Class:-MBA- 1stSemester

MANAGERIAL ECONOMICS

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MBA- Part-I Sem-I
104 - Managerial Economics

Course Overview

The main objective of this course is to understand the use of the tools of economic analysis in classifying problems, in organizing and evaluating information and in comparing alternative course of action. At the end of the course, the students should be able to- (1) Identify different economic factors and their Importance (2) understand the role played by these economic factors in organization`s decision-making.

Course Content

Group-I:

Managerial Economist's Role and Responsibilities. Demand Theory and Analysis including Determinants of Demand. Demand Elasticity's - Price, Income, Cross and Advertising; Their use in Managerial Decision Making. Marginal Utility Analysis, Demand Forecasting: Methods and their Application. Market Mechanism: Interaction of Demand and Supply Forces. Production Analysis, Cost Analysis: Cost Concepts and Determinants of Cost, Revenue Concepts.

Group-II:

Pricing under different market structures: Perfect Competition, Monopoly, Oligopoly and Monopolistic Market Structure. Role of Macro Economics for managerial Decision-making. Different Economic Systems, Concept of National Income: GDP, GNP,GDP (at Market price) Investment Multiplier, Concept of Inflation, Business cycles.

Note: students will receive an input of minimum 40 (class) contact hours in each paper. In addition, students are also required to undertake a variety of practical assignments and group work under the supervision of faculty in every paper.

Pedagogy:-The instructor is expected to use leading pedagogical approaches in the class room situation. Research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.
The instructor of the class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings, encouraging in the class discussions, and live project based learning.

Case/Class Discussion Assignments:
Students will work in groups of upto four to prepare a brief write-up, due before the start of each class, covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem, facing the decision-maker in the case.

Class Participation:
Attendance will be taken in each class. Class participation is scored for each student for each class.

Recommended Texts and Readings: Students should focus on material presented in lectures. The text should be used to provide further explanation and examples of concepts and techniques discussed in the course:

- Edwin Mansfield, W. Bruce Allen, Neil A. Doherty, Keith Weigelt, Managerial Economics: Theory, Application and Cases, W. W. Norton & Co. Inc., 5th Edition.
- David Begg, Stanley Fisher, RudigeerDovrbusch, Economics, McGraw-Hill Book Company Limited (U.K.).
- W.W. Haynes, V.L. Mote and S. Paul, Managerial Economics: Analysis and Cases, Feffers and Simons Pvt. Ltd., Bombay.

- Michael Bays; Mote, Paul and Gupta, Managerial Economics: Concepts and Cases, Tata McGraw-Hill Publishing Company Limited, New Delhi, 34th Edition.
- Joel Dean, Managerial Economics, Prentice-Hall of India Pvt. Ltd., New Delhi, 1998.
- Ravindra H. Dholakia, Microeconomics for Management Students, Oxford University Press, Delhi, 2007.

Scheme of Examination:

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each semester as per the Academic Calendar notified in advance.
- This course carries 100 marks of which 50 marks shall be reserved for internal assessment and the remaining 50 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The internal assessment marks shall be based on factors such as: (a) Mid-term test (20 marks), Submission of written assignments (20marks), and Participation in case studies/ discussion, and group activities (10 marks), The weightage given to each of these factors shall be decided and announced at the beginning of the semester by the individual teacher responsible for the paper, and the marks obtained shall be made open to the students and also shown separately in the mark-sheet
- The minimum number of marks required to pass a paper shall be 40% in the external examination and 40% in the aggregate of internal and external examination in each paper. There is no pass percentage for internal part of the assessment.
- A minimum of 75% of classroom attendance is required in each subject.

As per RUSA Scheme the syllabus is divided into two parts Group-I & II. **The instructions for external examiners** would be as follows:-

- "The external paper will carry 50 marks and would be of three hours duration. The question paper will be divided into three groups i.e., I, II, III. The question paper will consist of four questions each in group I and II. Each question in these groups carries 7.5 marks. Candidates will be required to attempt four questions in all selecting not more than two questions from each of these group. The IIIrd group shall comprise compulsory question carrying 4 short answer questions (2 from each group) and will carry 20 marks (5 marks for each question)."

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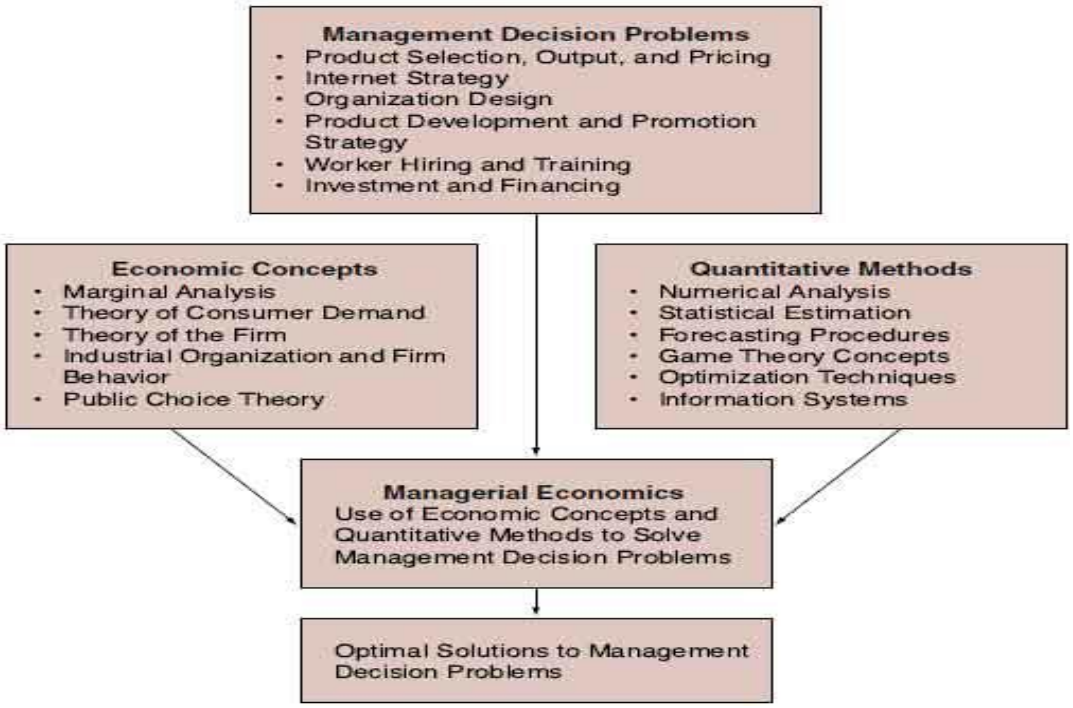
14	Concept of National Income: GDP, GNP,GDP (at Market price)
15	Investment Multiplier
16	Concept of Inflation
17	Business cycles.
18	Important Question/ Answers

