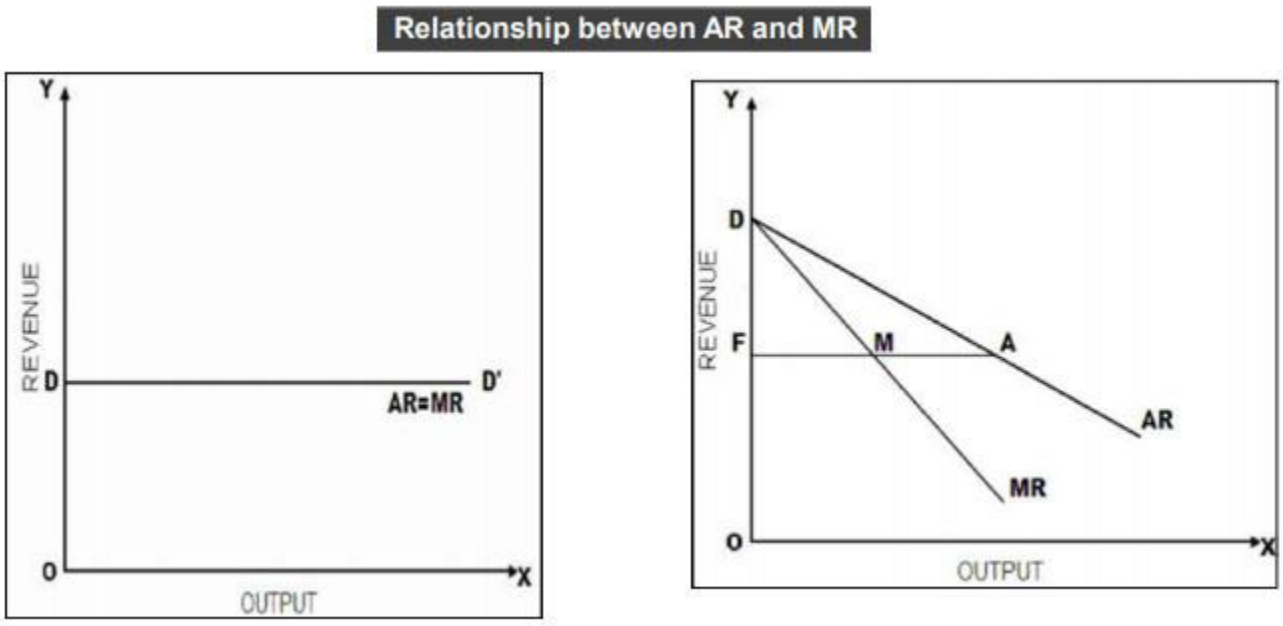
However, if MR is falling with the increase in the quantity of sale, then the TR curve will gain height at a decreasing rate. When the MR curve touches the X-axis, the TR curve reaches its maximum height.

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:-

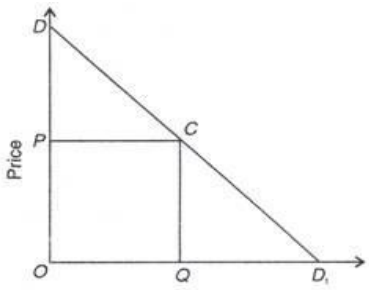


Fig. 8

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.

❖ Important Questions:-

➢ Short Questions (2 marks)

Q1. Average Cost.

Q2. Marginal Cost.

Q3. Total Cost.

Q4. Define Cost.

Q5. Define Revenue.

Q6. Total Revenue.

Q7. Average Revenue.

Q8. Marginal Revenue.

Q9. Relationship between TC, AC & MC.

Q10. Relationship between TR, AR & MR.

Q11. Define Production Function.

Q12. Define Return to Scale?

Q13. Define Producer Equilibrium?

Q14. Isoquant.

➢ 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?

Q9:- Define Revenue? Explain Its Types, Shapes And Curves?

Q10: - Explain Relationship Between Marginal Revenue & Elasticity Of Demand?

UNIT-III

MARKET STRUCTURE

➢ 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 ARE:**

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).

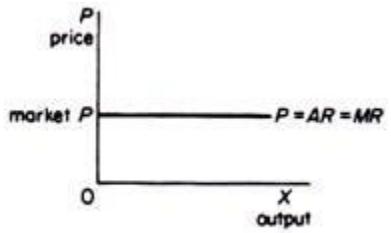


Figure 5.1

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 jobs, 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:

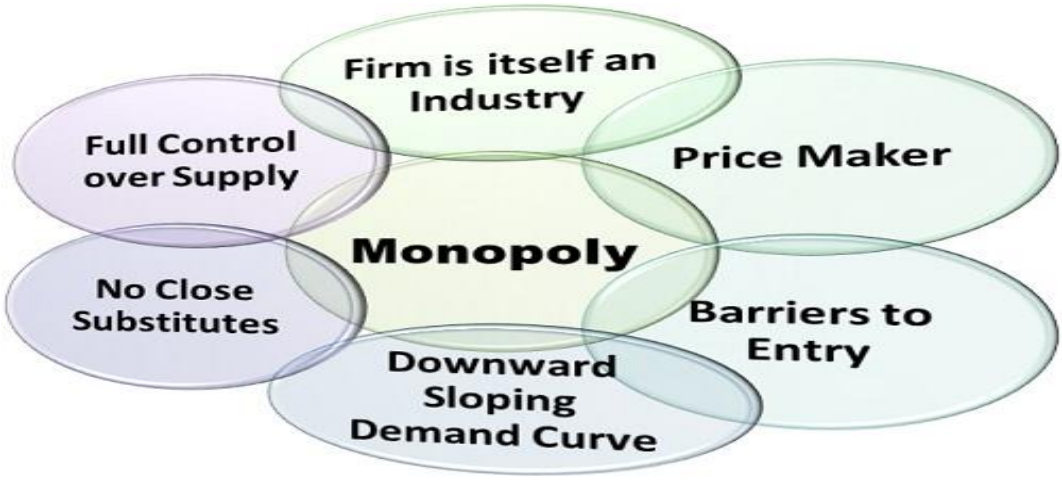
It is assumed that all sellers and buyers have complete knowledge of the conditions of the market. This knowledge refers not only to the prevailing conditions in the current period but in all future periods as well. Information is

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.

➢ 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.

✓ 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

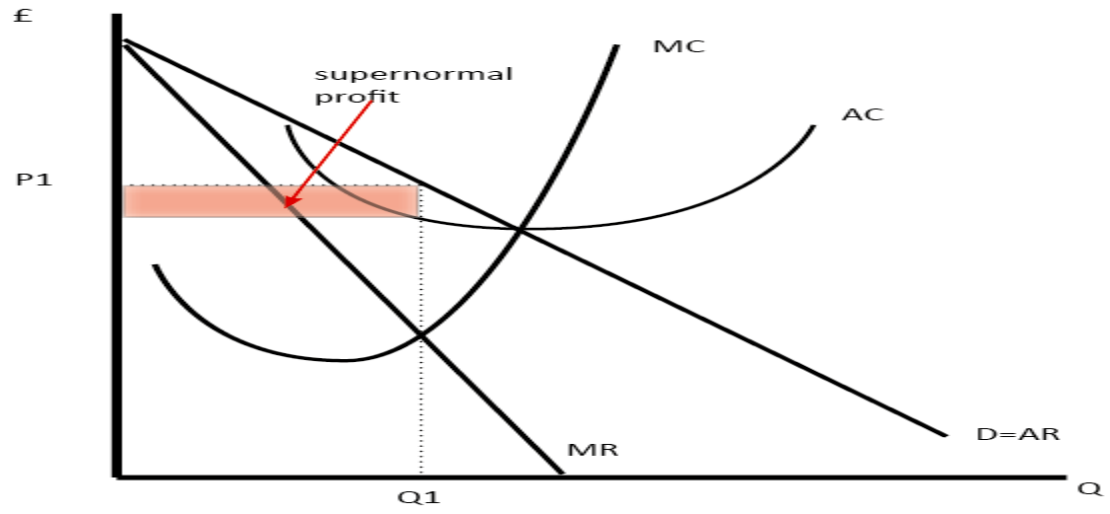
1. **Product Differentiation:** This is one of the major features of the firms operating under the monopolistic competition, that produces the product which is not identical but is slightly different from each other. The products being slightly different from each other remain close substitutes of each 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.

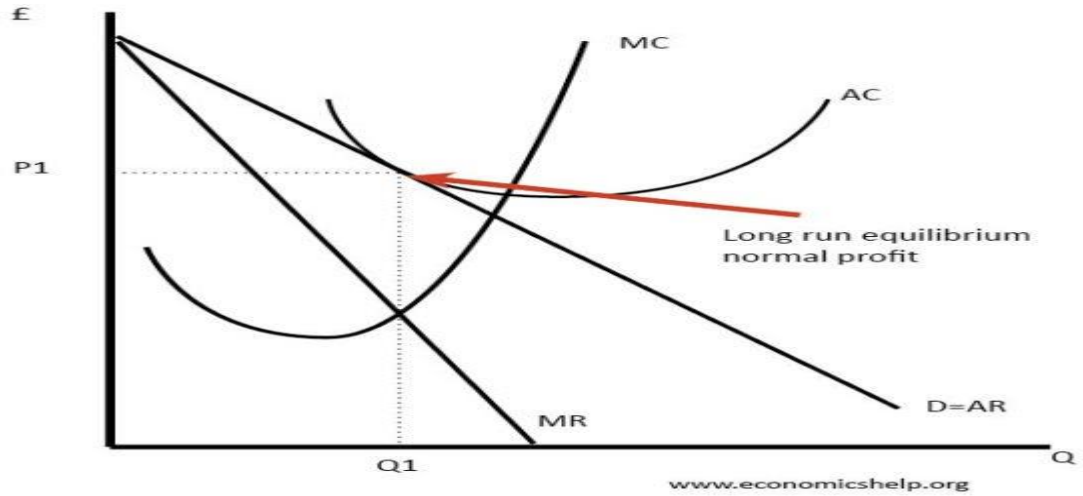
- **Diagram monopolistic competition short run**



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

- **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. I

Efficiency of firms in monopolistic competition

- Allocative inefficient. The above diagrams show a price set above marginal cost
- Productive inefficiency. The above diagram shows a firm not producing on the lowest point of AC curve
- Dynamic efficiency. This is possible as firms have profit to invest in research and development.
- X-efficiency. This is possible as the firm does face competitive pressures to cut cost and provide better products.

- ✓ **Examples of monopolistic competition**

- 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.
- Hairdressers. A service which will give firms a reputation for the quality of their hair-cutting.
- Clothing. Designer label clothes are about the brand and product differentiation
- 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.

✓ 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 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:

- **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.
- **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.

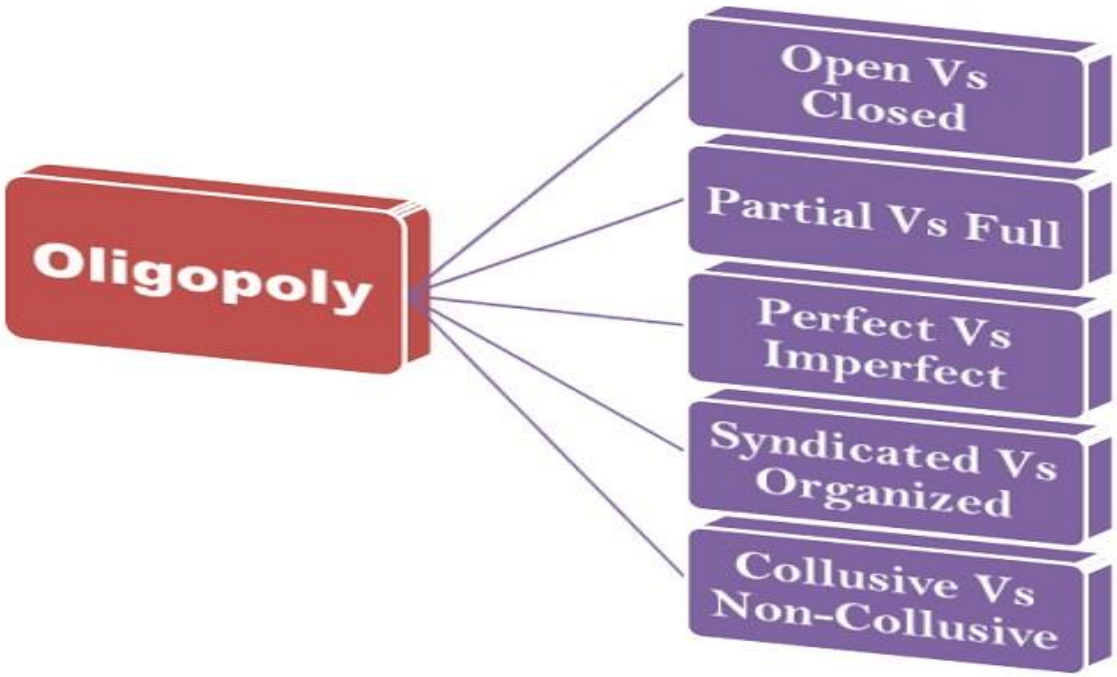
6. Lack of Uniformity:

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

Definition: The **Oligopoly** is a market structure wherein few sellers dominate the market and sell the homogeneous or heterogeneous products.



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 firms 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.

- **The Sweezy Model of Kinked Demand Curve (Rigid Prices) (Non-Collusive Oligopoly):**

In his article published in 1939, Prof. Sweezy presented the kinked demand curve analysis to explain price rigidities often observed in oligopolistic markets. Sweezy assumes that if the oligopolistic firm lowers its price, its rivals will react by matching that price cut in order to avoid losing their customers.

Thus the firm lowering the price will not be able to increase its demand much. This portion of its demand curve is relatively inelastic.

On the other hand, if the oligopolistic firm increases its price, its rivals will not follow it and change their prices. Thus the quantity demanded of this firm will fall considerably. This portion of the demand curve is relatively elastic. In these

two situations, the demand curve of the oligopolistic firm has a kink at the prevailing market price which explains price rigidity.

✓ ***Its Assumptions:***

The kinked demand curve hypothesis of price rigidity is based on the following assumptions:

(1) There are few firms in the oligopolistic industry.

(2) The product produced by one firm is a close substitute for the other firms.

(3) The product is of the same quality. There is no product differentiation.

(4) There are no advertising expenditures.

(5) There is an established or prevailing market price for the product at which all the sellers are satisfied.

(6) Each seller's attitude depends on the attitude of his rivals.

(7) Any attempt on the part of a seller to push up his sales by reducing the price of his product will be counteracted by other sellers who will follow his move.

(8) If he raises the price, others will not follow him; rather they will stick to the prevailing price and cater to the customers, leaving the price-raising seller.

(9) The marginal cost curve passes through the dotted portion of the marginal revenue curve so that changes in marginal cost do not affect output and price.

The Model:

Given these assumptions, the price-output relationship in the oligopolist market is explained in Figure 5 where KPD is the kinked demand curve and OP_o the prevailing price in the oligopoly market for the OR product of one seller. Starting from point P, corresponding to the current price OP_o, any increase in price above it, will considerably reduce his sales, for his rivals are not expected to follow his price increase.

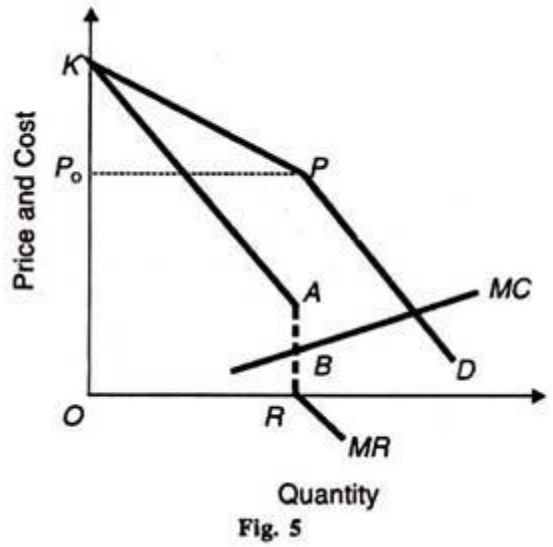


Fig. 5

This is so because the KP portion of the kinked demand curve is elastic, and the corresponding portion KA of the MR curve is positive. Therefore, any price – increase will not only reduce his total sales but also his total revenue and profit.

On the other hand if the seller reduces the price of the product below OP_o (or P) his rivals will also reduce their prices. Though he will increase his sales, his profit would be less than before. The reason is that the PD portion of the kinked demand curve below P is less elastic and the corresponding part of marginal revenue curve below R is negative.
Thus in both the price-raising and price-reducing situations the seller will be a loser. He would stick to the prevailing market price OP_o which remains rigid. In order to study the working of the kinked demand curve, let us analyse the effect of changes in cost and demand conditions on price stability in the oligopolistic market.

✓ Changes in Costs:

In oligopoly under the kinked demand curve analysis, changes in costs within a certain range do not affect the prevailing price. Suppose the cost of production falls so that the new MC curve is MC_1 to the right, as in Figure 6.
It cuts the MR curve in the gap AB so that the profit- maximising output is OR which can be sold at OP_o price. It should be noted that with any cost reduction the new MC curve will always cut the MR curve in the gap because as costs fall the gap AB continues to widen due to two reasons:

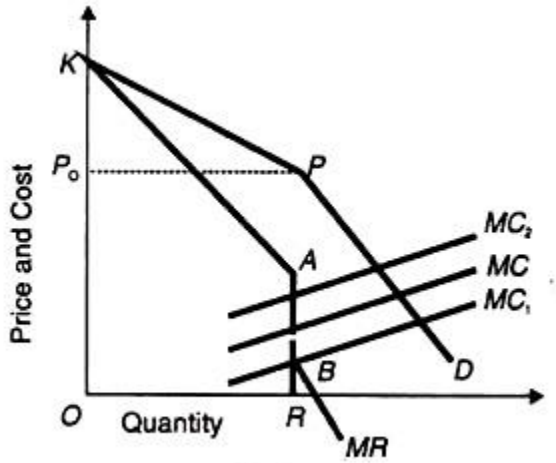


Fig. 6

1. As costs fall, the upper portion KP of the demand curve becomes more elastic because of the greater certainty that a price rise by one seller will not be followed by rivals and his sales would be considerably reduced.