GROUP-I

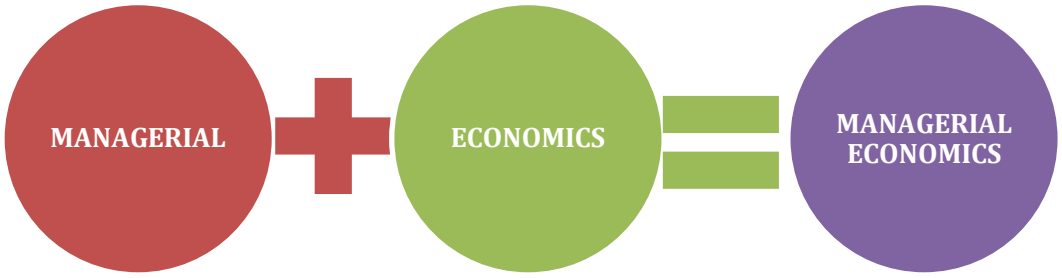
MANAGERIAL ECONOMICS

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

Managerial Economics may be defined as the study of economic theories, logic and methodology which are generally applied to seek solution to the practical

problems of business. Managerial Economics is thus constituted of that part of economic knowledge or economic theories which is used as a tool of analysing business problems for rational business decisions. Managerial Economics is often called as Business Economics or Economic for Firms.

❖ Definition of Managerial Economics:-

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

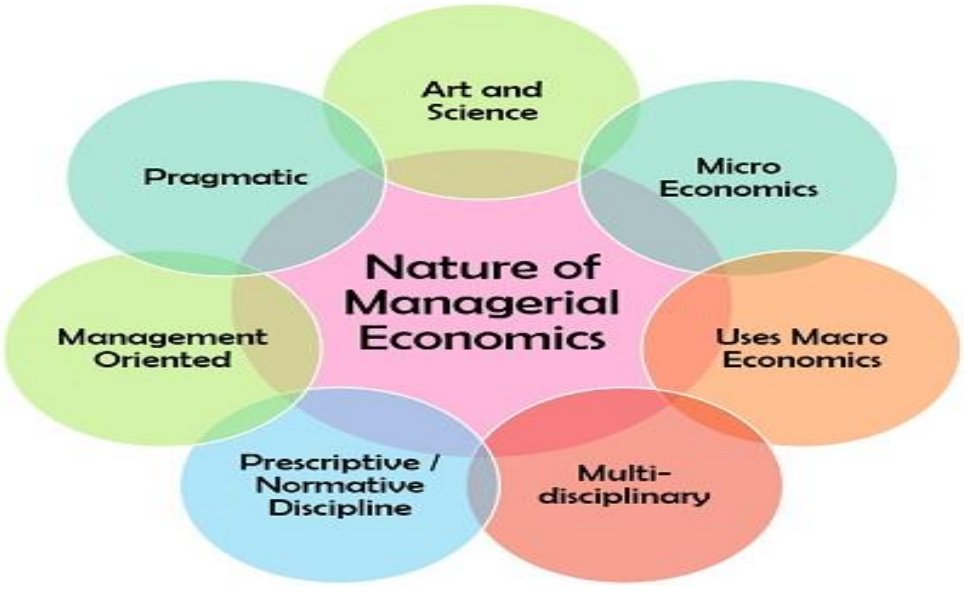
"Business Economics consists of the use of economic modes of thought to analyse business situations." - ***McNair*** **and** ***Meriam***

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

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

❖ NATURE OF MANAGERIAL ECONOMICS

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



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

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

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

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

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

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

❖ SCOPE OF MANAGERIAL ECONOMICS

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

1. **Analysis and Forecasting:** A business firm is an economic organisation which is engaged in transforming productive resources into goods that are to be sold in the market. A major part of managerial decision making depends on accurate estimates of demand. A forecast of future sales serves as a guide to management

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

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

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

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

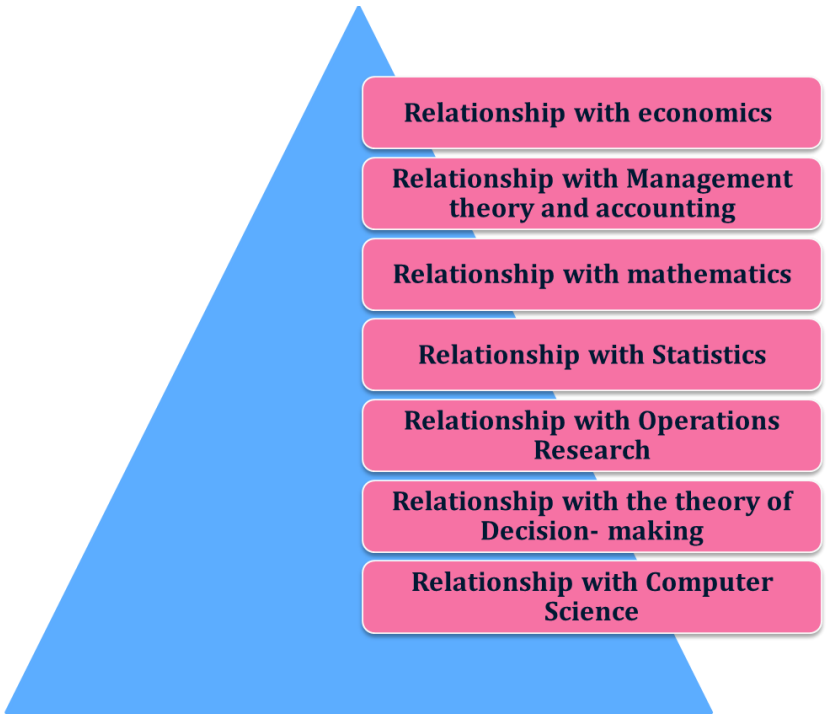
5. Capital management: The problems relating to firm's capital investments are perhaps the most complex and troublesome. Capital management implies planning and control of capital expenditure because it involves a large sum and moreover the problems in disposing the capital assets off are so complex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

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

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

❖ MANAGERIAL ECONOMICS IN RELATION WITH OTHER DISCIPLINES

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



1. Managerial Economics and Economics:

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

Micro-economics:-'Micro' means small. It studies the behaviour of the individual units and small groups of units. It is a study of particular firms, particular households, individual prices, wages, incomes, individual industries and particular commodities. Thus micro-economics gives a microscopic view of the economy.

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

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

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

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

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

2. Managerial Economics and Theory of Decision Making:

The theory of decision making is relatively a new subject that has a significance for managerial economics. In the process of management such as planning, organising, leading and controlling, decision making is always essential. Decision making is an integral part of today's business management. A manager faces a number of problems connected with his/her business such as production, inventory, cost, marketing, pricing, investment and personnel.

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

3. Managerial Economics and Operations Research:

Mathematicians, statisticians, engineers and others join together and developed models and analytical tools which have grown into a specialized subject known as operation research. The basic purpose of the approach is to

develop a scientific model of the system which may be utilized 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 maximization is the major objective of the firm.

6. Managerial Economics and Mathematics:

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

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

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

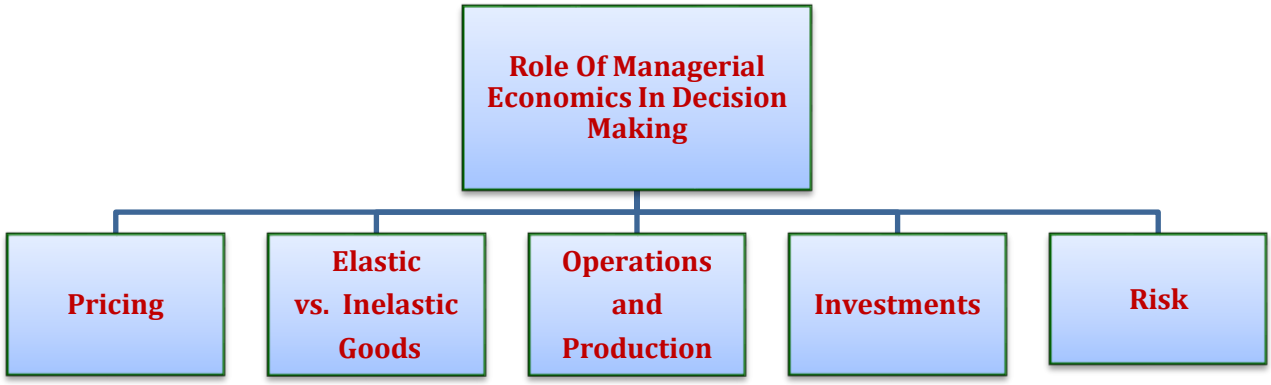
❖ MANAGERIAL ECONOMICS IN DECISION MAKING.

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

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

❖ ROLE OF MANAGERIAL ECONOMICS IN DECISION MAKING

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



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

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

3) Operations and Production:- Managerial economics uses quantitative methods to analyze production and operational efficiency through schedule optimization, economies of scale and resource analyses. Additional analysis methods include marginal cost, marginal revenue and operating leverage. Through tweaking the operations and production of a company, profits rise as costs decline.

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

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

❖ MANAGERIAL DECISION MAKING PROCESS (5 STEPS)