2. With the reduction in costs the lower portion PD of the kinked curve becomes more inelastic, because of the greater certainty that a price reduction by one seller will be followed by the other rivals.

Thus the angle KPD tends to be a right angle at P and the gap AB widens so that any AC curve below point A will cut the marginal revenue curve inside the gap. The net result is the same output OR at the same price OP_o and large profits for the oligopolistic sellers.

In case the cost of production rises the marginal cost curve will shift to the left of the old curve MC as MC_2. So long as the higher MC curve intersects the MR curve within the gap up to point A, the price situation will be rigid.

However, with the rise in costs the price is not likely to remain stable indefinitely and if the Ml curve rises above point A, it will intersect the MC curve in the portion KA so that a lesser quantity is sold at a higher price.

We may conclude that there may be price stability under oligopoly even when costs change so long as the MC curve cuts the MR curve in its discontinuous portion. However, chances of the existence of price-rigidity are greater where there is a reduction in costs than there is a rise in costs.

✓ **Changes in Demand:**

- We now explain price rigidity where there is a change in demand with the help of Figure 7, D_2 is the original demand curve, MR_2 is its corresponding marginal revenue curve and MC is the marginal cost curve. Suppose there is a decrease in demand shown by D_1 curve and MR_1 is its marginal revenue curve.
- When demand decreases, a price-reduction move by one seller will be followed by other rivals. This will make LD_1 the lower portion of the new demand curve, more inelastic than the lower portion HD_2 of the old demand curve.

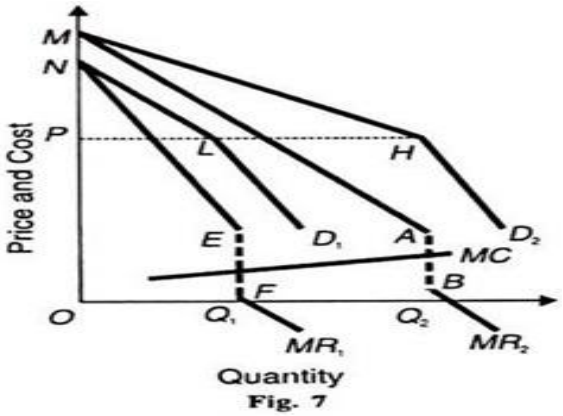


Fig. 7

This will tend to make the angle at L approach a right angle. As a result, the gap EF in MR_1 curve is likely to be wider than the gap AB of the MR_2 curve. The marginal cost curve MC will, therefore, intersect the lower marginal revenue curve MR_1 inside the gap EF, thus indicating a stable price for the oligopolistic industry.

Since the level of the kinks H and L of the two demand curves remains the same, the same price OP is maintained after the decrease in demand. But the output level falls from OQ_2 to OQ_1. This case can be reversed to show increase in demand by taking D_1 and MR_1 as the original demand and marginal revenue curves and D_2 and MR_2 as the higher demand and marginal revenue curves respectively.

The price OP is maintained but the output rises from OQ_1 to OQ. So long as the MC curve continues to intersect the MR curve in the discontinuous portion, there will be price rigidity.

However, if demand increases, it may lead to a higher price. When demand increases, a seller would like to raise the price of the product and others are

expected to follow him. This will tend to make the upper portion MH of the new demand curve elastic than the NL portion of the old curve.

Thus the angle at H becomes obtuse, away from the right angle. The gap AB in the MR_2 curve becomes smaller and the MC curve intersects the MR_2 curve above the gap, indicating a higher price and lower output. If, however, the marginal cost curve passes through the gap of MR_2, there is price stability.

Conclusion:

The whole analysis of the kinked demand curve points out that price rigidity in oligopolistic markets is likely to prevail if there is a price reduction move on the part of all sellers. Changes in costs and demand also lead to price stability under normal conditions so long as the MC curve intersects the MR curve in its discontinuous portion.

But price increase rather than price rigidity may be found in response to rising cost or increased demand.

- ***Reasons for Price Stability:***

There are a number of reasons for price rigidity in certain oligopoly markets.

(1) Individual sellers in an oligopolistic industry might have learnt through experience the futility of price wars and thus prefer price stability.

(2) They may be content with the current prices, outputs and profits and avoid any involvement in unnecessary insecurity and uncertainty.

(3) They may also prefer to stick to the present price level to prevent new firms from entering the industry.

(4) The sellers may intensify their sales promotion efforts at the current price instead of reducing it. They may view non-price competition better than price rivalry.

(5) After spending a lot of money on advertising his product, a seller may not like to raise its price to deprive himself of the fruits of his hard labour. Naturally, he would stick to the going price of the product.

(6) If a stable price has been set through agreement or collusion, no seller would like to disturb it, for fear of unleashing a price war and thus engulfing himself into an era of uncertainty and insecurity.

(7) It is the kinked demand curve analysis which is responsible for price rigidity in oligopolistic markets.

- ***Its Shortcomings:***

But the theory of kinked demand curve in oligopoly pricing is not without shortcomings.

(1) Even if we accept all its assumptions it is not likely that the gap in the marginal revenue curve will be wide enough for the marginal cost curve to pass through it. It may be shortened even under conditions of fall in demand or costs, thereby making price unstable.

(2) One of its major shortcomings, according to Professor Stigler, is that **"the theory does not explain why prices that have once changed should settle down, again acquire stability, and gradually produce a new kink."** For instance in Figure 6 the kink occurs at P because OP_o is the prevailing price. But the theory does not explain the forces that established the initial price OP_o.

(3) Price stability may be illusory because it is not based on the actual market behaviour. Sales do not always occur at list prices. There are often deviations from posted prices because of trade-ins, allowances and secret price concessions. The oligopolistic seller may outwardly keep the price stable but he may reduce the quality or quantity of the product. Thus price stability becomes illusory.

(4) Moreover, it is not possible to statistically compile actual sales prices in the case of many products that may reflect stable prices for them. It is, therefore, doubtful that price stability actually exists in oligopoly.

(5) Critics point out that the kinked demand curve analysis holds during the short-run, when the knowledge about the reactions of rivals is low. But it is

difficult to guess correctly the rivals' reactions in the long-run. Thus the theory is not applicable in the long-run.

(6) According to some economists, the kinked demand curve analysis applies to an oligopolistic industry in its initial stages or to that industry in which new and previously unknown rivals enter the market.

(7) The kinked demand curve analysis is based on two assumptions: first, other firms will follow a price cut and, second, they will not follow a price rise. Stigler has shown on empirical evidence that in an inflationary period the rise in output prices is not confined only to one firm but is industry-wide. So all firms having similar costs will follow one another in raising price.

(8) Economists have concluded from this that the kinked demand curve analysis is applicable only under depression. For in an inflationary period when demand increases, the oligopolistic firm will raise price and other firms will also follow it.

In such a situation, the demand curve of the oligopolist will have an inverted kink. This reverse kink is based on his expectation that all his competitors will follow him when he raises the price of his product, but none will follow a price cut because of inflationary condition.

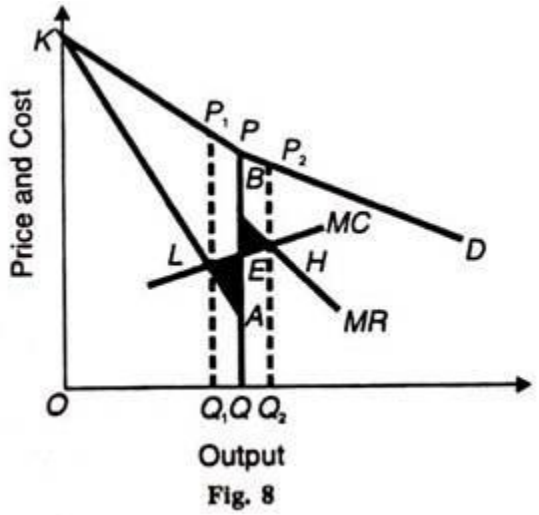


Fig. 8

This is illustrated in Figure where KPD is the reverse kinked demand curve. Its corresponding marginal revenue curve is KABM which is composed of KA and

BM, and the AB portion is its gap. The curve MC passes through all the three portions of this curve at L, E and H respectively.

The areas ALE and BHE are of uncertainty. Whether the firm decides to continue production at L, E and H depends on the balance of gain and loss. A movement from L to E results in a loss because MC>MR. A movement from E to H results in a gain because MR>MC. If the firm raises the price to Q_1P_1 and lowers the output to OQ_1 and moves from E to L, it would reduce the loss. If it lowers the price to Q_2P_2, and raises the output to OQ_2 and moves from E to H, it would increase the gain. The firm would move to the larger area of gain. Thus there would be no price rigidity.

(9) Stigler's empirical evidence further shows that cases in oligopoly industries where the number of sellers is either very small or somewhat large, the kinked demand curve is not likely to be there. Thus the empirical evidence does not support the existence of a kink.

"However", as pointed out by Professor Baumol, **"the analysis does show how the oligopolistic firm's view of competitive reaction patterns can affect the changeability of whatever price it happens to be charging."**

- **Meaning of Supply:**

In economics, supply during a given period of time means, the quantities of goods which are offered for sale at particular prices.

The supply of a commodity is the amount of the commodity which the sellers or producers are able and willing to offer for sale at a particular price, during a certain period of time.

In other-words, we can say that supply is a relative term. It is always referred to in relation of price and time. A statement of supply without reference to price and time conveys no economic sense. For instance, a statement such as "the supply of milk is 1,000 litres" is meaningless in economic analysis.

One must say, "the supply at such and such a price and during a specific period." Hence, the above statement becomes meaningful if it is said—"at the price of

Rs. 12 per litre; a diary farm's daily supply of milk is 1000 litres. Here both price and time are referred with the quantity of milk supplied."

Further, elasticity of supply explains to us the reaction of the sellers due to a particular change in the price of a commodity. If due to a little rise in the price, supply increases considerably we will call it elastic supply. On the other-hand, supply changes a little or negligibly, it is less elastic.

✓ **Definition of Supply:**

According to J. L. Hanson – "By supply is meant that amount that will come into the market over a range of prices."

In short supply always means supply at a given price. At different prices, the supply may be different. Normally the higher the price, the greater the supply and vice-versa.

According to Prof. Thomas – "The supply of a commodity is said to be elastic when as a result of a change in price the supply changes sufficiently as a quick response. Contrary, if there is no change or negligible change in supply or supply pays no response, it is inelastic."

Prof. Thomas's definition tells us proportionate changes in price and quantity supplied is the concept of elasticity of supply. If as a result of small change in price change in supply is more proportionately it will be higher elastic supply.

✓ **Supply and Stock Relationship:**

Supply and stock are related to each other in distinct terms:

1. Stock is the Determinant of Supply:

Supply is what the seller is able and willing to offer for sale. The ability of a seller to supply a commodity depends on the stock available with him. Thus, stock is the determinant of supply. Supply is the amount of stock offered for sale at a given price. Therefore, stock is the basis of supply. Without stock supply is not possible.

2. Stock Determines the Actual Supply:

Actual supply is the stock or quantity actually offered for sale by the seller at a particular price during a certain period. The limit to maximum supply, at a time,

is set by the given stock. Actual supply may be a part of the stock or the entire stock at the most. Thus, the stock can exceed supply but supply cannot exceed the given stock at a time.

3. Stock can be said as the Outcome of Production:

It is very common to understand that by increasing production as well as the potential supply, the stock can be increased. Sometimes, an increase in the actual supply can exceed the increase in current stock, when along with the fresh stock, old accumulated stock is also released for sale at the prevailing price.

In this way, supply can exceed the current stock, but it can never exceed the total stock (old + new stock taken together) during a given period.

✓ **Factors Affecting Supply:**

There are a number of factors influencing the supply of a commodity. They are known as the determinants of supply.

1. Price of the Commodity:

Price is the most important factor influencing the supply of a commodity. More is supplied at a lower price and less is supplied at a higher price.

2. Seller's Expectations about the Future Price:

Seller's expectations about the future price affect the supply. If a seller expects the price to rise in the future, he will withhold his stock at present and so there will be less supply now. Besides change in price, change in the supply may be in the form of increase or decrease in supply.

3. Nature of Goods:

The supply of every perishable goods is perfectly inelastic in a market period because the entire stock of such goods must be disposed of within a very short period, whatsoever may be the price. If not, they might get rotten. Further, if the stock of goods can be easily stored its supply would be relatively elastic and vice-versa.

4. Natural Conditions:

The supply of some commodities, such as agricultural products depends on the natural environment or climatic conditions like—rainfall, temperature etc. A change in the natural conditions will cause a change in the supply.

5. Transport Conditions:

Difficulties in transport may cause a temporary decrease in supply as goods cannot be brought in time to the market place. So even at the rising prices, quantity supplied cannot be increased.

6. Cost of Production:

If there is a rise in the cost of production of a commodity, its supply will tend to decrease. Similarly, with the rise in cost of production the supply curve tends to shift downward. Conversely, a fall in the cost of production tends to decrease the supply.

7. The State of Technology:

The supply of a commodity depends upon the methods of production. Advance in technology and science are the most powerful forces influencing productivity of the factors of production. Most of the inventions and innovations in chemistry, electronics, atomic energy etc. have greatly contributed to increased supplies of commodities at lower costs.

8. Government's Policy:

Government's economic policies like—industrial policy, fiscal policy etc. influence the supply. If the industrial licensing policy of the government is liberal, more firms are encouraged to enter the field of production, so that the supply may increase.

Import restrictions and high customs duties may decrease the supply of imposed goods but it would encourage the domestic industrial activity, so that the supply of domestic products may increase. A tax on a commodity or a factor of production raises its cost of production, consequently production is reduced. A subsidy on the other-hand provides an incentive to production and augments supply.

✓ **Types of Supply:**

There are five types of supply:

1. Market Supply:

Market supply is also called very short period supply. Another name of market supply is 'day-to-day supply or 'daily supply'. Under these goods like—fish, vegetables, milk etc., are included. In this supply is not made according to the demand of purchasers but as per availability of the goods.

2. Short-term Supply:

In short period supply, the demand cannot be met as per requirements of the purchaser. The demand is met as according to the goods available.

3. Long-term Supply:

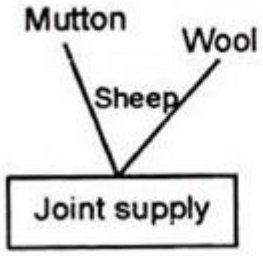
In this, if demand has been changed the supply can also be changed because there is sufficient time to meet the demand by making manufacturing goods and supplying them in the market.

4. Joint Supply:

Joint supply refers to the goods produced or supplied jointly e.g., cotton and seed; mutton and wool. In joint supplied products one is the main product and the other is the by-product of its subsidiary. By-product is mostly the automatic outcome when the main product is produced.

For example:

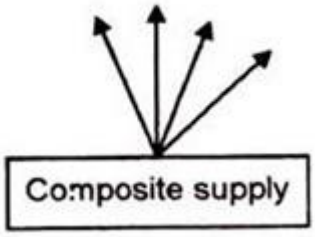
When the sheep is slaughtered for mutton wool is obtained automatically.



5. Composite Supply:

In this, the supply of a commodity is made from various sources and is called the composite supply. When there are different sources of supply of a commodity or services, we say that its supply is composed of all these resources. We normally get light from electricity, gas, kerosene and candles. All

these resources go to make the supply of light. Thus, the way of supplying the light is called composite supply.



➢ Supply schedule

Supply schedule shows a tabular representation of law of supply. It presents the different quantities of a product that a seller is willing to sell at different price levels of that product.

A supply schedule can be of two types, which are as follows:

1. Individual Supply Schedule:

Refers to a supply schedule that represents the different quantities of a product supplied by an individual seller at different prices.

Table-8 shows the supply schedule for the different quantities of milk supplied in the market at different prices:

Table-8: Individual Supply Schedule	
Price of Milk (per liter in ₹)	**Quantity Supplied(1000 per day in liters)**
10	10
12	13
14	20
16	25

2. **Market Supply Schedule:**
Refers to a supply schedule that represents the different quantities of a product that all the suppliers in the market are willing to supply at different prices. Market supply schedule can be drawn by aggregating the individual supply schedules of all individual suppliers in the market.

Table-9 shows the market supply schedule of a product supplied by three suppliers. A, B, and C:

Table-9: Market Supply Schedule				
Price of Product X (per unit in ₹)	Individual Supply (per day)			Market Supply (per day)
	A	B	C	
100	750	500	450	1700
200	800	650	500	1950
300	900	750	650	2300
400	1000	900	700	2600

➢ Supply Curve:

The graphical representation of supply schedule is called supply curve. In a graph, price of a product is represented on Y-axis and quantity supplied is represented on X-axis. Supply curve can be of two types, individual supply curve and market supply curve. Individual supply curve is the graphical representation of individual supply schedule, whereas market supply curve is the representation of market supply schedule.

Figure-14 shows the individual supply curve for the individual supply schedule (represented in Table-8):

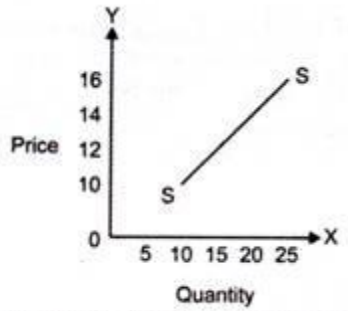


Figure-14: Individual Supply Curve

In Figure-14, the supply curve is showing a straight line and an upward slope. This implies that the supply of a product increases with increase in the price of a product.

Figure-15 shows the market supply curve of market supply schedule (represented in Table-9):

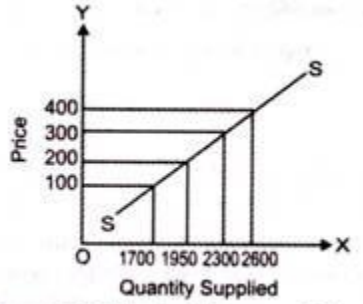


Figure-15: Market Demand Curve

The slope of market supply curve can be obtained by calculating the supply of the slopes of individual supply curves. Market supply curve also represents the direct relationship between the quantity supplied and price of a product.

Refers to a supply schedule that represents the different quantities of a product supplied by an individual seller at different prices.

- **Exceptions of law of supply are as follows:**

i. Speculation:

Refers to the fact that the supply of a product decreases instead of increasing in present when there is an expected increase in the price of the product. In such a case, sellers would not supply the whole quantity of the product and would wait for the increase in price in future to earn high profits. This case is an exception to law of demand.

ii. Agricultural Products:

Imply that law of supply is not valid in case of agricultural products as the supply of these products depends on particular seasons or climatic conditions. Thus, the supply of these products cannot be increased after a certain limit in spite of rise in their prices.

iii. Changes in Other Situations:

Refers to the fact that law of supply ignores other factors (except price) that can influence the supply of a product. These factors can be natural factors, transportation conditions, and government policies.

PRICING PRACTICES:

- **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. Organisational 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 Maximisation 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.

- **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.

- **TYPES OF PRICING PRACTICES:**

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 elasticities 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.

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.

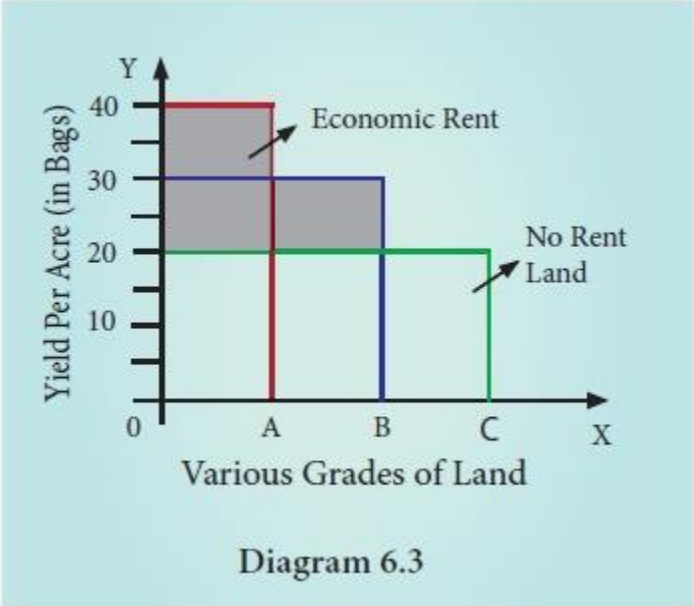


Diagram 6.3

- **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

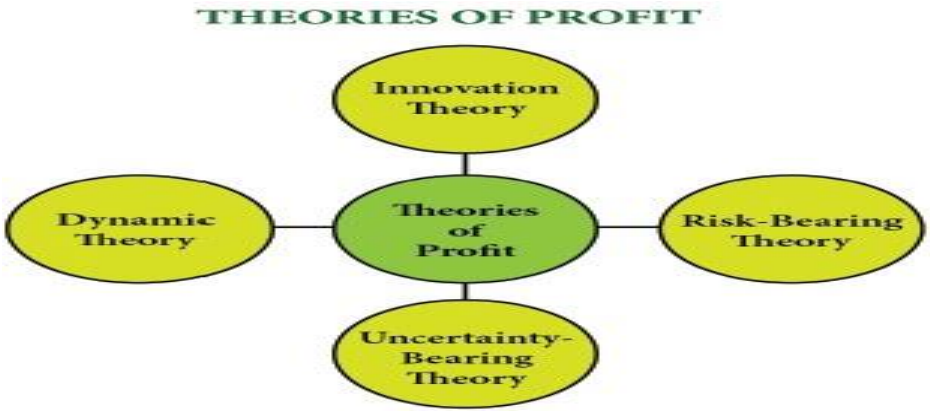
It refers to the minimum expected return to stay in business.

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."**

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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, specialising 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 unorganised 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.

❖ 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.

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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:

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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:

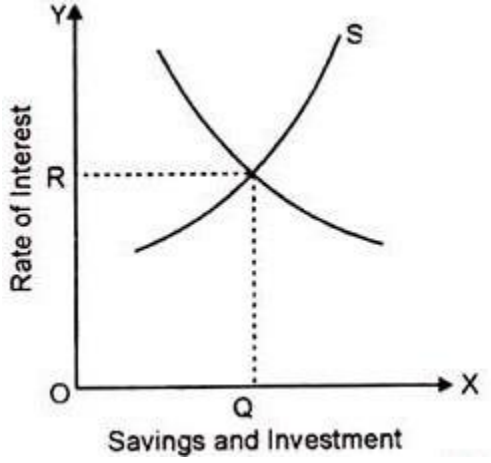
Supply of capital depends basically on the availability of savings in the economy. Savings emerge out of the people's desire and capacity to save. To some classical economists like Senior, abstinence from consumption is essential for the act of saving while economists like Fisher. Stress that time preference 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:

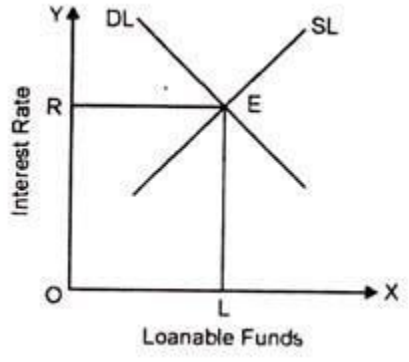
The supply of loanable funds comes from savings, dis-hoardings and bank credit. Private savings, individual and corporate are the main source of savings. Though personal savings depend upon the income level, yet taking the level of income as given, they are regarded as Interest elastic. The higher the 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.

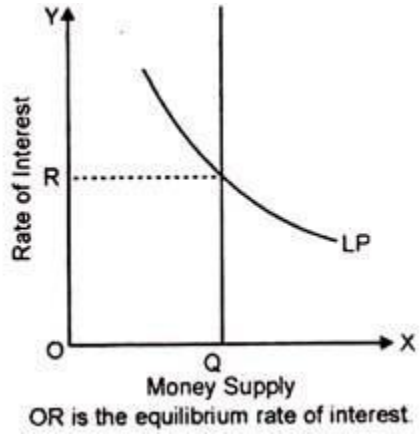
Supply of Money:

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. 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%.

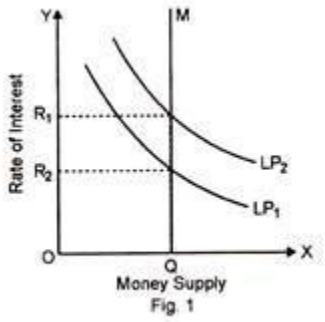


Fig. 1

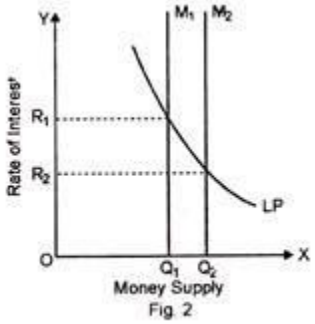


Fig. 2

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.

❖ Important Questions:-

➢ Short Questions (2marks):-

Q1:- Oligopoly
Q2:- Monopoly
Q3:- Price Leadership model.
Q4:- Collective Bargaining
Q5:- Profit
Q6:- Interest
Q7:- Rent
Q8:- Real v/s Nominal Interest
Q9:- Rate of Return.
Q10:- Pricing

➢ Long Questions (10marks):-

Q1:- What Is Market Structure? Discuss Its Types & Determinants?

Q2:- Discussed The Concept Of Perfect Competition Under Equilibrium?

Q3:- Define Monopoly? Explain Its Features & Types?

Q4:- Define Monopolistic Competition? Discuss It's Under Short & Long Run?

Q5:- Discuss Price And Output Determination Under Collusive & Non-Collusive Oligopoly?

Q6:- Write the detailed Note on Pricing?

Q7:- What Is Rent? Write the detailed note on same?

Q8:- Define Interest? Discuss Its Features, Types, and Limitations?

Q9:- What Is Profit? Write the detailed note on same?

UNIT-IV

PRODUCT MARKET

➢ Saving and Investment

We showed previously how Crusoe could divide his GDP between consumption and investment by dividing his time between the production of goods he would consume immediately and goods that would yield future benefits. In a modern society, the division is more complicated. We now turn to the subject of what determines the division of GDP between consumption and investment. We will also go beyond Crusoe and include government borrowing and international trade in our discussion.

One thing that makes our task simple is that the resources for investment come from saving. Therefore, rather than talk about how people decide how much to consume, we will talk about how people determine how much to save. Since income after taxes goes for either consumption or saving, it is a matter of twiddle dee or twiddle dum.

Saving and Investment as Different Concepts

Many people confuse the concepts of saving and investment. The differences are important, so we will spend some time on the issue.

Saving takes place when people abstain from consumption, that is, when they consume less than their income. *Investment* takes place when we purchase new capital equipment or other assets that make for future productivity. Investment does not mean buying stocks or bonds. Here are some important facts:

For Robinson Cruse, the difference between saving and investment is a distinction without a difference. Since he does all saving and all investment, they are automatically equal. However, for the larger economy, this is not true. Investment funds come either from our own saving or from someone else's saving.

The motive for saving is one of deferring your consumption to a later day. We save when we consume only part of our income now and save for retirement, a rainy day, putting children through college, the summer home, etc.

The motive for investment is to make money. Investment takes place when we purchase plants or equipment, which make workers and businesses more productive in the future.

Ultimately saving and investment must be equal, (subject to a couple of complications that make for nice exam questions). As you will see in a moment, you can think of saving as a supply of funds for investment and investment as a demand for funds. We will later draw supply and demand curves and show how saving and investment are equated.

Saving

We now want to discuss the consumer's saving and consumption decision. Saving is, after all income minus taxes minus consumption. Thus

S = Y – T – C.

That is,

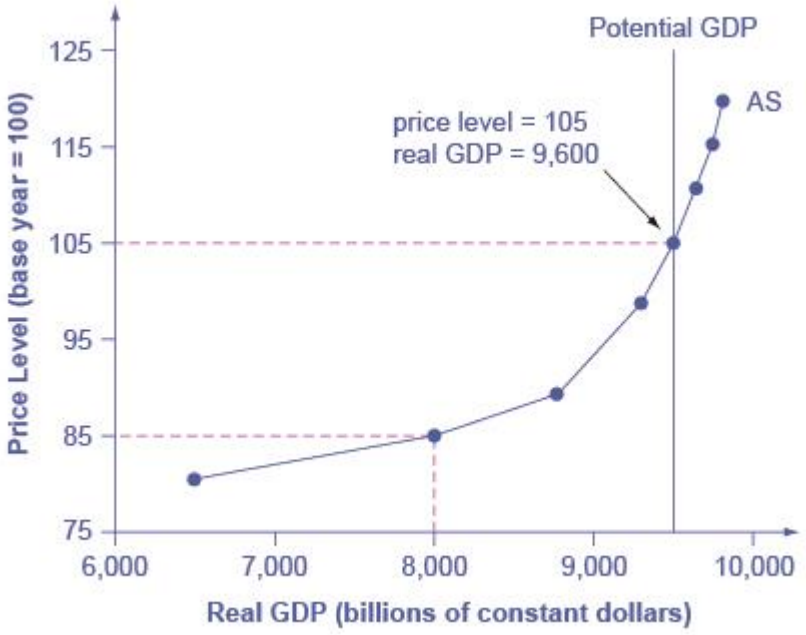
Saving = Income **less** Taxes **less** Consumption

➢ Aggregate supply curve

Firms make decisions about what quantity to supply based on the profits they expect to earn. Profits, in turn, are also determined by the price of the outputs the firm sells and by the price of the inputs—like labor or raw materials—the firm needs to buy. *Aggregate supply*, or *AS*, refers to the total quantity of output—in other words, real GDP—firms will produce and sell. The *aggregate supply curve* shows the total quantity of output—real GDP—that firms will produce and sell at each price level.

The graph below shows an aggregate supply curve. Let's begin by walking through the elements of the diagram one at a time: the horizontal and vertical axes, the aggregate supply curve itself, and the meaning of the potential GDP vertical line.

The aggregate supply curve



The graph shows an upward sloping aggregate supply curve. The slope is gradual between 6,500 and 9,000 before become steeper, especially between 9,500 and 9,900.

The horizontal axis of the diagram shows real GDP—that is, the level of GDP adjusted for inflation. The vertical axis shows the price level. Price level is the average price of all goods and services produced in the economy. It's an index number, like the GDP deflator.

Potential GDP

If you look at our example graph above, you'll see that the slope of the AS curve changes from nearly flat at its far left to nearly vertical at its far right. At the far left of the aggregate supply curve, the level of output in the economy is far below *potential GDP*—the quantity that an economy can produce by fully employing its existing levels of labor, physical capital, and technology, in the context of its existing market and legal institutions.

At these relatively low levels of output, levels of unemployment are high, and many factories are running only part-time or have closed their doors. In this situation, a relatively small increase in the prices of the outputs that businesses sell—with no rise in input prices—can encourage a considerable surge in the quantity of aggregate supply—real GDP—because so many workers and factories are ready to swing into production.

As the quantity produced increases, however, certain firms and industries will start running into limits—for example, nearly all of the expert workers in a certain industry could have jobs or factories in certain geographic areas or industries might be running at full speed.

In the intermediate area of the AS curve, a higher price level for outputs continues to encourage a greater quantity of output, but as the increasingly steep upward slope of the aggregate supply curve shows, the increase in

quantity in response to a given rise in the price level will not be quite as large.

At the far right, the aggregate supply curve becomes nearly vertical. At this quantity, higher prices for outputs cannot encourage additional output because even if firms want to expand output, the inputs of labor and machinery in the economy are fully employed.

In our example AS curve, the vertical line in the exhibit shows that potential GDP occurs at a total output of 9,500. When an economy is operating at its *potential GDP*, machines and factories are running at capacity, and the unemployment rate is relatively low at the natural rate of unemployment. For this reason, potential GDP is sometimes also called *full-employment GDP*.

Aggregate Demand Curve

Aggregate demand, or *AD*, refers to the amount of total spending on domestic goods and services in an economy. Strictly speaking, AD is what economists call total planned expenditure. We'll talk about that more in other articles, but for now, just think of aggregate demand as total spending.

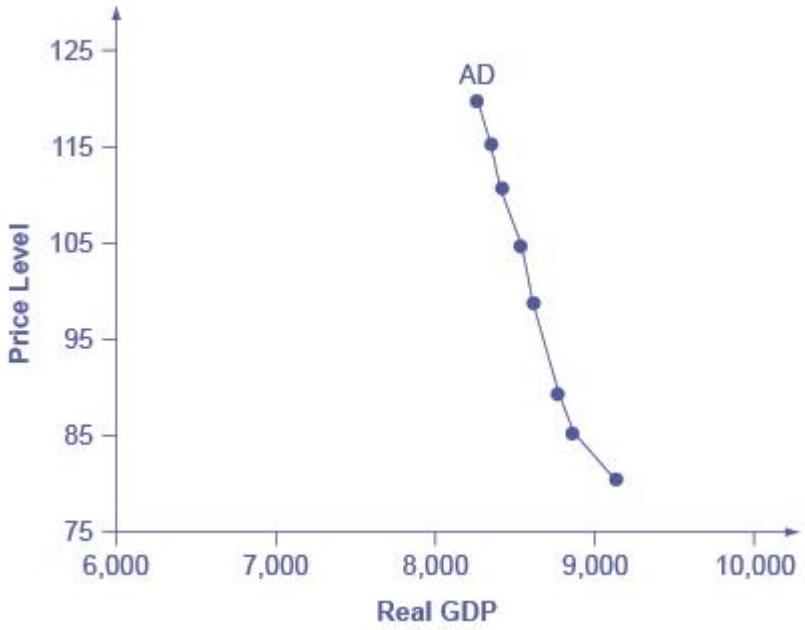
Aggregate demand includes all four components of demand:

- Consumption
- Investment
- Government spending
- Net exports—exports minus imports

This demand is determined by a number of factors; one of them is the price level. An *aggregate demand curve* shows the total spending on domestic goods and services at each price level.

You can see an example aggregate demand curve below. Just like in an aggregate supply curve, the horizontal axis shows real GDP and the vertical axis shows price level. But there's a big difference in the shape of the AD curve—it slopes down. This downward slope indicates that increases in the price level of outputs lead to a lower quantity of total spending.

The aggregate demand curve



The graph shows a downward sloping aggregate demand curve, showing that, as the price level rises, the amount of total spending on domestic goods and services declines.

Let's dig a little deeper. To fully understand why price level increases lead to lower spending, we need to understand how changes in the price level affect the different components of aggregate demand.

The wealth effect holds that as the price level increases, the buying power of savings that people have stored up in bank accounts and other assets will diminish, eaten away to some extent by inflation. Because a rise in the

price level reduces people's wealth, consumption spending will fall as the price level rises.

The interest rate effect explains that as outputs rise, the same purchases will take more money or credit to accomplish. This additional demand for money and credit will push interest rates higher. In turn, higher interest rates will reduce borrowing by businesses for investment purposes and reduce borrowing by households for homes and cars—thus reducing both consumption and investment spending.

The foreign price effect points out that if prices rise in the United States while remaining fixed in other countries, then goods in the United States will be relatively more expensive compared to goods in the rest of the world. US exports will be relatively more expensive, and thus the quantity of exports sold will fall. Imports from abroad will be relatively cheaper, so the quantity of imports will rise. Thus, a higher domestic price level, relative to price levels in other countries, will reduce net export expenditures.

Truth be told, among economists, all three of these effects are controversial, in part because they do not seem to be very large.

For this reason, the aggregate demand curve in our example aggregate demand curve above slopes downward fairly steeply. The steep slope indicates that a higher price level for final outputs does reduce aggregate demand for all three of these reasons, but the change in the quantity of aggregate demand as a result of changes in price level is not very large.

Multiplier

Introduction:

The concept of multiplier was first developed by R.F. Kahn in his article "The Relation of Home Investment to Unemployment" in the Economic Journal of June 1931. Kahn's multiplier was the Employment Multiplier. Keynes took the idea from Kahn and formulated the Investment Multiplier.