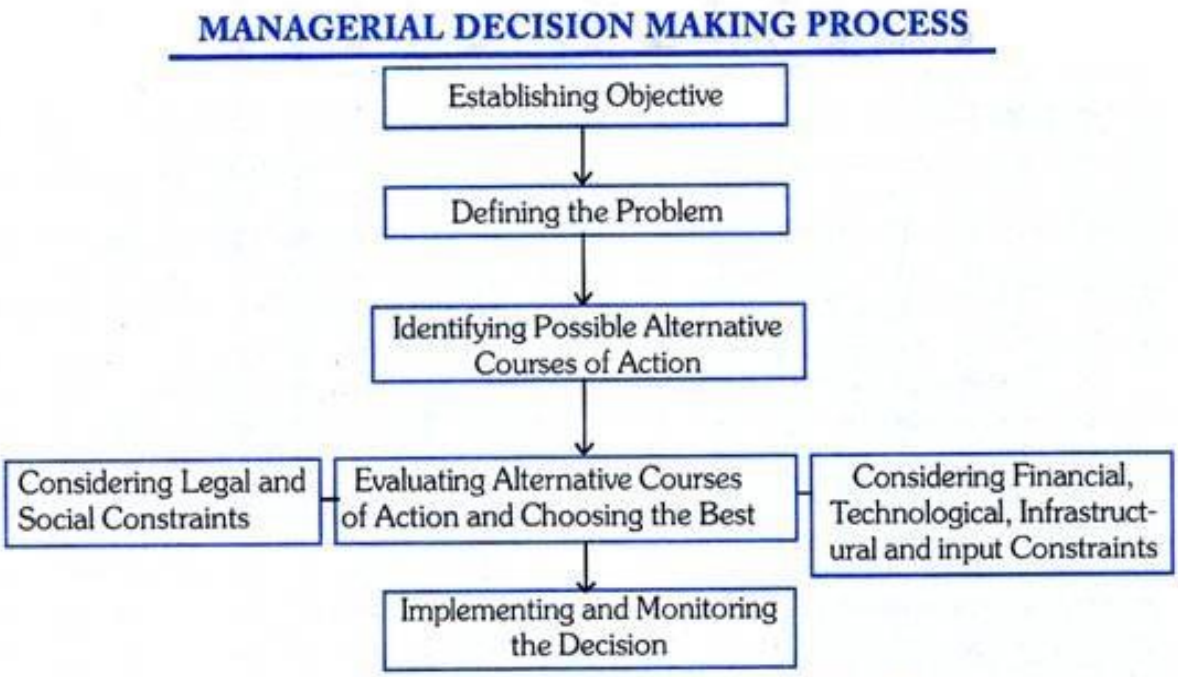


Fig. 1.2. *Managerial Decision Making Process : Various Steps*

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

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

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

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

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

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

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

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

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

- **The two possible solutions of the problem are:**

(1) Updating and replacing only the old machinery.
(2) Building entirely a new plant equipped with latest machinery.

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

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

The data and information so obtained can be used to evaluate the outcome or results expected from each possible course of action. Methods such as regression analysis, differential calculus, linear programming, cost- benefit

analysis are used to arrive at the optimal course. The optimum solution will be one that helps to achieve the established objective of the firm. The course of action which is optimum will be actually chosen. It may be further noted that for the choice of an optimal solution to the problem, a manager works under certain constraints.

The constraints may be legal such as laws regarding pollution and disposal of harmful wastes; 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 RESPONSIBILITIES OF MANAGERIAL ECONOMIST

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

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

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

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

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

(ii) To develop personal relations:- To collect information he should develop personal relations with those having specialized 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."

DEMAND

❖ MEANING OF 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 characteristics 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.

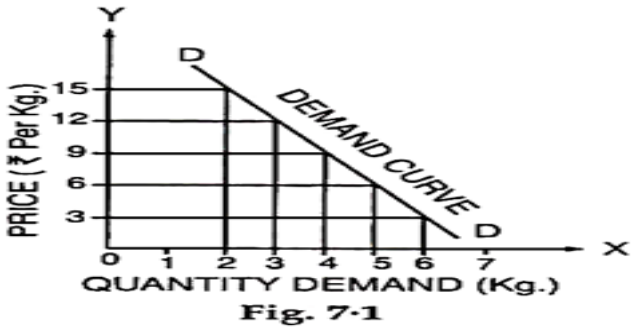


Fig. 7·1

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.

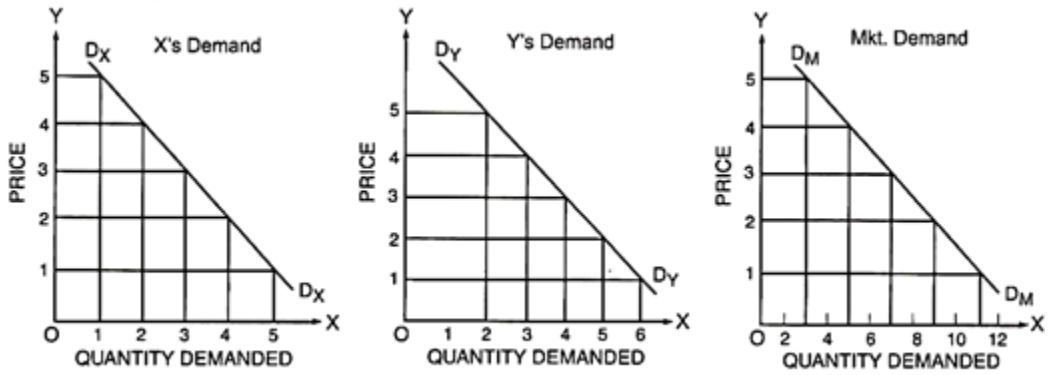


Fig. 7·2 Market Demand Curve

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.

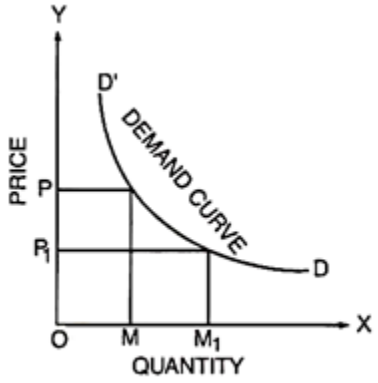


Fig. 7·3

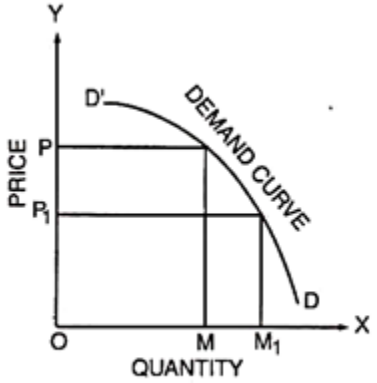


Fig. 7·4

❖ 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

1. ***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.
2. ***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 dozen when the price is $4 per dozen. A person generally buys more at a lower price. He buys less at higher price. It is not the case with one person but all people liken to buy more due to fall in price and vice versa. This is true for all commodities and under all conditions. The economists call it as **law of demand**. In simple words the law of demand states that other things being equal more will be demanded at lower price and lower will be demanded at higher price.