CONCEPT OF MULTIPLIER

1. The Investment Multiplier:

Keynes considers his theory of multiplier as an integral part of his theory of employment. The multiplier, according to Keynes, "establishes a precise relationship, given the propensity to consume, between aggregate employment and income and the rate of investment. It tells us that, when there is an increment of investment, income will increase by an amount which is K times the increment of investment" i.e., $\Delta Y=K\Delta I$.

In the words of Hansen, Keynes' investment multiplier is the coefficient relating to an increment of investment to an increment of income, i.e., $K=\Delta Y/\Delta I$, where Y is income, I is investment, Δ is change (increment or decrement) and K is the multiplier.

In the multiplier theory, the important element is the multiplier coefficient, K which refers to the power by which any initial investment expenditure is multiplied to obtain a final increase in income. The value of the multiplier is determined by the marginal propensity to consume. The higher the marginal propensity to consume, the higher is the value of the multiplier, and vice versa.

Assumptions of Multiplier:

Keynes's theory of the multiplier works under certain assumptions which limit the operation of the multiplier. They are as follows:

(1) There is change in autonomous investment and that induced investment is absent.

(2) The marginal propensity to consume is constant.

(3) Consumption is a function of current income.

(4) There are no time lags in the multiplier process. An increase (decrease) in investment instantaneously leads to a multiple increase (decrease) in income.

(5) The new level of investment is maintained steadily for the completion of the multiplier process.

(6) There is net increase in investment.

(7) Consumer goods are available in response to effective demand for them.

(8) There is surplus capacity in consumer goods industries to meet the increased demand for consumer goods in response to a rise in income following increased investment.

(9) Other resources of production are also easily available within the economy.

(10) There is an industrialised economy in which the multiplier process operates.

(11) There is a closed economy unaffected by foreign influences.

(12) There are no changes in prices.

(13) The accelerator effect of consumption on investment is ignored.

(14) There is less than full employment level in the economy.

Leakages of Multiplier:

Leakages are the potential diversions from the income stream which tend to weaken the multiplier effect of new investment. Given the marginal propensity to consume, the increase in income in each round declines due to leakages in the income stream and ultimately the process of income propagation "peters out."

The following are the important leakages:

1. Saving:

Saving is the most important leakage of the multiplier process. Since the marginal propensity to consume is less than one, the whole increment in income is not spent on consumption. A part of it is saved which peters out of the income stream and the increase in income in the next round declines.

Thus the higher the marginal propensity to save, the smaller the size of the multiplier and the greater the amount of leakage out of the income stream, and vice versa. For instance, if MPS = 1/6, the multiplier is 6, according to the formula K = 1/MPS; and the MPS of 1/3 gives a multiplier of 3.

2. Strong Liquidity Preference:

If people prefer to hoard the increased income in the form of idle cash balances to satisfy a strong liquidity preference for the transaction, precautionary and speculative motives, that will act as a leakage out of the income stream. As income increases people will hoard money in inactive bank deposits and the multiplier process is checked.

3. Purchase of Old Stocks and Securities:

If a part of the increased income is used in buying old stocks and securities instead of consumer goods, the consumption expenditure will fall and its cumulative effect on income will be less than before. In other words, the size of the multiplier will fall with a fall in consumption expenditure when people buy old stocks and shares.

4. Debt Cancellation:

If a part of increased income is used to repay debts to banks, instead of spending it for further consumption, that part of the income peters out of the income stream. In case, this part of the increased income is repaid to other creditors who save or hoard it, the multiplier process will be arrested.

5. Price Inflation:

When increased investment leads to price inflation, the multiplier effect of increased income may be dissipated on higher prices. A rise in the prices of consumption goods implies increased expenditure on them. As a result, increased income is absorbed by higher prices and the real consumption and income fall. Thus price inflation is an important leakage which tends to dissipate increase in income and consumption on higher prices rather than in increasing output and employment.

6. Net Imports:

If increased income is spent on the purchase of imported goods it acts as a leakage out of the domestic income stream. Such expenditure fails to effect the consumption of domestic goods. This argument can be extended to net imports when there is an excess of imports over exports thereby causing a net outflow of funds to other countries.

7. Undistributed Profits:

If profits accruing to joint stock companies are not distributed to the shareholders in the form of dividend but are kept in the reserve fund, it is a leakage from the income stream. Undistributed profits with the companies tend to reduce the income and hence further expenditure on consumption goods thereby weakening the multiplier process.

8. Taxation:

Taxation policy is also an important factor in weakening the multiplier process. Progressive taxes have the effect of lowering the disposable income of the taxpayers and reducing their consumption expenditure. Similarly commodity taxation tends to raise the prices of goods, and a part of increased income may be dissipated on higher prices. Thus increased taxation reduces the income stream and lowers the size of the multiplier.

9. Excess Stocks of Consumption Goods:

If the increased demand for consumption goods is met from the existing excess stocks of consumption goods there will be no further increase in output, employment and income and the multiplier process will come to a halt till the old stocks are exhausted.

10. Public Investment Programmes:

If the increase in income as a result of increased investment is affected by public expenditures, it may fail to induce private enterprise to spend that income for further investment due to the following reasons.

(a) Public investment programmes may raise the demand for labour and materials leading to a rise in the costs of construction so as to make the undertaking of some private projects unprofitable.

(b) Government borrowing may, if not accompanied by a sufficiently liberal credit policy on the part of the monetary authority, increase the rate of interest and thus discourage private investment.

(c) Government operations may also injure private investors' confidence by arousing animosity or fears of nationalisation.

Criticism of Multiplier:

The multiplier theory has been severely criticised by the post-Keynesian economists on the following grounds:

1. Merely Tautological Concept. Prof. Haberler has criticised Keynes' multiplier as tautological. It is a truism which defines the multiplier as necessarily true as $K = 1/1 - \Delta C/\Delta Y$. pointed by Professor Hansen, "Such a coefficient is a mere arithmetic multiplied i.e., a truism) and not a true behaviour multiplier based on a behaviour pattern which establishes a verifiable relation between consumption and income. A mere arithmetic multiplier, $1/1 - \Delta C/\Delta Y$ is tautological."

2. Timeless Analysis:

Keynes's logical theory of the multiplier is an instantaneous process without time lag. It is a timeless static equilibrium analysis in which the total effect of a change in investment on income is instantaneous so that consumption goods are produced simultaneously and consumption expenditure is also incurred instantaneously.

But this is not borne out by facts because a time lag is always involved between the receipt of income and its expenditure on consumption goods and also in producing consumption goods. Thus "the timeless multiplier analysis disregards the transition and deals only with the new equilibrium income level" and is therefore unrealistic.

3. Worthless Theoretical Toy:

According to Hazlitt, the Keynesian multiplier "is a strange concept about which some Keynesians make more fuss than about anything else in the Keynesian system." It is a myth for there can never by any precise, predeterminable or mechanical relationship between investment and income. Thus he regards it as "a worthless theoretical toy."

4. Acceleration Effect Ignored:

One of the weaknesses of the multiplier theory is that it studies the effects of investment on income through changes in consumption expenditure. But it ignores the effect of consumption on investment which is known as the acceleration principle. Hicks, Samuelson and others have shown that it is the interaction of the multiplier and the accelerator which helps in controlling business fluctuations.

5. MPC does not Remain Constant:

Gordon points out that the greatest weakness of the multiplier concept is its exclusive emphasis on consumption. He favours the use of the term 'marginal propensity to spend' in place of marginal propensity to consume to make this concept more realistic.

He also objects to the constancy of the marginal propensity to spend (or consume) because in a dynamic economy, it is not likely to remain constant. If it is assumed to be constant, it is not possible "to predict with much accuracy the multiplying effects over the cycle of a given increase in private investment or public spending."

6. Relation between Consumption and Income:

Keynes's multiplier theory establishes a linear relation between consumption and income with the hypothesis that the MPC is less than one and greater than zero. Empirical studies of the behaviour of consumption in relation to income show that the relationship between the two is complicated and non-linear.

As pointed out by Gardner Ackley, "The relationship does not run simply from current income to current consumption, but rather involves some complex average of past and expected income and consumption. There are other factors than income to consider."

Other economists have not been lagging behind in their criticism of the multiplier concept. Prof. Hart considers it "a useless fifth wheel." To Stigler, it is the fuzziest part of Keynes's theory. Prof. Hutt calls it a "rubbish apparatus" which should be expunged from text books.

But despite its scathing criticism, the multiplier principle has considerable practical applicability to economic problems as given below.

Importance of Multiplier:

The concept of multiplier is one of the important contributions of Keynes's to the income and employment theory. As aptly observed by Richard Goodwin "Lord Keynes did not discover the multiplier; that honour goes to Mr. R.F. Kahn. But he gave it the role it plays today by transforming it from an instrument for the analysis of road building into one for the analysis of income building….It set a fresh wind blowing through the structure of economic thought."

Its importance lies in the following:

1. Investment:

The multiplier theory highlights the importance of investment in income and employment theory. Since the consumption function is stable during the short-run fluctuations in income and employment are due to fluctuations in the rate of investment.

A fall in investment leads to a cumulative decline in income and employment by the multiplier process and vice versa. Thus it underlines the importance of investment and explains the process of income propagation.

2. Trade Cycle:

As a corollary to the above, when there are fluctuations in the level of income and employment due to variations in the rate of investment, the multiplier process throws a spotlight on the different phases of the trade cycle.

When there is a fall in investment, income and employment decline in a cumulative manner leading to recession and ultimately to depression. On the contrary, an increase in investment leads to revival and, if this process continues, to a boom. Thus the multiplier is regarded as an indispensable tool in trade cycles.

3. Saving-Investment Equality:

It also helps in bringing the equality between saving and investment. If there is a divergence between saving and investment, and increase in investment leads to a rise in income via the multiplier process by more than the increase in initial investment. As a result of the increase in income, saving also increases and equals investment.

4. Formulation of Economic Policies:

The multiplier is an important tool in the hands of modern states in formulating economic policies. Thus this principle pre-supposes state intervention in economic affairs.

(a) To achieve full employment:

The state decides upon the amount of investment to be injected into the economy to remove unemployment and achieve full employment. An initial increase in investment leads to the rise in income and employment by the multiplier time the increase in investment. If a single dose of investment is insufficient to bring full employment, the state can inject regular doses of investment for this purpose till the full employment level is reached.

(b) To control trade cycles:

The state can control booms and depressions in a trade cycle on the basis of the multiplier effect on income and employment. When the economy is experiencing inflationary pressures, the state can control them by a reduction in investment which leads to a cumulative decline in income and employment via the multiplier process. On the other hand, in a deflationary situation, an increase in investment can help increase the level of income and employment through the multiplier process.

(c) Deficit financing:

The multiplier principle highlights the importance of deficit budgeting. In a state of depression, cheap money policy of lowering the rate of interest is not helpful because the marginal efficiency of capital is so low that a low rate of interest fails to encourage private investment.

In such a situation, increased public expenditure through public investment programmes by creating a budget deficit helps in increasing income and employment by multiplier time the increase in investment.

(d) Public investment: The above discussion reveals the importance of the multiplier in public investment policy. Public investment refers to the state expenditure on public works and other works meant to increase public welfare. It is autonomous and is free from profit motive.
It, therefore, applies with greater force in overcoming inflationary and deflationary pressures in the economy, and in achieving and maintaining full employment. Private investment being induced by profit motive can help only when the public investment has created a favourable situation for the former.

Moreover, economic activity cannot be left to the vagaries and uncertainties of private enterprise. Hence, the importance of multiplier in public investment lies in creating or controlling income and employment. The state can have the greatest multiplier effect on income and employment by increasing public investment during a depression where the MPC is high (or the MPS is low).

On the contrary, in periods of overfull employment, a decline in investment will have a serious effect on the levels of income and employment where the MPS is high (or MPC is low). The best policy is to reduce investment where the MPC is low (or MPS is high), to have gradual decline in income and employment.

The important thing, however, is the timing of public investment in such a manner that the multiplier is able to work with full force and there is little scope for the income stream to peter out. Moreover, public investment should not supplant but supplement private investment so that it could be increased during depression and reduced during inflation. As a result, the forward and backward operation of the multiplier will help in the two situations.

2. The Dynamic or Period Multiplier:

Keynes's logical theory of the multiplier is an instantaneous process without time lags. It is a timeless static equilibrium analysis in which the total effect of a change in investment on income is instantaneous so that consumption goods are produced simultaneously and consumption expenditure is also incurred instantaneously.

But this is not borne out by facts because a time lag is always involved between the receipt of income and its expenditure on consumption goods and also in producing consumption goods. Thus "the timeless multiplier analysis disregards the transition and deals only with the new equilibrium income level" and is, therefore, unrealistic.

The dynamic multiplier relates to the time lags in the process of income generation. The series of adjustments in income and consumption may take months or even years for the multiplier process to complete, depending upon the assumption made about the period involved.

MONEY

- **Meaning and Definitions of Money:**

The word "money" is believed to originate from a temple of 'Juno', located on Capitoline, one of Rome's seven hills. In the ancient world Juno was often associated with money. The temple of Juno Moneta at Rome was the place where the mint of Ancient Rome was located.

Definitions of Money:

Money is one such concept which is very difficult to be restricted to some well-defined set of words. It is very easy to understand but difficult to define. Still, a large number of economists have given variety of definitions, some definitions are too extensive while others are too narrow. Various economists like Prof. Walker, Robertson, Seligman, etc., have used different characteristics for defining it.

According to Prof. Walker, "Money is what money does". It is associated with the functions performed/roles played by money.

However, a suitable definition must be comprehensive and must emphasise not only on the important functions of money but also on its basic characteristics, namely general acceptability. Looking from this criterion, we find Crowther's definition to be the most suitable.

"Anything that is generally acceptable as a means of exchange (i.e., as a means of settling debts) and that at the same time, acts as a measure and as a store of value." — Crowther

This definition covers all the three important functions of money and also stresses its basic characteristic, namely general acceptability.

Stages in the Evolution of Money:

(i) Animal Money:

In ancient India, Go-Dhan (cow wealth) was accepted as form of money. Similarly, in the fourth century B.C., the Roman State had officially recognized cow and sheep as money to collect fine and taxes.

(ii) Commodity Money:

The second stage in the evolution of money is the introduction of commodity money. Commodity money is that money whose value comes from a commodity, out of which it is made. The commodities that were used as medium of exchange included cowrie shells, bows and arrows, gold, silver, food grains, large stones, decorated belts, cigarettes, copper, etc.

However, the commodity money had various drawbacks such as there could be no standardization of value for money, lacks the property of portability and indivisibility. Therefore this form of money became an unsuitable medium of exchange.

(iii) Coinage:

The next step is coinage. This is just like a commodity money but the commodity is the metal that the money is made of. Thus, it can be seen that commodity money is of two types i.e., metallic and non-metallic.

When the use of money was not so very extensive, copper could do the job but when the number of transactions increased gradually, silver and then gold was used as a main metal for money and coins of small denominations were prepared either of copper or of silver.

Metallic money at one stage were used as full bodied money, i.e., the full value was equal to the intrinsic value of the metal.

Non-metallic commodity money was used on a large scale in our early days of civilization.

(iv) Paper Money:

The next important stage in the evolution of money is the paper money which replaced the metallic money. The transfer of sum of money in terms of metallic money was both inconvenient and risky. Therefore, written documents were used as temporary substitutes for money. Any person could deposit money with a wealthy merchant or a goldsmith and get a receipt for the deposit.

These receipts and documents were not actual money but temporary substitutes of money. This marked the development of paper money. These paper notes gradually took the form of currency notes.

(v) Bank Money:

As the volume of transactions increased, paper money started becoming inconvenient because of time involved in its counting and space required for its safe-keeping. This led to the introduction of bank money (or credit money).

Bank money implies demand deposits with banks which are withdraw able through cheques, drafts, etc. Cheques are widely accepted these days particularly for business transactions. Debit and credit cards also fall under this category.

Characteristics of Money:

1. General Acceptability: Money is accepted by all as a medium of exchange. Thus, it has general acceptability. No one denies to accept money as a medium of exchange. People do not hesitate to accept it as standard of payment.

2. Measure of Value: Value of any good or service can easily be measured in terms of money. It is accepted as a measure of value.

3. Active Agent: Money is an active agent of an economic system. In modern economy, money is required in every commercial process. Process of production cannot start without the participation of money.

4. Liquid Assets: Money is highly liquid asset. It can easily be converted in goods and services. Debt, stock and bills, etc., are the other liquid assets but the liquidity of money is highest than the other liquid assets. One has to first get to convert other liquid assets into money, then it can be converted in desired goods or services, while money can directly be converted.

5. Money is a Means and not an End: The word money is means to acquire things desired. Money itself cannot be used to satisfy. It is indirectly used to get any goods or services to satisfy human wants.

6. Voluntary Acceptability: Money is voluntarily accepted by people. There is no requirement to get legal approval. People always wish to hold money.

7. Government Control: Reserve Bank of India and Govt, of India have an authority to issue currency which is accepted as a form of money in India. No other authority can issue currency notes. Thus, the government keeps control over the money supply in the country.

Classification of Money:

Money assumes so many forms in real life that it is difficult to identify what constitutes money and what not. Different economists have classified money in different forms.

The more important classifications of money are as follows:

(i) Actual Money and Money of Account:

Actual money is that which actually circulates in the economy. It is used as a medium of exchange for goods and services in a country. For example, paper notes of different denominations and coins in actual circulation in India constitute the actual money. Money of account is that form of money in terms of which the accounts of a country are maintained and transactions made.

For example, rupee is the money of account in India. Generally, actual money and money of account are the same for a country; however, sometimes actual money may be different from the money of account. For example, rupee and paise is the money of account in India. In real practice, however, one paisa coin is nowhere visible.

(ii) Commodity Money and Representative Money: Commodity money is made up of a certain metal and its face value is equal to its intrinsic value. It is also referred to as full-bodied money. Representative money, on the other hand, is generally made either of cheap metals or paper notes. The intrinsic value of the representative money is less than its face value. Currency notes and coins are good examples of representative money in India. Representative money may or may not be converted into full-bodied money.

(iii) Money and Near-Money: Money is anything that possesses 100 per cent liquidity. Liquidity is the quality of being immediately and always exchangeable in full value for money. Near-money refers to those objects which can be held with little loss of liquidity. For example, National Savings Deposits, Building Society Deposits and other similar deposits are not money because they are not generally acceptable in paying debt; these, however, could be easily and quickly exchanged for money without any loss or with minimum loss.

(iv) Metallic Money and Paper Money: This classification is based upon the content of a unit of money. Money made of some metal like gold and silver is

called metallic money. On the other hand, money made of paper, such as currency notes, is called paper money.

Metallic money is sub-classified into:

(a) Standard Money, Standard money is one whose intrinsic value is equal to its face value. It is made up of some precious metal and has free coinage.

(b) Token Money. Token money is that form of money whose face value is higher than its intrinsic value. Indian rupee coin is an example of token money. Paper money comprises bank notes and government notes which circulate without difficulty.

Paper money is classified into following parts:

(a) Representative paper money, which is 100 per cent backed and is fully redeemable in some precious metal.

(b) Convertible paper money, which can be converted into standard coins at the option of the holder. It is not fully backed by precious metals.

(c) Inconvertible paper money, which cannot be converted into full-bodied money. Indian one rupee note is a good example of inconvertible paper money.

(d) Fiat money, which is issued by the government of the country under emergency conditions. It does not have any backing of reserve.

(v) Credit Money:

It is also known as bank money. This consists of deposits of the people held with the banks, which are payable on demand by the depositors. Cheques, drafts, bills of exchange, etc., are examples of credit money.

Modern Forms of Money:

1. Currency: The currency is a country's unit of exchange issued by their government or central bank whose value is the basis for trade. Currency includes both metallic money (coins) and paper money that is in public circulation.

(a) Metallic Money: Metallic money refers to the coins which are used for small transactions. Coins are most often issued by the government. Examples of coins are 50 paise coins, and 1, 2, 5 and 10 rupee coins.

(b) Paper Money: It refers to paper notes and used for large transactions. Each currency note carries the legend, 'I promise to pay the bearer the sum of 50/100 rupees' depending on the value of note. The currency notes are duly signed by the Governor of RBI.

Simply, the meaning of legend is that it can be converted into other notes or coins of equal value. Examples of currency notes are 1, 2, 5, 10, 20, 50, 100, 500 and 2000 rupee notes.

2. Deposit Money or Bank Money: It refers to money deposited by people in the bank on the basis of which cheques can be drawn. Customers of the bank deposit coins and currency notes in the bank for safe-keeping, money transferring and also to get interest on the deposited money.

This money is recorded as credit to the account of the bank's customer which can be withdrawn by him on his/her wish by cheques. Cheques are widely accepted these days because transfer of money through cheques is convenient.

3. Legal Tender Money (Force Tender): Legal tender money is the currency which has got legal sanction or approval by the government. It means that the individual is bound to accept it in exchange for goods and services; it cannot be refused in settlement of payments of any kind.

Both coins and currency notes are legal tender. They have the backing of government. They serve as money on the fiat (order) of the government. But a person can legally refuse to accept payment through cheques because there is no guarantee that a cheque will be honored by the bank in case of insufficient deposits with it.

Currency is the most common form of legal tender. It is anything which when offered in payment extinguishes the debt. Thus, personal cheques, credit cards, debit cards and similar non-cash methods of payment are not usually legal tenders.

Coins and notes are usually defined as a legal tender. The Indian Rupee is also legal tender in Bhutan but Bhutanese Ngultrum is not legal tender in India.

4. Near Money: It is a term used for those which are not cash but highly liquid assets and can easily be converted into cash on short notice such as bank deposits and treasury bills. It does not function as a medium of exchange in everyday purchases of goods and services.

5. Electronic Money: Electronic money (also known as e-money, electronic cash, electronic currency, digital money, digital cash or digital currency) involves computer networks to perform financial transactions electronically. Electronic Funds Transfer (EFT) and direct deposit are examples of electronic money. The financial institutions transfer the money from one bank account to another by means of computers and communication links. A country wide computer network would monitor the credits and debits of all individuals, firms, and government as transactions take place in the economy.

It exchange funds every day without the physical movement of any paper money. This would eliminate the use of cheques and reduce the need for currency.

6. Fiat Money: Fiat money is any money whose value is determined by legal means. The term fiat currency and fiat money relate to types of currency or money whose usefulness results not from any intrinsic value or guarantee that it can be converted into gold or another currency but from a government's order (fiat) that it must be accepted as a means of payment.

A distinction between money and currency may be made here. The term 'currency' includes only metallic coins and paper notes which are legal tender and are in actual circulation in the country. The term 'money' however includes not only currency in circulation but also credit instruments. In other words, we may say that all currency is money but all money is not currency.

Importance of Money:

Money plays a significant role in modern economy. It has an active role in economic activities.Importance of money in an economy can be discussed as below:

1. Money and Production: Money helps in various ways in the process of production. Money can help producers to decide, plan, execute and manage the production activities. Moreover, the existence of money helps the producers to assess the quality and quantity of demand of a consumer.

2. Money and Consumption: Money has a great importance in consumption. Consumers with the help of the money can easily decide, what they want and how much. They have a ready command over the goods and services. Moreover, they can postpone their demands, if required.

3. Money and Distribution : Money has made it possible to distribute the reward accurately and conveniently among the various factors of production.

The reward can be distributed in terms of wages, rent, interest and profit in the form of money.

4. Removal of the Difficulties of Barter: There were some difficulties attached to the barter system of exchange, i.e., lack of double coincidence of wants, problem of measurement of value, problem of future payment, etc. Invention of money has overcome all the difficulties of barter system. There is no need to find double coincidence of wants and value can be measured easily in terms of money.

5. Money and Capital Formation: Money is essential to facilitate capital formation. Savings of people can be mobilized in the form of money and these mobilized savings can be invested in more profitable ventures. Financial institutions are the part of this process. They mobilize the savings and channelize them in productive process.

6. Money and Public Finance: Public finance deals with the income and expenditure of the government. Government receives its income in the form of money through taxes and other means and make expenditures in development and administrative processes.

7. External Trade: Money has facilitated trade not only inside the country but also outside countries. With the use of money, goods and services can easily and rapidly be exchanged. Though in external trade foreign currencies are used in receipts and payments but they are exchanged with the help of domestic currencies.

8. Money and Economic Development: Supply of money in a country affects its economic development. If the money supply is more, then it may lead to inflationary situation in the economy which may hamper growth. Similarly, if the supply of money is lesser than what is required then there will be shortage of liquidity which will lead to lesser investments and hence lesser employment.

The solution of such problem has been found out on the following three consecutions:

(1) Wholesale Value: Whatever value becomes prevalent in the wholesale market is usually taken as wholesale value. So, the wholesale value is easy to be found out because the value of money usually is displayed on this very base. This is called the wholesale value of the money.

(2) Retail Value: The value prevalent in the retail market is called as retail value. But the retail value may be perceived separately on different places. This means the retail value will remain constant. The calculation of the retail value is always different from one place to another and as such the base of retail price is difficult in comparison to wholesale price.

(3) Labour Value: In order to make payment the money among the labourers the value prevalent in such a market is usually called the value of labour. Now the value of labour will never be constant and it will also vary from place to place. So, it cannot be accepted as bases of value.

Evils of Money: Money is not an unmixed blessing. It is said that money is a good servant but a bad master. Several evils of money are said to be:

(i) Economic Instability: Several economists are of the opinion that money is responsible for economic instability in capitalist economies. In the absence of money, saving was equal to investment. Those who saved also invested. But in a monetized economy, saving is done by certain people and investment by some other people. Hence, saving and investment need not be equal. When saving in an economy exceeds investment, then national income, output and employment decrease and economy falls into depression.

On the other hand, when investment exceeds saving, then national income, output and employment increase and that leads to prosperity. But if the process

of money creation and investment continues beyond the point of full employment, inflationary pressures will be created. Thus inequality between saving and investment are known to be main cause of economic fluctuations.

The main evil of money lies in its liability of being over-issued in the case of inconvertible paper money. The over-issue of money may lead to hyper-inflation. Excessive rise in prices brings suffering to the consuming public and fixed income earners. It encourages speculation and inhibits productive enterprises. It adversely affects distribution of income and wealth in the community so that the gulf between the rich and poor increases.

(ii) Economic Inequalities: Money is a very convenience tool for accumulating wealth and of the exploitation of the poor by the rich. It has created an increasing gulf between the 'haves' and the 'have-nots. The misery and degradation of the poor is, thus, in no small measure due to the existence of money.

(iii) Moral Depravity: Money has weakened the moral fiber of man. The evils to be found in the affluent society are only too obvious. The rich monopolizes all the social evils like corruption, the wine and the woman. In this case, money has proved to be a soul-killing weapon.

(iv) Medium of Exploitation: Prominent socialist like Marx and Lenin condemned money but it helps the rich to exploit the poor. When the communists came to power in Russia, they tried to abolish money. But they soon realized that to run a modern economy without money was impossible. All economic activity has to be based on monetary calculations. Accordingly, money is fully and firmly established in all Socialists States. Money performs several functions like facilitating optimum allocation of the country's resources, functions as a medium of exchange and a measure of value, guides economic activity and is essential for facilitating distribution of national income.

THEORIES OF MONEY

a. Quantity Velocity Approach: Till now, the economists believed that the price level show changes because of the changes in quantity (demand and supply) of money. However, in the present scenario, most of the economists have believed that quantity theory of money is not applicable in practical situations. Quantity of money comprises cash (M) and its velocity (V).

The velocity of circulation of cash depends on various factors, such as frequency of transactions, trade volume, type of business conditions, price levels, and borrowing and lending policies. According to the quantity theory of money, the changes in price level of a country occur due to changes in the quantity of money in circulation, while keeping other factors at constant. In other words, an increase or decrease in the price level would occur due to increase or decrease in the quantity of money.

Therefore, it can be concluded that price level and quantity of money are directly proportional to each other. However, in extreme conditions, an increase in the quantity of money would lead to a proportional decrease in the value of money, while keeping other factors at constant and vice versa.

In the quantity theory, the other factors that are kept constant are as follows:

(a) Velocity of circulation of money:

Refers to the frequency at which a single money unit flows from one individual to another. For example, if a ten-rupee note circulates through 10 individuals, then the quantity of money would be 100, but not 10.

(b) Credit instruments:

Help in increasing the quantity of money. An increase in the use of credit instruments, such as bank cheques and book credit, would lead to an increase in the quantity of money.

(c) Barter system:

Involves transactions that take place without the use of money. Such transactions are either discarded or considered to increase the quantity of money.

(d) Volume of transactions:
Requires to be constant. Volume of transactions refers not only to the amount of goods and services exchanged, but the number of times money changes hand.

Prof. Irvin Fisher has provided a formula for explaining the relationship between quantity of money and its value, which is as follows:
P = MV + M'V'/T

Where, P = Price level/Value of money

M = Metallic money

M' = Credit money

V = Velocity of metallic money

V = Velocity of credit money

T = Transactions performed by money

In the preceding formula, the supply and demand of money becomes equal. When the price level is multiplied by the transactions performed by money, it provides the total value of transactions (PT). It is also termed as the demand for money. PT is equal to the supply of money as it includes cash and credit instruments along with their velocities (MV + M'V'), which is described as follows:

PT= MV + M'V'

MV + M'V'/T

According to Fisher, in short-run, the values of T, V, and V remain constant. In addition, the proportional change between M' and M also remains constant. Therefore, P and M are directly proportional to each other. In other words, the value of money (I/P) is inversely proportional to quantity of money (M).

The other factors remain same due to various reasons. Prof. Fisher has explained that in short run, there are no or negligible changes in the economic

factors, such as population, consumption, production, production techniques, technology, customer's tastes and preferences, and circulation of money.

Therefore, the demand for money is constant in short run. With respect to the supply of money, the circulation of money and credit is dependent on the habit of people. The proportional change between M' and M depends on bank policies. Therefore, these factors also remain constant in short-run.

The quantity theory is criticized on a large scale due to its static nature. In quantity theory, most of the factors remain constant, which is not true as real world conditions are dynamic in nature. Therefore, all the factors in this dynamic world keep on changing with time.

In short-run, factors, such a population, frequency of transactions, and velocity of circulation, change either at a low rate or at high rate, but show changes. Therefore, apart from the quantity of money, other factors may also produce changes in level of price and consequently in the value of money.

For example, change in trade volume, better transport facilities, and increase in credit facilities would also bring a change in the level of price. In addition, the quantity theory has not explained the process by which the change in quantity of money produces change in the price level. The theory also considers that money is only used for the transaction purposes. However, it can also be held by individuals as idle cash and savings.

Apart from this, other factors, such as M, V, M', and V', are not independent factors. Among these factors, one factor can easily bring changes in other factors. For example, change in M can produce changes in V, which further make changes in the value of P.

b. Cash Balances Approach/Cambridge Equation:

Cash balances approach is the modification of quantity velocity approach and is widely accepted in Europe. This approach is based on national income approach and considers the concept of liquidity. According to cash balances approach, the value of money depends on the demand and supply of cash balances for a given period of time. The demand for money is not only

dependent on the quantity of goods and services that would be exchanged, but also on the time period at which the transaction takes place.

For example, an individual would not purchase food grains for the whole year at once, but he/she would purchase on monthly basis. Therefore, he/she is required to hold enough cash with him/her to buy food grains and other products from month after month.

Thus, if in an economy individuals are habitual for holding money for overcoming their expenditure for a longer period of time, then the demand for money would be more. In such a case, only a small part of income is held by individuals and rest of the amount is invested.

This is because holding a large amount of cash as idle cash would be a loss or danger for the individual On the other hand, cash balances held by individuals should also not be very low, so that contingencies cannot be overcome.

According to Marshall, "A man fixes the appropriate fraction (of his income) after balancing one against another the advantages of a further ready command and the disadvantages of putting more of his resources into a form in which they yield him no direct income or other benefit."

Therefore, an individual should hold a particular amount of cash with him/her to fulfill his/her needs as well as overcome uncertainties. Let us express the fraction of income that should be held by individuals ask.

Now, the equation usually used is as follows:

$M = kpR$

Where, M = quantity of money

R = real national income (total of final goods and services that are directly consumed)

P = average price-level of real national income (average of price of clothes, food, shelter, and services)

pR represents the monetary national income. Now, a proportion of the monetary national income is held in liquid form by individuals in an economy. In addition, it also expresses the desire of individuals in an economy to have liquid cash that is termed as liquidity for buying.

If the circulation of money takes place only once, the amount of money required would be equal to the monetary national income. However, if circulation of money takes place twice, then only half pR is required for buying national product.

c. Income-Expenditure Approach:

The income-expenditure approach is given by Keynes. It is also termed as the modern theory of money. Keynes was agreed with the concept that changes in quantity of money produces changes in the price levels, as given in the quantity theory of money.

However, he did not agree with the view that determining relationship between quantity of money and price level is as easy as demonstrated by quantity theory.

According to the modern theory of money, changes in price level are brought by the changes in national income rather than quantity of money. The main reason for the change in the price level is the changes that occur in the aggregate income or expenditure. Therefore, change in quantity of money can only bring changes in the price level when it can change the aggregate expenditure with respect to the supply of output.

If there is no rise in the expenditure, then the demand for goods would not rise and consequently, the price level would not increase. In case, the expenditure rises but the supply of output is fairly elastic, then also the price level would not rise.

Therefore, the impact of change in quantity of money would depend on the following factors:

a. Effect of change in money supply on level of aggregate expenditure and volume of production

b. Type of relation between aggregate expenditure and volume of production

The amount of expenditure depends on the consumption function, investment demand schedule, liquidity preference schedule, and supply of money. An increase in the quantity of money would decrease the rate of interest. However, in case the rate of interest is very low, then the increase in quantity of money would not be able to reduce rate of interest further.

The reduced rate of interest would help in increasing the rate of investment by individuals, which would further result in increase in income. The increase in income would increase the aggregate expenditure of a nation. However, when the increased quantity of money is not able to reduce the rate of interest as it is already very low, the investment would not show any increase.

Thus, the income and aggregate expenditure would simultaneously fail to show any type of increase. In such a case, the price level would not rise even with the rise of quantity of money. However, it is also not guaranteed that if the increase in quantity of money reduces the rate of interest, then price level would rise or not.

This is because it may be possible that the proportional increase in price level is very less as compared to increase in money supply. Therefore, it is hard to determine relationship between changes in money supply and changes in price level. This is because they are indirectly related to each other and depend on aggregate expenditure and elasticity of supply of output.

National Income

- **National Income**

National Income is total amount of goods and services produced within the nation during the given period say, 1 year. It is the total of factor income i.e. wages, interest, rent, profit, received by factors of production i.e. labour, capital, land and entrepreneurship of a nation.

Concepts of National Income

There are various concepts of National Income, such as GDP, GNP, NNP, NI, PI, DI, and PCI which explain the facts of economic activities.

1. GDP at market price: Is money value of all goods and services produced within the domestic domain with the available resources during a year.

GDP = (P*Q)

Where,

GDP = gross domestic product

P = Price of goods and services

Q= Quantity of goods and services

GDP is made up of 4 Components

- consumption
- investment
- government expenditure
- net foreign exports of a country

GDP = C+I+G+(X-M)
Where,
C=Consumption
I=Investment
G=Government expenditure
(X-M) =Export minus import

2.Gross National Product (GNP): Is market value of final goods and services produced in a year by the residents of the country within the domestic territory as well as abroad. GNP is the value of goods and services that the country's citizens produce regardless of their location.

GNP=GDP+NFIA or,

GNP=C+I+G+(X-M) +NFIA

Where,
C=Consumption

I=Investment
G=Government expenditure
(X-M) =Export minus import

NFIA= Net factor income from abroad.

3.**Net National Product (NNP) at MP:** Is market value of net output of final goods and services produced by an economy during a year and net factor income from abroad.
NNP=GNP-Depreciation

or, NNP=C+I+G+(X-M) +NFIA- IT-Depreciation

Where,
C=Consumption
I=Investment
G=Government expenditure
(X-M) =Export minus import

NFIA= Net factor income from abroad.

IT= Indirect Taxes

4.National Income (NI): Is also known as National Income at factor cost which means total income earned by resources for their contribution of land, labour, capital and organisational ability. Hence, the sum of the income received by factors of production in the form of rent, wages, interest and profit is called National Income.