❖ Definition

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

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

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

❖ ASSUMPTIONS OF THE LAW

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

❖ EXPLANATION OF THE LAW

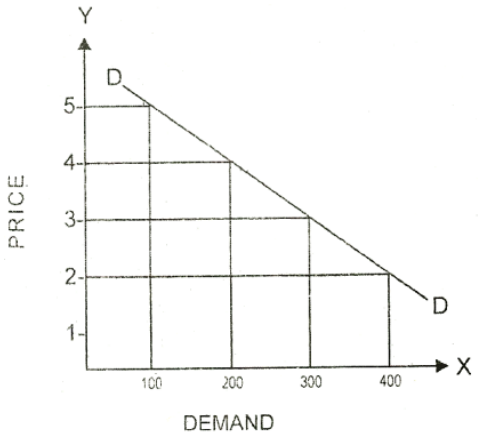
The relationship between price of a commodity and its demand depends upon many factors. The most important factor is nature of commodity. The demand schedule shows response of quantity demanded to change in price of that commodity. This is the table that shows prices per unit of commodity ands amount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

❖ DEMAND SCHEDULE

Price in dollars.	Demand in Kg.
5	100
4	200
3	300
2	400

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

❖ DIAGRAM



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

❖ TYPES OF DEMAND FUNCTION

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

1. Individual Demand Function
2. Market Demand Function

1. Individual Demand Function

Individual demand function refers to the functional relationship between demand made by an individual consumer and the factors affecting the individual demand. It shows how demand made by an individual in the market is related to its determinants.

Mathematically, individual demand function can be expressed as,

Dx= f (Px, Pr, Y, T, F)
Where,
Dx= Demand for commodity x;.
Px= Price of the given commodity x;
Pr= Price of related goods;

Y= Income of the individual consumer;
T= Tastes and preferences;
F= Expectation of change in price in the future.

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

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

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

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

5] Expectation of change in price in the future:- If the price of the commodity is expected to rise in the future, the consumer will be willing to purchase more of the commodity at the existing price. However, if the future price is expected to fall, the demand for that commodity decreases at present.

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

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

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

2. Market Demand Function

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

Mathematically, market demand function can be expressed as,

Dx= f (Px, Pr, Y, T, F, Po, S, D)
Where,
Dx= Demand for commodity x;
Px= Price of the given commodity x;
Pr= Price of related goods;
Y= Income of the individual consumer;
T= Tastes and preferences;
F= Expectation of change in price in the future;
Po= Size and composition of population;
S= Season and weather;
D= Distribution of income.

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

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

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

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

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

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

❖ WHY DEMAND CURVE FALLS

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

2] Price effect:- When there is increase in price of commodity, the consumers reduce the consumption of such commodity. The result is that there is decrease in demand for that commodity. The consumers consume 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

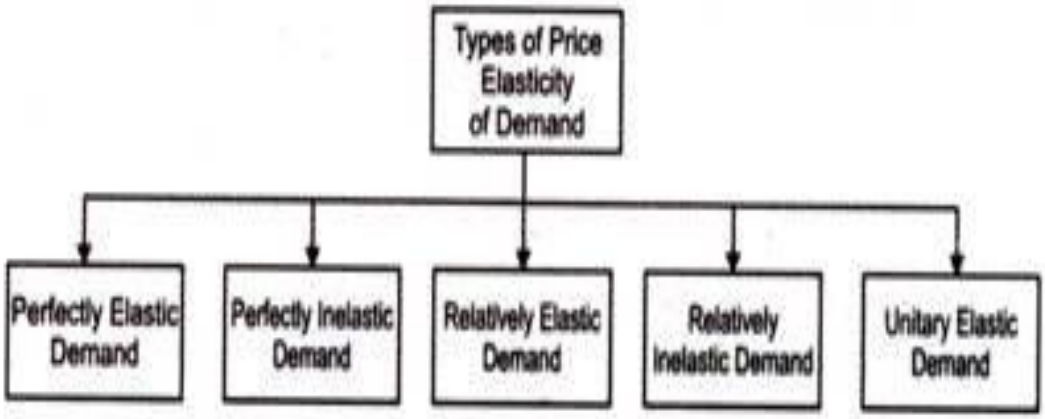


Figure-1: Different Types of Price Elasticity of Demand

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:

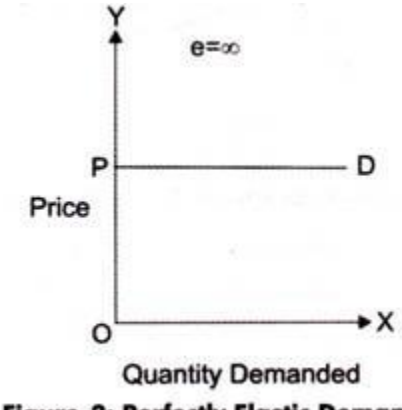


Figure-2: Perfectly Elastic Demand

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:

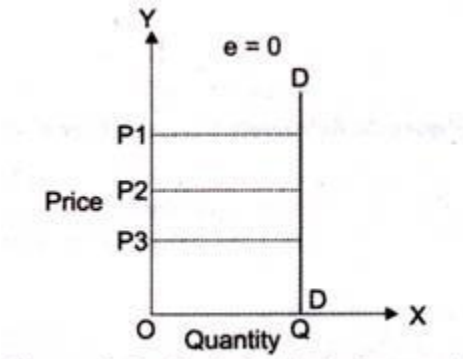


Figure-3: Perfectly Inelastic Demand

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:

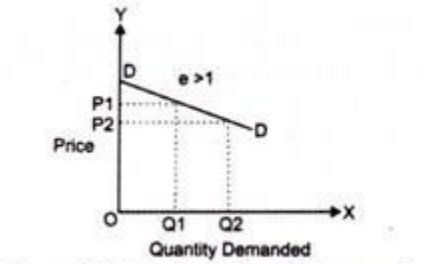


Figure-4: Relatively Elastic Demand

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:

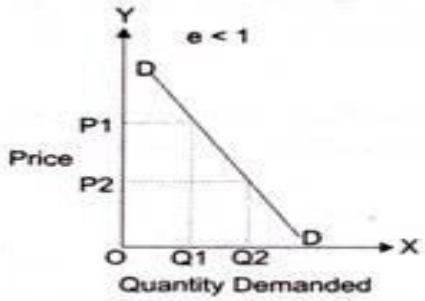


Figure-5: Relatively Inelastic Demand

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:

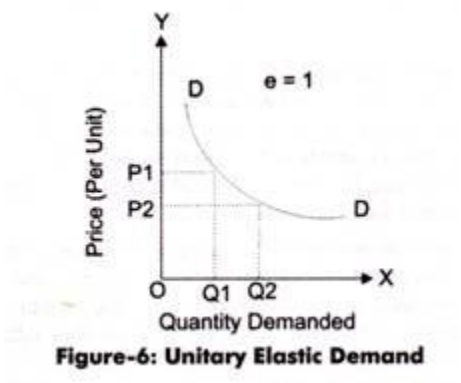


Figure-6: Unitary Elastic Demand

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**
$e_p = \infty$	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.

2. 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**

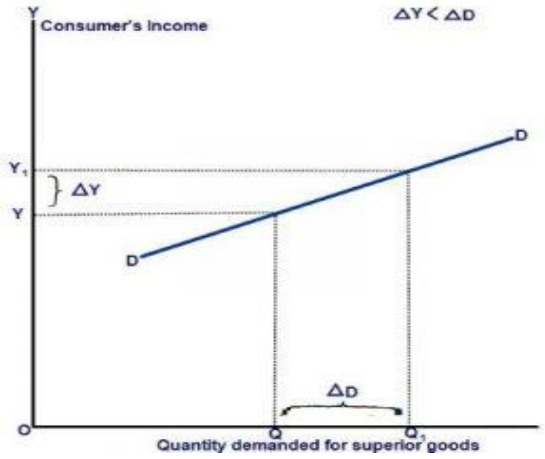
1. Positive income elasticity of demand (E_Y>0)

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:

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

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

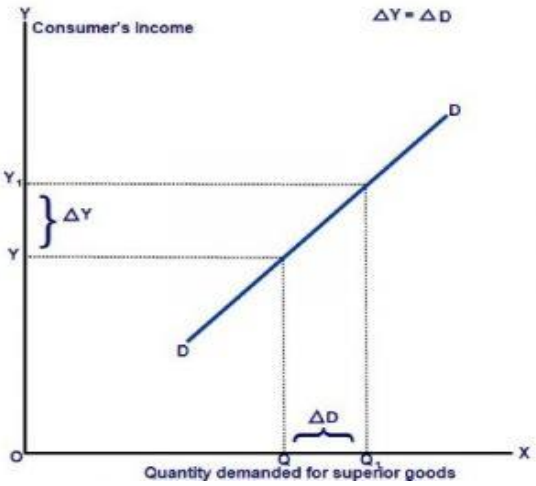


In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The small rise in income from **OY** to **OY_1**

has caused greater rise in the quantity demanded from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows income elasticity greater than unity.

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

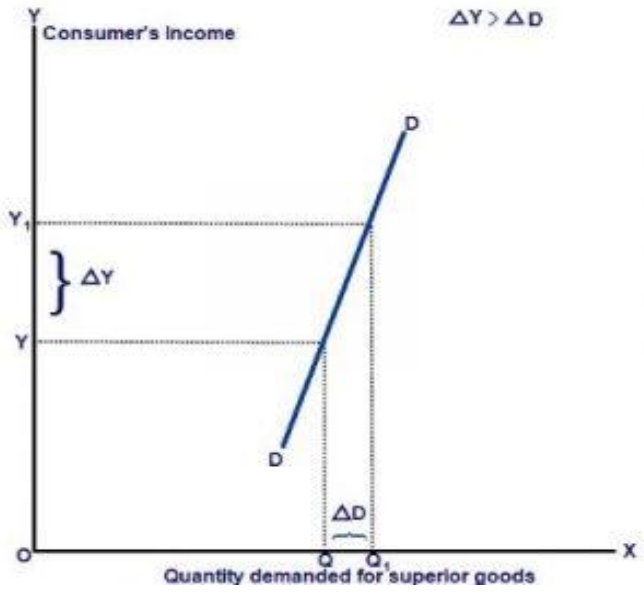
If the percentage change in quantity demanded for a commodity is equal to percentage change in income of the consumer, it is said to be income elasticity equal to unity. For example: When the consumer's income rises by 5% and the demand rises by 5%, it is the case of income elasticity equal to unity.



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

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

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

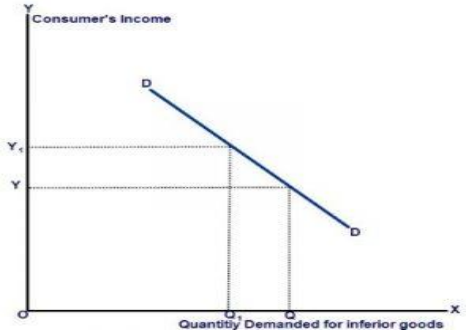


In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The greater rise in income from **OY** to **OY_1** has caused small rise in the quantity demanded from **OQ** to **OQ_1** and vice versa. Thus, the demand curve **DD** shows income elasticity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

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

If there is inverse relationship between income of the consumer and demand for the commodity, then income elasticity will be negative. That is, if the quantity demanded for a commodity decreases with the rise in income of the consumer and vice versa, it is said to be negative income elasticity of demand. For example:

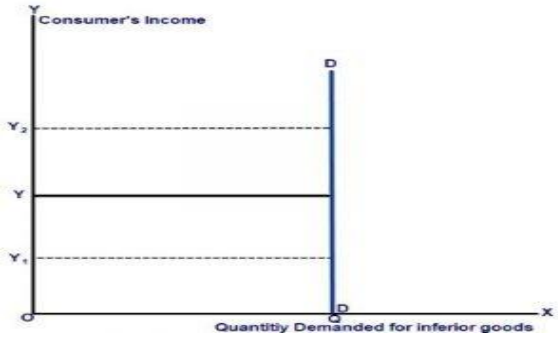
As the income of consumer increases, they either stop or consume less of inferior goods.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. When the consumer's income rises from **OY** to **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.

3. 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.

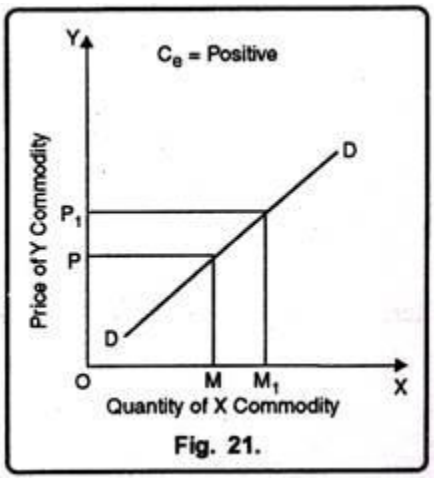


Fig. 21.

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.

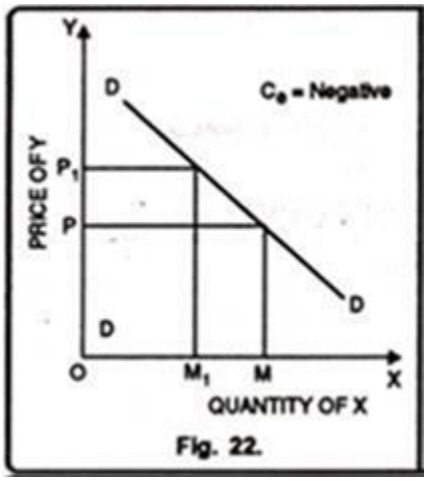


Fig. 22.

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.

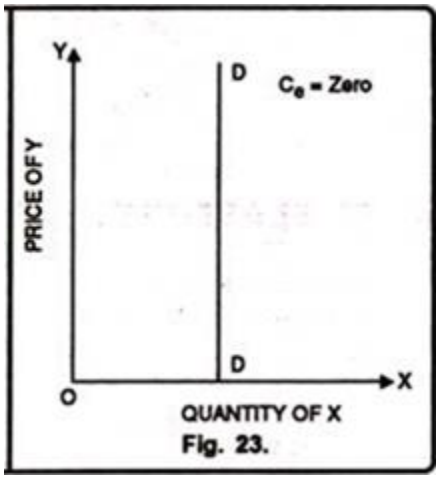


Fig. 23.

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

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

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

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

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

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

MARGINAL UTILITY ANALYSIS

- **MARGINAL UTILITY ANALYSIS**

Before we begin, let's understand the meaning of two important terms – total utility and marginal utility

- **Total Utility or Full Satiety** – is the sum of utility derived from different units of a commodity consumed by a consumer.

  Therefore, Total Utility = the sum total of all marginal utility.

- **Marginal Utility or Marginal Satiety** – is the additional utility derived from the consumption of an additional unit of a commodity. Therefore, **Marginal Utility = the addition made to the Total Utility by consuming one more unit of a commodity**.

- **ASSUMPTIONS OF MARGINAL UTILITY ANALYSIS**

1] The Cardinal Measurability of Utility:- This theory states that utility is a cardinal concept. In other words, it is measurable and quantifiable. Hence, you can say that you derive a utility of 10 units from consuming 1 unit of commodity A and 5 from consuming 1 unit of commodity B. This can help you compare different commodities and analyze which commodity offers better utility or satisfaction.

The theory further states that money is the measuring rod of utility. So, the amount of money that you are willing to spend for a unit of commodity rather than going without it is the measure of utility that you derive from the said commodity.

2] The constancy of the Marginal Utility of Money:- The second assumption is that when you are spending money on a commodity, the marginal utility of money remains constant throughout. This facilitates the measurement of the utility of commodities in terms of money.

3] The Hypothesis of Independent Utility:- This theory ignores the complementarily between goods. It states that the total utility that you get from a collection of goods is a simple sum total of the separate utilities of each good.