Symbolically,
NI=NNP +Subsidies-Interest Taxes
or, GNP-Depreciation +Subsidies-Indirect Taxes
or, NI=C+G+I+(X-M) +NFIA-Depreciation-Indirect Taxes +Subsidies

5.Personal Income (PI): Is the total money income received by individuals and households of a country from all possible sources before direct taxes. Therefore, personal income can be expressed as follows:
PI=NI-Corporate Income Taxes-Undistributed Corporate Profits-Social Security Contribution +Transfer Payments.

6.Disposable Income (DI) : It is the income left with the individuals after the payment of direct taxes from personal income. It is the actual income left for disposal or that can be spent for consumption by individuals.

Thus, it can be expressed as:

DI=PI-Direct Taxes

7.Per Capita Income (PCI): I**s c**alculated by dividing the national income of the country by the total population of a country.

Thus, **PCI=Total National Income/Total National Population**

WHAT ARE THE FACTORS THAT AFFECT NATIONAL INCOME?

Several factors affect the national income of a country. Some of them have been listed below:

1. Factors of Production

Normally, the more efficient and richer the resources, higher will be the level of National Income or GNP

(a) Land

Resources like coal, iron and timber are essential for heavy industries so that they must be available and accessible. In other words, the geographical location of these natural resources affects the level of GNP.

(b) Capital

Capital is generally determined by investment. Investment in turn depends on other factors like profitability, political stability etc.

(c) Labour

The quality or productivity of human resources is more important than quantity. Manpower planning and education affect the productivity and production capacity of an economy.

(d) Entrepreneur

(e) Technology

This factor is more important for Nations with fewer natural resources. The

development in technology is affected by the level of invention and innovation in production.

(f) Government

Government can help to provide a favourable business environment for investment. It provides law and order, regulations.

(g) Political Stability

A stable economy and political system helps in appropriate allocation of resources. Wars, strikes and social unrests will discourage investment and business activities.

Methods of National Income Calculation

There are three approaches and methods of measuring National Income:

A. Income Method

• By this National Income is calculated compiling income of factors of production viz., land, labour, capital and entrepreneur.

• **National Income = Total Wage + Total Rent + Total Interest + Total Profit**

• In Indian context, since 1993 as per the System of National Accounts (SNA), National Income is total of the following:

• **GDP = Compensation of Employees + Consumption of Fixed Capital + (Other Taxes on Production – Subsidies of Production) + Gross Operating Surplus**

• Compensation of employees: (Wage) salaries paid in cash and kind and other benefits provided to employees.

• Consumption of Fixed Capital: wear and tear of machinery which are replaced by new parts.

• Other Taxes on Production minus Subsidies: Net tax on production.

• There is a difference between tax on products and tax on production. Tax on products includes taxes like sales tax and excise duty. Tax on production is tax imposed irrespective of production like license fees and land tax.

• Gross Operating Surplus: balance of value added after deducting the above three components. It goes to pay rent of land and interest of capital.

B. Product Method (or Value Added Method, Output Method)

• It is used by economists to calculate GDP at market prices, which are the total values of outputs produced at different stages of production.

Some of the goods and services included in production are:

• Goods and services actually sold in the market.
• Goods and services not sold but supplied free of cost. (No Charge/Complementary)

Some of the goods and services not included in production are:

• Second hand items and purchase and sale of the same. Sale and purchase of second cars, for example, are not a part of GDP calculation as no new production takes place in the economy.
• Production due to unwarranted/ illegal activities.
• Non-economic goods or natural goods such as air and water.
• Transfer Payments such as scholarships, pensions etc. are excluded as there is income received, but no good or service is produced in return.
• Imputed rental for owner-occupied housing is also excluded.
• Here the Gross Value of final goods and services produced in a country in certain year is calculated.
• GDP is a concept of value added; it is the sum of gross value added of all resident producer units (institutional sectors, or industries) plus that part of taxes (total) less subsidies, on products which is not included in the valuation of output.
• **Gross Value Added = Output of Final Goods and Services – Intermediate Consumption**
• **National Income = Gross Value Added + Indirect Taxes – Subsidies**

C. Expenditure Method

• It measures all spending on currently-produced final goods and services only in an economy.

• In an economy, there are three main agencies which buy goods and services: Households, Firms and the Government.

This final expenditure is made up of the sum of 4 expenditure items, namely;

• **Consumption (C):** Personal Consumption made by households, the payment of which is paid by households directly to the firms which produced the goods and services desired by the households.

• **Investment Expenditure (I):** Investment is an addition to capital stock of an economy in a given time period. This includes investments by firms as well as governments sectors.

• **Government Expenditure (G):** This category includes the value of goods and service purchased by Government. Government expenditure on pension schemes, scholarships, unemployment allowances etc. are not included in this as all of them come under transfer payments.

• **Net Exports (X-IM):** Expenditures on foreign made products (Imports) are expenditure that escapes the system, and must be subtracted from total expenditures. In turn, goods produced by domestic firms which are demanded by foreign economies involve expenditure by other economies on our production (Exports), and are included in total expenditure. The combination of the two gives us Net Exports.

• **National Income = Consumption (C) + Investment Expenditure (I) + Government Expenditure (G) + Net Exports (X-IM)**

• **Calculating GDP (National Income)** is extremely important as the performance of the economy is fixed by means of this method. The results would help the country to forecast the economic progress, determine the demand and supply, understand the buying power of the people, the per capita income, the position of the economy in the global arena. The Indian GDP is calculated by the expenditure method.

Main uses of national income.

1. Since income is a flow of wealth changes in the national income give some indication of economic welfare.

2. National income is used to compare standards of living in different countries.

3. National income figures are used to measure the rate of growth of a country.

4. The national income accounts make it possible for an analysis of the behaviour of the different sectors of the economy.

5. Inflationary and deflationary pressures can be estimated with the help of national income statistics.

6 National income statistics can be used to forecast the level of business activity at later date, and to find out trends in other annual data.

7. The national income figures are useful in providing a correct sense of proportion about the structure of the economy.

8. In war time, the study of components of national income is of great importance because they show the maximum possible production possibilities of the country.

9. National income statistics can be used to determine how an international financial burden should be an apportioned between different countries. The quantum of national income measures the ability of a country to pay contributions for international purposes, just as the income of a person measures his ability to pay for the upkeep of his country.

10. Above all the national income statistics are used for planned economic development of a country. In the absence of such data, planning will not be possible.

Importance Of National Income

1. For the Economy:

National income data are of great importance for the economy of a country. These days the national income data are regarded as accounts of the economy, which are known as social accounts.

2. National Policies:

National income data form the basis of national policies such as employment policy because these figures enable us to know the direction in which the industrial output, investment and savings' etc. change, and proper measures can be adopted to bring the economy to the right path.

3. Economic Planning:

In the present age of planning, the national data are of great importance. For economic planning, it is essential that the data pertaining to a country's gross income, output, saving and consumption from different sources should be available.

Without these, planning is not possible. Similarly, the economists propound short-run as well long-run economic models or long-run investment models in which the national income data are very widely used.

4. Economic Models:

Economists build short-run and long-run economic models in which the national income data are widely used.

5. For Research:

The national income data are also made use of by the research scholars of economics, they make use of the various data of the country's input, output, income, saving, consumption, investment employment, etc., which are obtained from social accounts.

6. Per-Capita Income:

National income data are significant for a country's per capita income which reflects the economic welfare of the country. The higher the per capita income, the higher the economic welfare and vice versa.

7. Distribution of Income:

National income statistics enable us to know about the distribution of income in the country. From the data pertaining to wages, rent, interest and profits we learn of the disparities in the incomes of different sections of the society.

Similarly, the regional distribution of income is revealed it is only on the basis of these that the government can adopt measures to remove the inequalities in income distribution and to restore regional equilibrium. With a view to removing these personal and regional disequilibria, the decisions to levy more taxes and increase public expenditure also rest on national income statistics.

Consumption function By J.M Keynes:

J.M. Keynes, in his book 'General Theory' analyzed the consumption behavior of the community on the basis of human psychology. He propounded a law which is known as ***Psychological Law of Consumption***.

Statement:

According to this law:

"The household sector spends a major part of its income on the purchase of consumer goods and services such as food, clothing, medicines, shelter etc., for personal satisfaction. The expenditure on consumption (C) is the largest component of aggregate expenditure. Whatever is not consumed out of disposable income is by definition called saving (S)".

Formula:

Disposable Income = Consumption + Saving

I = C + S

Explanation:

According to Keynes, the level of consumption in a community depends upon the level of disposable income. As income increases, consumption also increases but it increases not as fast as income i.e., it increases at a diminishing rate. This relationship between consumption and disposable income is called ***consumption function.***

In the words of **Keynes:**

"Men are disposable as a rule and on the average to increases their consumption as their income increases, but hot by as much as the increases in their income."

Properties of Consumption Behavior of Community:

The psychological law of consumption brings out the following properties of the consumption behavior of the community:

(i) The level of consumption is directly functionally related to the level of disposable income = C = f(y)

(ii) With the rise in the level of income, the consumption level also rises, but at a decreasing rate = $\Delta C < \Delta y$

(iii) As the level of income increases, the households devote a part of the increase saving. Symbolically: $\Delta Y = \Delta C + \Delta S$

The ***Keynesian consumption function*** is now explained with the help of schedule and a curve.

Schedule:

($ in billion)

Disposable Income (Y)	Consumption (C)	Saving (S)	APC (C/Y)	MPC (ΔC/ΔY)

0	50	-50		
100	100	0	1.00	0.5
200	150	50	0.75	0.5
300	200	100	0.67	0.5

In the schedule, it is shown that as the nation's disposable income increases, the aggregate consumption at various levels of income also increases but at a decreasing rate.

The same data is now shown in graph 30.1 below:

Diagram/Graph:

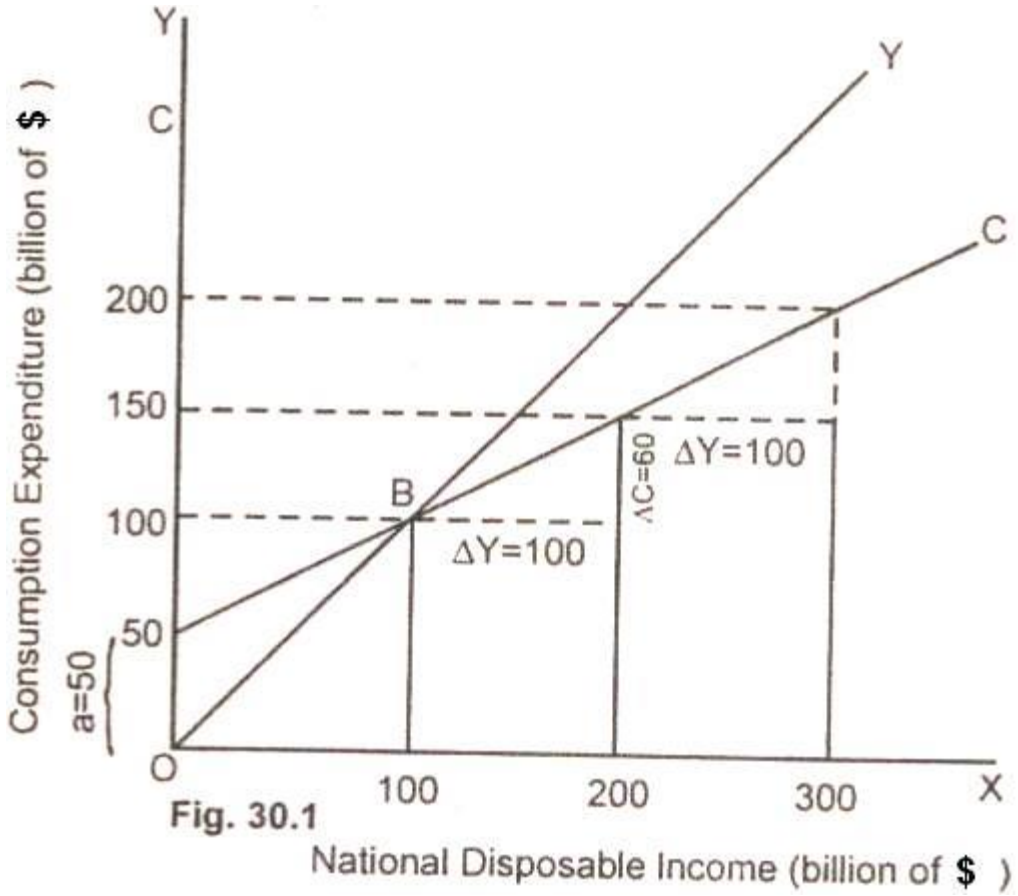


Fig. 30.1

Following are the **observations** about the functional relationship between the national disposable income and the economy's aggregate expenditure.

(i) At every point on the 45^0 line OY, a vertical line drawn to the income axis is at the same distance from the origin as a horizontal line drawn to the consumption axis. The 45^0 line thus is the line along which expenditure equals real income.

(ii) The consumption function is represented by consumption line (C). The consumption line C is positively sloped indicating that as the disposable income increases, the expenditure in the economy also increases.

(iii) The consumption line (C) intercepts at Y axis showing negative saving of $50 billion during a short period.

(iv) At point B the consumption line (C) intersects the 45^0 helping line (OY) saving. At point B, consumption equals disposable income and there is zero saving. B is called the ***break even point.***

(v) Left to the point B, the consumption line C is above the income line Y. It indicates negative saving.

(vi) Right to the point B, the consumption line C is below the income line Y. It denotes positive savings.

Summing up, the relationship between ***consumption and disposable income is referred to as consumption function.*** A consumption function tells how much households plan to consume at various levels of disposable income.

Determinants/Factors of the Consumption Function:

There are a number of ***determinants/factors*** both subjective and objective which determine the position of consumption function. The factors or causes of shifts in consumption function are as fallows:

(1) Subjective Factors:

(i) Psychological Characteristics of Human Nature: The ***subjective factors*** affecting propensity to consume are internal to the economic system. The subjective factors include characteristics of human nature, social practices which lead households to refrain or activate to appending out of their income.

For example, religious belief of the people towards spending, their foresight attitude towards life, level of education, etc. etc., directly affect propensity to consume or determine the slope and position of the consumptions curve. The subjective factors do not undergo a material change over a short period of time. These remain constant in the short run.

(2) Objective Factors:

The ***objective factors*** are external to economic system. The undergo rapid changes and bring market in the consumption function. The main objective factors are as under:

(i) Real Income: Real income is the basic factor which determines community's propensity to consume. When real income of the community increases, consumption expenditure also increases but by a smaller amount. The consumption function shifts upward.

(ii) Distribution of wealth: If there is unequal distribution of wealth in a country, the consumption function will also be unequal. People with low income group have high propensity to consume and rich people low propensity to consume. An equal distribution of wealth raises the propensity to consume.

(iii) Expectation Change in Price: If people expect prices are going to rise in near future, they hasten to spend large sum out of a given income just after the promulgation of first Martial Law in our country. So we can say that when prices are expected to be high in future, the propensity to consume increases or the consumption function shifts upward. When they are expected to be low, the propensity to consume decreases or the consumption function shifts downward.

(iv) Changes in Fiscal Policy: Taxes also play an important part in influencing the propensity to consume. If the nature of taxes is such that they directly affect the poor people and reduce their income, then the propensity to consume is

high and if rich persons are not taxed at a progressive rate and they accumulate more wealth, then the propensity to consume is low.

(v) Change in the Rate of Interest: A change in the rate of interest exercises influence on the propensity to consume. When the interest rate is raised, it generally induces people to decrease expenditure and save more for lending purposes. On the other hand, when the interest rate is reduced, it usually encourages expenditure as lending then becomes less attractive. So we conclude that an increase in the rate of interest generally reduces propensity to consume or shifts the consumption function downward and a fall in the rate of interest usually helps to the increase of propensity to consume or shifts the consumption function upward.

(vi) Availability of Goods: Propensity to consume is also affected by the availability of consumption goods. If the goods are available in abundance, then the propensity to consume increases. If they are scarce and are priced very high, then the propensity to consume will decline.

(vii) Credit Facilities: cheap credit facilities are available in the country, the consumption function will move upward.

(viii) Higher Living Standard: If the real income of the people increases in the country and people adopt the use of new produce like television, washing machines, refrigerators, care, etc., etc., the consumption function is high.

(ix) Stock of Liquid Assets: If the consumer have greater amounts of liquid assets; there will be more desire for the households to spend out of disposable income. The consumption function shifts upward and vice versa.

(x) Consumer Indebtedness: In case the consumer are heavily indebted and they pay bigger monthly installments to replay the dept, then propensity to consume is low or the consumption function shifts downward and vice versa.

(xi) Windfall Gains: If there are unexpected gains due to stock market boom in the economy, it tends to shift the consumption function upward. They are windfall gains. The unexpected losses in the stock market lead to the downward shifting of the consumption curve.

(xii) Demographic Factors: The consumption function is also influenced by demographic factors like size of family, occupations, place of residence etc. Persons living in cities, for instance, spend more than those living in rural areas.

(xiii) Attitude Towards Saving: If a community is consumption oriented, there will be less saving in the country. The consumption function shifts upward. In case, people save more and spend less, then the consumption function will shift downward.

(ix) Demonstration Effect: If people are easily influenced by advertisements on radio and television and seeing pattern of living of the rich neighbors, the level of total consumption will go up.

Propensity to Consume:

Meaning and Definition of Propensity to Consume:

The **classical economists** were of the view that the supply of saving was determined by the rate of interest prevailing in the country. According to them, the higher the rate of interest, the larger is the saving and so less is the consumption.

Keynes disagreed with the above view. According to him interest is not the primary determinant of an individual's saving and consumption decisions. It is primarily the individual's real income which determines his, saving and consumption decisions. **J.M. Keynes** has developed two concepts:

(i) Average Propensity to Consume.

(ii) Marginal Propensity to Consume to Analyze the Consumption Function.

Explanation:

These two concepts are now explained in brief:

(1) Average Propensity to Consume (APC):

Average propensity to consume (APC) may be defined as:

Definition:

"A ratio of total consumption to total disposable income for different levels of disposable income It is calculated by dividing the amount of consumption by disposable income for any given level of income".

Example:

For instance, when nation's disposable income is $2,000 billion, consumption expenditure is $1,500 billion, the average propensity to consumption is 1500/2000 = 0.75.

This shows that out of the disposable income of $2,000 billion, 75% will be used for consumption purposes. The APC declines as income increases because the proportion of income spent on consumption decreases. The average propensity to consume spent on consumption decreases. The average propensity to consume at any level of income is expressed in **equation as C/Y.** Here C stands for consumption Y for income.

Formula:

$$APC = \frac{C}{Y}$$

Diagram:

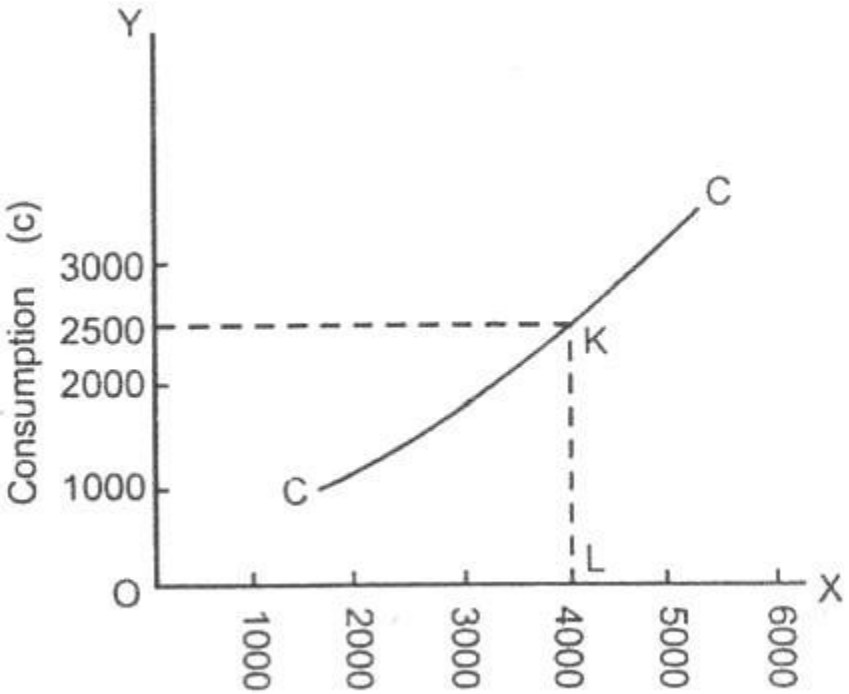


Fig. 30.2

In the Fig.(30.2) income is plotted on OX axis and consumption along OY. CC curve represents the propensity to consume schedule. At point K, the average propensity to consume is equal to 0.62.

KL/OL = (C/Y) i.e., 2500/4000 or 25/40 = 0.62

APC implies a point on the curve C which indicates the ratio of income consumed. The C curve is made up of a series such points.

(2) Marginal Propensity to Consume (MPC):

Definition:

The concept of ***marginal propensity to consume*** is very important is macro economics. **J.M. Keynes** has defined marginal propensity to consume (MPC):

"As the relationship between a change in consumption (ΔC) that resulted from a change in disposable income (ΔY)".

Formula:

It is found out by dividing change in consumption to a given change in disposable Income.

$$MPC = \frac{\text{Change in Consumption}}{\text{Change in Income}} = \frac{\Delta C}{\Delta Y}$$

Example:

Thus we make this concept clear by taking an example, let us suppose the disposable income rises from $2000 billion to $3000 billion (by $1000 billion) and the consumption expenditure increases from $1500 billion to $2000 billion (by $500 billion). The marginal propensity to consume is:

$$\Delta C/\Delta Y = 500/1000 = 1/2 = 0.5$$

All the concepts of consumption function are now explained whit help of schedule and a diagram.

Schedule For Propensity to Consume:

($ in billion)

Disposal Income (Y)	Consumption Expenditure (C)	Average Propensity to Consume (APC = C/Y)	Marginal Propensity to Consume (MPC = ΔC/ΔY)
A 1000	1100	1.1	800/1000 = 0.9
B 2000	2000	1.0	600/1000 = 0.6
C 3000	2600	0.86	500/1000 = 0.5
D 4000	3100	0.77	300/1000 = 0.3
E 5000	3400	0.68	200/1000 = 0.2

F 6000	3600	0.6	100/1000 = 0.1
G 7000	3700	0.53	

The reader can easily understand from the above schedule that with the increase in the disposable income, the propensity to consume decreases and conversely with a fall in income, the propensity to consume and the marginal propensity to consume increases. The consumption schedule can also be explained with the help of a curve which is given below:

Diagram For Propensity to Consume:

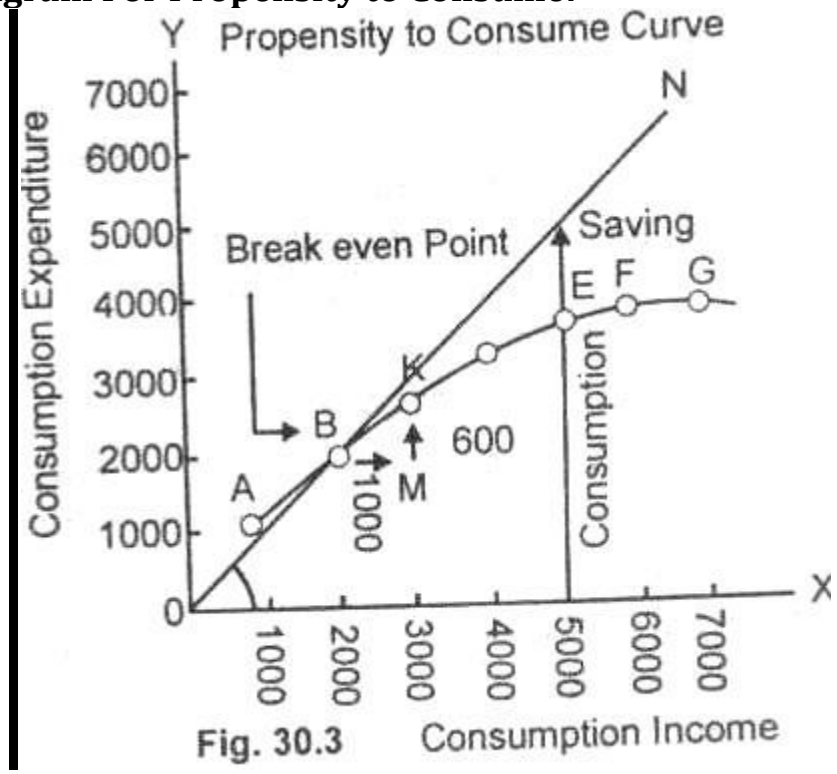


Fig. 30.3

In the figure (30.3), disposable income is measured along the horizontal axis OX and consumption along the vertical axis OY. Let us now draw 45^0 helping line from O to ON. If we take any point on the 45^0 helping line, income will be exactly equal to expenditure. The curve AG represents the income consumption schedule, indicating the propensity to consumer at various levels of income.

Point A which is above 45^0 helping line, shows us that the expenditure is greater than its income.

This deficit in income can be converted either by borrowing or from the sale of assets. At point B, consumption expenditures exactly equal to disposable income and there is neither saving nor dis-saving. This point is known is as ***break even point.***

➢ Inflation

The aggregate demand increases due to expenditure by the households, firms and government (usually excessive spending by the government). This increase in demand due to expenditure by either government or households can be effectively controlled by fiscal measures. Thus, **fiscal policy and budgetary measures** are the effective weapons to control demand-pull inflation.

In case, government expenditure is the main cause behind the demand-pull inflation, then it can be controlled by **cutting down the public expenditure**. With a cut in public expenditure, the government demand for goods and services decreases along with a decrease in the private income and consumption expenditure. In case, the demand rises due to the rise in private expenditure, **taxing income** is the most appropriate way to control inflation. The taxation on private income reduces the disposable income in hand, as a result of which the consumption expenditure also reduces. This results in the reduction in aggregate demand.

In case of a very high persistent inflation rate, the government may adopt both these measures simultaneously to control inflation. Such as along with the reduction in public expenditure the rate of taxation shall be raised on the private income to keep the demand under control. This kind of policy of using both the measures simultaneously is called as **" Policy of Surplus Budgeting,"** which says that *"government should spend less than the tax revenue."*

<u>characteristics of inflation may be summarized as under:</u>

1. Inflation is always associated with a rise in prices which is continuous and persistent. It should be distinguished from price rise which may occur temporarily or during a cyclical upswing.

2. Inflation is a dynamic process which can be observed over the long period.

3. Inflation is basically an economic phenomenon. It originates within the economic system and is fostered by interaction of economic forces.

4. Excess of demand over the available supply is the hall mark of inflation. It is a condition of economic disequilibrium.

5. Inflation is generally considered a monetary phenomenon for it is normally characterized by an excessive money supply. Though all increases in the stock of money may not be inflationary yet a persistent rise in prices cannot be sustained unless the quantity of money rises as well.

6. Inflation may be caused by 'demand-pull' factors or 'cost push' factors or both working together.

7. Inflation is always cumulative in the sense that a mild inflation in the first instance gathers momentum leading to rapid price rises. Its effects on an economy depends on how rapid it is.

➢ Types of Inflation:

1. Creeping Inflation:

'Creeping inflation occurs when there is a sustained rise in prices over time at a mild rate, say around 2 to 3 percent per year. It is also known as 'mild inflation'. This type of inflation is not much of a problem.
It is generally known as conducive to economic progress and growth. In this form the prices rise gradually over a long period.

2. Walking or Trotting Inflation:

When the rate of rise in inflation is of international range of 3 to 8 percent per annum, it is called walking or trotting inflation. It is an alarming signal for the government to control it before it worsens.

3. Running Inflation:

When the sustained rise in prices is over 8 percent and generally around 10 percent per annum, it is called running inflation. It normally shows two-digit inflation. Running inflation is a warning signal indicating the need for controlling it. It affects the poor and middle class people adversely.

4. Hyper or Galloping Inflation:

Hyperinflation occurs when monthly increase in prices is 20 percent to 30 percent or more. At this stage there is no limit to price rise, and price rise goes out of control. Money becomes almost worthless causing severe hardship to people. There is complete collapse of currency, the monetary system collapses and the economic and political life gets disrupted.

5. Open Inflation:

Inflation become open when there is no barrier to price rise. It occurs in the economy where there are no control and checks on price rise. Rising prices by large magnitude is the symptom of open inflation.

6. Suppressed Inflation:

Suppressed inflation refers to a situation when there exists inflationary pressures in the economy but prices are controlled by certain administrative measures, such as price-control and rationing. The increase in prices are suppressed (or repressed) here. However, prices rise by large magnitude after the price controls are removed.

The symptoms of suppressed inflation are long queues of buyers at government controlled ration shops and the existence of excess demand and black- markets. The controls ensued by the government on the prices of essential commodities in times of war is an example of suppressed inflation.

Theories of Inflation

The theories of inflation try to explain the causes of inflation and can be studied from the perspective of:

- **Demand-pull Inflation**

Definition: The **Demand-pull Inflation** occurs when, for a given level of aggregate supply, the aggregate demand increases substantially. In other

words, demand-pull inflation exists when the aggregate demand increases rapidly than the aggregate supply.

The increase in aggregate demand may be due to:

- **Monetary Factors,** i.e., an increase in the supply of money
- **Real Factors,** i.e., an increase in the demand for real output

Demand-pull Inflation due to Monetary factors: The increase in money supply more than the increase in potential output is one of the major reasons for **demand-pull inflation.** Let's see how the money supplies causes the demand-pull inflation. At a given level of output, when the monetary and real sectors are in equilibrium, then the economy is also in equilibrium. Since the economy is in general equilibrium, the general price level corresponding to it is called as **equilibrium price level.**

With an increase in the money supply, the other things remaining the same, the real stock of money at each price level increases. As a result, the interest rate decreases and the people's desire to hold money increases. With a decrease in the interest rates, the investment also increases, which leads to more income.

The increase in income causes an increase in the consumption expenditure and thus, a rise in investment and consumption expenditure increases the aggregate demand and aggregate supply, other things remaining the same. This **increase in the aggregate demand is exactly proportional to the increase in the money stock.** Thus, a rise in aggregate demand, for a given level of aggregate supply, leads to an increase in the general price level in the economy, which may be inflated.

Demand-pull Inflation due to Real Factors: The following are some of the real factors that cause demand-pull inflation in the economy:

- **Increase in government expenditure** without any change in the tax revenue.
- **Cut in the tax rates** without any change in the government expenditure.
- Upward shift in the **Investment Function**
- Downward shift in the **Saving Function**

- Upward shift in the **Export Function**
- Downward shift in the **Import Function.**

The first four factors directly contribute towards an increase in the level of disposable income. Since the **aggregate demand being the function of income**, an increase in aggregate income leads to an increase in the aggregate demand, thereby causing the demand-pull inflation. Let's see how real factors cause demand-pull inflation.

Suppose, the government increases its spending financed through external borrowings from abroad. The rise in government expenditure generates additional demand and thus, the aggregate demand increases. Since it is assumed that there is full employment, then the additional resources can be acquired only by bidding a higher price. As a result, the prices rise while the output remains unchanged.

Thus, the transaction of demand for money increases and in order to meet the increased demand for money people sell their financial assets such as bonds and securities. Eventually, the prices of bonds and securities go down and the rate of interest increases. In the product market, the price rises to such a level that the additional spending by the government is absorbed by such price rise. This shows that the real factors also cause inflation.

➢ Cost-push Inflation

Definition: The **Cost-Push Inflation** occurs when the price rise due to the increase in the price of factors of production, Viz. Labor, raw materials, and other inputs which are essential for the final production of a product. As a result, the aggregate supply decreases, demand remaining the same, an increase in the price of commodities leads to an overall increase in the general price level.

Often, the cost-push inflation is caused by the **monopolistic groups in the society** such as labor unions and firms operating in monopolistic and oligopolistic market setting. The following are the major kinds of cost-push inflation:

1. **Wage-push Inflation:** The Strong labor unions force the money wages to go up, due to which the price increases. This kind of rise in the general price level

is called as **wage-push inflation**. The powerful and well-organized labor unions exercise their monopoly power and compel their employers to increase their wages above the competitive level irrespective of their productivity (output).

An increase in wage money brings a corresponding increase in the cost of production and this increase in the cost of production causes an aggregate supply curve to shift backward (aggregate supply decreases). A backward shift in the aggregate supply causes the prices level to go up. It is to be noted that every time a rise in the wage money is not considered to be inflationary. The following conditions supplement this:

- Increase in wage rate due to an increase in the productivity.
- Rise in wage rate due to inflation caused by other factors.
- Rise in wage where the unionized wage bill is very small.
- Wage rises due to the shortage of labor.

2. **Profit-push Inflation:** The profit-push inflation is attributed to the monopoly power exercised by the firms under the monopolistic and oligopolistic market that tries to enhance their profit margins by keeping the prices relatively high.

   The **wage-push inflation and profit-push inflation goes hand-in-hand**, which means as the labor unions force their employer to increase their wage money the cost of production also increases. And in order to meet the increased cost, the monopolistic and oligopolistic firms raise the price level often more than proportionately. This is done to enhance the profit margins of the firm. If this process of; a hike in the price of the commodity following an increase in the wage money continues, then this is called as **'profit-wage spiral.'**

3. **Supply-Shock Inflation:** This kind of cost-push inflation is caused due to an **unexpected decline in the supply** of major consumer goods and key industrial inputs. Such as the prices of food product shoots up due to a crop failure and the prices of key industrial inputs Viz. Coal, iron, steel, etc., increases because of the natural calamities, lockouts, labor strikes, etc.

   Also, the prices may rise due to the supply bottlenecks in the domestic economy or international events (generally, war), thereby restricting the movement of

internationally traded goods. As a result, the supply decreases and the import of industrial inputs increases.

❖ Measures to Control Inflation

➢ Monetary Measures to Control Inflation

The monetary measures which are widely used to control inflation are:

1. **Bank Rate Policy:** The bank rate policy is used as an important instrument to control inflation. The Bank rate, also called as the **Central Bank rediscount rate** is the rate at which the central bank buys or redsicounts the eligible bills of exchange and other commercial papers presented by commercial banks to build their reserves. Here, the central bank performs the function as **"lender of the last resort".**The bank rate policy as a monetary measure to control inflation work in two ways:

   - During inflation, **the central bank raises the interest rates due to which the borrowing costs go up**. As a result, commercial bank borrowings from the central bank reduces. With the reduced borrowings from the central bank, the flow of money from the commercial bank to the public also gets reduced. This is how the bank credit decides the extent to which the inflation is controlled.
   - The **bank rate sets the trend for general market interest rate**, specifically in the short-run. As the central bank raises the interest rate with a view to curtailing the money supply in the market, the commercial banks also raise their commercial borrowing rates for the public, thereby making the borrowings dear. Other general market rate follows the suit and with the decreased borrowing capacity of individual, the inflation is controlled due to reduced money flows to the society**.**

2. **Variable Reserve Ratio:** The variable reserve ratio, also called as the **Cash Reserve Ratio(CRR)** is a certain proportion of total demand and time deposits that the commercial banks are required to maintain in the form of cash reserves with the central bank.

   The cash reserve ratio is often determined and imposed by the central bank with a view to controlling the money supply. When the central bank raises the CRR, the lending capacity of the commercial banks reduces due to which the

flow of money from the banks to the public also decreases. Thus, it helps in controlling the rise in the price to the extent it is caused by the bank credit to the public.

3. **Open Market Operations:** The open market operations are characterized by the **sale and purchase of government securities and bonds by the central bank**. The central bank buys and sells the government securities and bonds to the public through commercial banks. The government securities are sold via commercial banks such that a certain amount of bank deposits is transferred to the central bank. As a result, the credit creation capacity of the commercial banks reduces. Thus, the flow of money from the banks to the public also gets reduced.

- **Fiscal Measures to Control Inflation**

Definition: The **Fiscal Measures to Control Inflation** is comprised of government expenditure, public borrowings, and taxation. The **Keynesian economists,** also called as **"Fiscalist"** assert that the demand-pull inflation is caused due to an excess of aggregate demand over aggregate supply.

The aggregate demand increases due to expenditure by the households, firms and government (usually excessive spending by the government). This increase in demand due to expenditure by either government or households can be effectively controlled by fiscal measures. Thus, **fiscal policy and budgetary measures** are the effective weapons to control demand-pull inflation.

In case, government expenditure is the main cause behind the demand-pull inflation, then it can be controlled by **cutting down the public expenditure**. With a cut in public expenditure, the government demand for goods and services decreases along with a decrease in the private income and consumption expenditure. In case, the demand rises due to the rise in private expenditure, **taxing income** is the most appropriate way to control inflation. The taxation on private income reduces the disposable income in hand, as a result of which the consumption expenditure also reduces. This results in the reduction in aggregate demand.

In case of a very high persistent inflation rate, the government may adopt both these measures simultaneously to control inflation. Such as along with the

reduction in public expenditure the rate of taxation shall be raised on the private income to keep the demand under control. This kind of policy of using both the measures simultaneously is called as **" Policy of Surplus Budgeting,"** which says that *"government should spend less than the tax revenue."*

Effects of Inflation:

The main effects of inflation and higher prices in India are discussed below:

(I) Effect on Production:

During inflation, the producers and businessmen gain in the short-period. Usually the cost of production does not rise as fast as the price of their product and so there is an artificial margin of profit. As against this, they may also be affected adversely in the long run. If the price level goes on increasing, the total consumption of their product would fall.

The reduced consumption will ultimately raise the cost of production per unit and reduce the profits.

1. Misallocation of Resources and Disrupted Price Mechanism:

Inflation disrupts the smoothness of price mechanism. It finally ends in mal-adjustments in production. Producers turn towards more production of luxury goods which are non-essential over essential commodities, from which they expect higher profits.

2. Hoarding:

In times of inflation, people, like traders hoard stocks of essential commodities with an idea to earn more profits in the near future. As a result, the available supply of goods in relation to increasing monetary demand, decreases. This results in black marketing, i.e., artificial scarcity of goods in the market.

3. Encourages Speculation:

A non-anticipated steep rise in prices creates a situation of uncertainty in the economy. People indulge more in speculative activities than in increasing production.

4. Lack of Quality Control:

Inflation tries to create a sellers' market. Sellers get a command on prices because of excessive demand in the market. In such conditions, the sellers overlook the quality of their goods, instead they concentrate more on earning great profits.

(II) Effect on Distribution of Income:

Inflation redistributes income because prices of all factors do not rise in the same proportion. Here, prices rise faster but incomes do not. There is an inequality in distribution of wealth. During inflation, producers and traders are the gainers. As a result, rich get richer and poor get poorer. It leads to concentration of wealth in the hands of a few rich people.

1. Effect on the Working Class:

Labour is the lowest paid class. This class is badly affected by inflation, especially if the prices of the basic necessities of life rise steeply. It adversely affects the family budget of the working class. Their consumption level goes down tolling upon their health and lowering their efficiency. It may also create unrest.

No doubt, through trade unions, workers may manage to get increased dearness allowance but this does not provide them with desired relief. Price hike generally precedes any increase in dearness allowance. In turn, the increased wages further push up the price level owing to an increased demand. A vicious circle is formed, resulting in wage-push or cost push inflation.

2. Effect on Fixed Income Groups:

This group includes pensioners, government servants, owners of government securities and promissory notes and others who get a fixed money income. They are known as renters. This class is worst affected by inflation because the purchasing power of their fixed income goes on decreasing with rising prices.

3. Effect on Debtors and Creditors:

Debtors gain when they pay back their debt during inflation. It is because the value of money was high when they borrowed but came down when they repaid their debts. As against this, the creditors are losers during inflation. However, if debtors take loans during inflationary period, the position is reversed. In that case, the debtors are losers and the creditors are gainers.

(III) Other Effects:

1. Cost Increases:
As prices increase, cost of projects both in private and public sectors goes-up. Consequently, the total outlay of each plan exceeds the one provided as per original plan yet physical targets are not fully achieved.

2. Effect on Economic Development and Reduction in Savings:
Due to rise in prices, economic development of a country has adverse effects on savings and investments.

3. Wage Spiral:
A rapid increase in prices is not suitable as workers demand more wages. Under such circumstances, wages are raised to compensate the workers. Thus, price spiral affects the economy.

4. Effect on Foreign Investment:
A rapid increase in prices has an adverse effect on the foreign investment in the country. Foreign investors do not invest their money in those countries where the value of money is falling on account of rise in prices. Value of money falls and the investors suffer losses.

5. Adverse Balance of Payment:
Price rise has an adverse effect on the export of the country. Exporters fail to increase the exports to the desired extent. Actually, our exportable become relatively expensive in the world market, resulting in the fall of export and our importable become relatively cheaper, this increases our imports.The demand for country's exports decreased and imports increased. Therefore, balance of payment continues to be unfavourable.

6. Lack of Confidence in the Currency:
Money stops functioning as money because people lose confidence in currency and do not like to hold it. In 1923, during hyperinflation in Germany people refused to accept 'Marc' as their unit of currency. Money was replaced by Barter system because people preferred goods over money.

7. Social and Moral Degradation:
Inflation leads to thefts and robberies because some people would like to get an income in undesirable ways so as to survive. Corruption breeds during inflation and moral ethical values take a down stride.

8. Effect on Political Stability:

Continued inflation results in shaking the foundation of any political system. It even results in the fall of any government.

TRADE CYCLE

Business Cycle:- The term business cycle is referred to the recurrent ups and downs in the level of economic activity that extend over a period of time. The business fluctuations occur in aggregate variable such as national income, employment and price level.

Business cycle is also called as "Trade Cycle" Business Cycle-Martin Thomas

Characteristics of Business Cycle

1. **Movement in Economic Activity :** A trade cycle is a wave-like movement in economic activity showing an upward trend and a downward trend in the economy.
2. **Periodical :** Trade cycles occur periodically but they do not show the same regularity.
3. **Different Phases :** Trade cycles have different phases such as Prosperity, Recession, Depression and Recovery.
4. **Different Types :** There are minor and major trade cycles. Minor trade cycles operate for 3-4 years, while major trade cycles operate for 4-8 years or more. Though trade cycles differ in timing, they have a common pattern of sequential phases.
5. **Duration** : The duration of trade cycles may vary from a minimum of 2 years to a maximum of 12 years.
6. **Dynamic :** Business cycles cause changes in all sectors of the economy. Fluctuations occur not only in production and income but also in other variables like employment, investment, consumption, rate of interest, price level, etc.
7. **Phases are Cumulative :** Expansion and contraction in a trade cycle are cumulative, in effect, i.e. increasing or decreasing progressively.

8. **Uncertainty to businessmen :** There is uncertainty in the economy, especially for the businessmen as profits fluctuate more than any other type of income.
9. **International Nature :** Trade Cycles are international in character. For e.g. Great Depression of 1930s.

➢ Types of Business Cycle

1. The Minor Cycle:-This is also known as Short Kitchin Cycle. This has gained popularity after the name of the British economist Joseph Kitchin in the year 1923. He made a research and came to this conclusion that a cycle takes place within duration of approximately 30 to 40 months.

2. The Major Cycle:-This has been emphasised as the fluctuation of business activity between successive crises. This is also known as "The Long Jugler Cycle." A French economist Clement Jugler showed that the periods of prosperity, crisis and liquidation followed each other always within a span of the average of nine and half years.

3. The Very Long Period Cycle:-This is also known as Kondratieff Cycle. This was propounded by N. D. Kondratieff the Russian economist in the year 1925. He has written that there are longer waves of cycles of more than fifty years duration.

4. Kuznets Cycle:-This type of business cycle was propounded by the famous American economist Professor Simon Kuznet. His view was that the secular swing of the cycle generally occurs in between 7 to 11 years and this can show effect within that period.

5. Building Cycles:-Such cycles are associated with the name of two American economists namely Warren and Pearson. They expressed their views in World Prices and the Building Industry book in the year 1937. Their view was that business cycle occurs in the duration of an average of 18 years and the cost of such cycle has major effect on building construction and on the industrial development.

Phases of Business Cycle

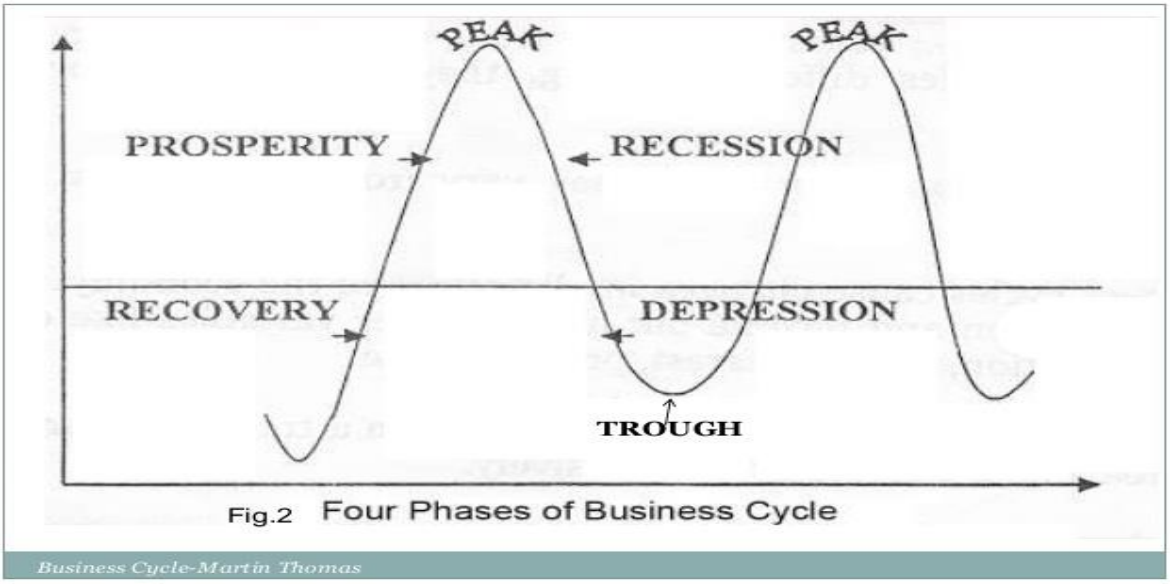


Fig.2 Four Phases of Business Cycle

Business Cycle-Martin Thomas

1. **Prosperity:** Expansion & Peak When there is an expansion of output, income, employment, prices and profits, there is also a rise in the standard of living. This period is termed as Prosperity phase.

    - Rise in the national output & trade
    - Rise in consumer and capital expenditure
    - Rise in the Price of raw materials and finished goods
    - Rise in the level of income & employment Business Cycle-Martin Thomas.

2. **Recession & Turning Point** During a recession period, the economic activities slow down. When demand starts falling, the overproduction and future investment plans are also given up. There is a steady decline in the output, income, employment, prices and profits. Business Cycle-Martin Thomas

3. Depression & Trough When there is a continuous decrease of output, income, employment, prices and profits, there is a fall in the standard of living and depression sets in.

During the phase of Depression:

- The growth rate become negative
- The level of national income and expenditure declines
- Price of consumer and capital goods decline
- Workers lose their job Business Cycle-Martin Thomas

4. Recovery Phase As the recovery gathers momentum, some firms plan additional investment; some undertake renovation programmes, and some undertake both. These activities generate construction activities in both consumer & capital goods sector. As a result more employment is generated and wage rates moving upward. Business Cycle-Martin Thomas.

➢ Causes of Business Cycle

❖ External Factors of Business Cycle

1. Wars. In war days all the available resources are utilized for the production of weapons which greatly affect the product of both capital and consumer goods. This fall in production decreases income, profits which further create unemployment. These create contraction in the economic activity.

2. Postwar Period. In the post war period the level of consumption and investment goes upward. Both the government and individuals involve the construction (houses, roads, bridges etc). All these activities increases the effective due to which the economic variables, output, income and employment goes upward.

3. Scientific Development. Another cause of business cycle is scientific development. Every day new products come to the markets like mobile phone, laptops etc. These products require huge amount of investment through which new technology of production is adopted. All this increases income, employment and profit etc. and plays an important part in the revival of economy.

4. Gold Discoveries. The discoveries of gold and mines stimulate the volume of international trade and help in adjusting trade deficit, loans etc. the rising income lead to expansion in economic activity.

5. Surplus, Exports and Foreign Aid. Surplus, exports and foreign aid raises the level of consumption and investment spending which helps in increasing output, income and employment level.

6. Weather. Weather is one of the causes of business cycle. It is an important factor which can cause economic activities. If in any year, weather is good the output of agricultural sector will goes upward.

7. Population Growth Rate. Population growth rate is one the factors of business cycle. If the population growth rate is higher than the economic growth rate, income level and consumption expenditure and savings will be low.

❖ Internal Factors of Business Cycle

Internal causes of business cycle are those, which are built in within economic system. These are the internal factors of business cycle:

1.Psychological Factors. According to Pigou business cycle appears because of the optimistic and pessimistic mood of the entrepreneur. When entrepreneurs are in optimistic about future market conditions they take up investment. Here the expanses phase of business cycle starts which ultimately ends in a boom.

On the contrary, the pessimism reduces investment, production, employment and shifts to downward trend in business activity.

2.Money Supply. Hawtrey and Friendman relate trade cycle to fluctuation in money and credit supply. If there is expansion in money and credit supply, there will be raise in economic activity. If there is contraction there will be down fall in economic activity.

3.Over Investment. Hayek relates business cycle to variation in capital goods industries. Excessive investment in capital goods industries brings upswing and downswing when there is a fall in investment.

4.Marginal Efficiency of Capital (MEC). According to Keynes changes in the rate of marginal efficiency of capital are responsible for business cycle. When

the rate of marginal efficiency of capital gets higher the expansion phase of trade cycle commences. There is a contraction phase when the rate of marginal efficiency of capital is lower.

- **Measures to Control Business Cycles or Stabilisation Policies:**

Various measures have been suggested and put into practice from time to time to control fluctuations in an economy. They aim at stabilising economic activity so as to avoid the ill-effects of a boom and a depression. The following three measures are adopted for this purpose.

1. Monetary Policy:

Monetary policy as a method to control business fluctuations is operated by the central bank of a country. The central bank adopts a number of methods to control the quantity and quality of credit. To control the expansion of money supply during a boom, it raises its bank rate, sells securities in the open market, raises the reserve ratio, and adopts a number of selective credit control measures such as raising margin requirements and regulating consumer credit. Thus the central bank adopts a dear money policy. Borrowings by business and trade become dearer, difficult and selective. Efforts are made to control excess money supply in the economy.

To control a recession or depression, the central bank follows an easy or cheap monetary policy by increasing the reserves of commercial banks. It reduces the bank rate and interest rates of banks. It buys securities in the open market. It lowers margin requirements on loans and encourages banks to lend more to consumers, businessmen, traders, etc.

- **Limitations of Monetary Policy:**

But monetary policy is not so effective as to control a boom and a depression. If the boom is due to cost- push factors, it may not be effective in controlling inflation, aggregate demand, output, income and employment. So far as depression is concerned, the experience of the Great Depression of 1930s tells us that when there is pessimism among businessmen, the success of monetary policy is practically nil.

In such a situation, they do not have any inclination to borrow even when the interest rate is very low. Similarly, consumers who are faced with reduced incomes and unemployment cut down their consumption expenditure. Neither the central bank nor the commercial banks are able to induce businessmen and consumers to raise the aggregate demand. Thus the success of monetary policy to control economic fluctuations is severely limited.

1.. Fiscal Policy:

Monetary policy alone is not capable of controlling business cycles. It should, therefore, be supplemented by compensatory fiscal policy. Fiscal measures are highly effective for controlling excessive government expenditure, personal consumption expenditure, and private and public investment during a boom. On the other hand, they help in increasing government expenditure, personal consumption expenditure and private and public investment during a depression.

2.Policy during Boom:

The following measures are adopted during a boom. During a boom, the government tries to reduce unnecessary expenditure on non-development activities in order to reduce its demand for goods and services. This also puts a check on private expenditure which is dependent on the government demand for goods and services. But it is difficult to cut government expenditure. Moreover, it is not possible to distinguish between essential and non-essential government expenditure. Therefore, this measure is supplemented by taxation.

❖ Important Questions:-

➢ Short Questions (2marks):-

Q1:- Money
Q2:- National Income
Q3:- inflation
Q4:- Trade Cycle
Q5:- Aggregate demand
Q6:- Investment Multiplier

Q7:- Foreign Trade
Q8:- Liquidity preference
Q9:- unemployment
Q10:- What is Near Money?
Q11:- What is meant by quantity theory of Money?
Q12:- Define the concept of supply of money.
Q13:- GDP
Q14:- Uses of money?
Q15:- Explain Inside money and outside money?
Q16:- Re-statement of Quantity Theory of money?

➢ Long Questions (10marks):-

Q1. Define Business Cycle? Discuss the various phases and types of business cycle?

Q2. Explain the features of Multiplier. Show it's forward and backward working. What are its main limitations?

Q3. What are the leakages of multiplier?

Q4. Distinguish between static multiplier and dynamic multiplier. Explain them with the help of appropriate graphs?

Q5. Write the detailed note on Foreign Trade Multiplier?

Q6. What is Inflation? Discuss its Theories of Inflation & How to control it?

Q7. What are causes of Inflation? Critically examine the effects of Inflation on different sections of society.

Q8. What is inflation? Distinguish between demand-pull inflation and cost-push inflation. Suggest measures to control cost-push inflation.

Q9. Explain the various types of Unemployment in India? Suggest some measures to overcome the problem of unemployment.

Q10. What are the methods of measuring national income? What conceptual problems arise in estimating national income?

Q11. What is the income method of estimation of national income? What precautions should be taken while using income method?

Q12. Define Money? Discuss its functions, types & limitations of money?

Q13. Examine the liquidity preference theory of Interest. What are its main defects?

Q14. Explain Cambridge cash balance approach of the quantity theory of money. How does it differ from the Fisher's transactions approach?

Q15. Explain measures to control money supply in the economy.

Q16. What is the income method of estimation of national income? What precautions should be taken while using income method?

Last page

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