- **THE LAW OF DIMINISHING MARGINAL UTILITY**

This is an important law under Marginal Utility Analysis. Alfred Marshall, British Economist defines the law of diminishing marginal utility as follows:

"The additional benefit which a person derives from a given increase in the stock of a thing diminishes with every increase in the stock that he already has."

This law is based on the fundamental tendency of human nature. Human wants are virtually unlimited. However, every single want is satiable. Hence, as we consume more and more units of a good, the intensity of our want for the good decreases. Eventually, it reaches a point where we no longer want it.In other words, as we consume more units of a good, the extra satisfaction that we derive from the extra unit keeps falling. However, it is important to remember that the marginal utility declines NOT the total utility.

An Illustration:- Let us see an example. The table below presents the total and marginal utility derived by Peter from consuming cups of tea per day.

Quantity of Teas	Total Utility	Marginal Utility
1	30	30
2	50	20
3	65	15
4	75	10
5	83	8
6	89	6
7	93	4
8	96	3
9	98	2
10	99	0
11	95	-4

As seen in the table above, when Peter consumes one cup of tea in a day, he derives a total utility of 30 utils (unit of utility) and a marginal utility of 30 utils. When he takes two cups per day, the total utility rises to 50 utils but the marginal utility falls to 20. This trend continues until the last row where the marginal utility is negative. This means that if Peter consumes 11 or more cups of tea per day, then he might fall sick. Here is a graph representing the table:

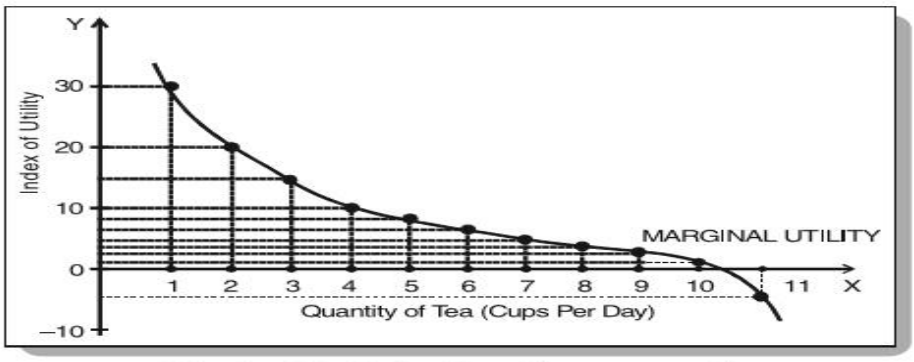


Fig. 1 : Marginal utility of tea consumed

❖ RELATIONSHIP BETWEEN TOTAL AND MARGINAL UTILITY

1. As the total utility rises, the marginal utility diminishes
2. When the total utility is maximum, the marginal utility is zero.

3. As the total utility starts diminishing, the marginal utility becomes negative.

This law helps us understand how a consumer reaches equilibrium in case of a single commodity. Typically, a consumer utilizes a commodity until its marginal utility becomes equal to the market price. This ensures that he derives maximum satisfaction by being in equilibrium in respect of the quantity of the commodity.

In case of a fall in the price of the commodity, the equality between marginal utility and price gets disturbed. Therefore, the consumer will consume more units of the good leading to a fall in the marginal utility. He continues consuming until the equilibrium is achieved. On the other hand, in case of a rise in the price of the commodity, he will consume less and achieve equilibrium too.

❖ LIMITATIONS OF THE LAW

The law of diminishing marginal utility applies only under certain assumptions:

1. ***Homogeneous units*** **–** The different units of a commodity are identical in all respects. The income, taste, temperament, habit, etc. of the consumer also remains unchanged.
2. ***Standard units of consumption*** **–** The units of consumption consist of standard units. If a man is thirsty, then water should be given in units of a glass. If you give him a spoonful of water, then the second spoon would conceivably have higher utility than the first.
3. ***Continuous consumption*** **–** There is a continuous consumption of units. That is, there is no gap between the consumption of two units.
4. ***Not applicable to prestigious goods*** **–** The law does not apply to prestigious goods like gold, cash, etc. where a greater quantity can increase the lust for it.
5. ***Related goods*** **–** If you don't have sugar, then you will consume less tea. Hence, the utility of goods can be affected by the absence of related goods.

DEMAND FORECASTING

❖ MEANING OF DEMAND FORCASTING

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.

❖ FACTORS AFFECTING DEMAND FORECASTING

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

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

1. **Price of Goods**: Demand estimation is highly 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.
2. **Type of Goods**: The type of commodity, its features and usability determines the customer base it is going to cater. The demand for existing

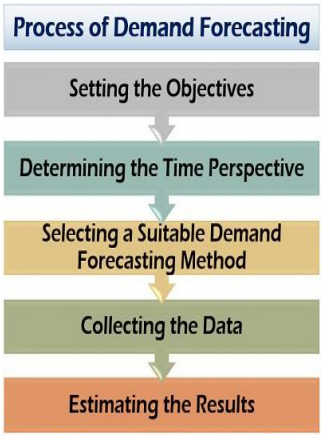
goods can be easily estimated by following the previous sales trend, competitors' analysis and substitutes available. Whereas, the demand for a new product on the market is difficult to predict.

3. **Competition**: The level of competition in the market supports the process of demand forecasting. It is easy to predict sales in a less competitive market whereas the same becomes difficult in a market where the new firms can freely enter.
4. **Technology**: The demand for any product or service changes drastically with the advancement in technology. Therefore, it is essential for an organization to be aware of technological development while forecasting the demand for any commodity.
5. **Economic Perspective**: Being updated with economic changes and growth is necessary for demand forecasting. It assists the organisation in preparing for future possibilities and analysing the impact of economic development on sales.

❖ PROCESS OF DEMAND FORECASTING

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

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



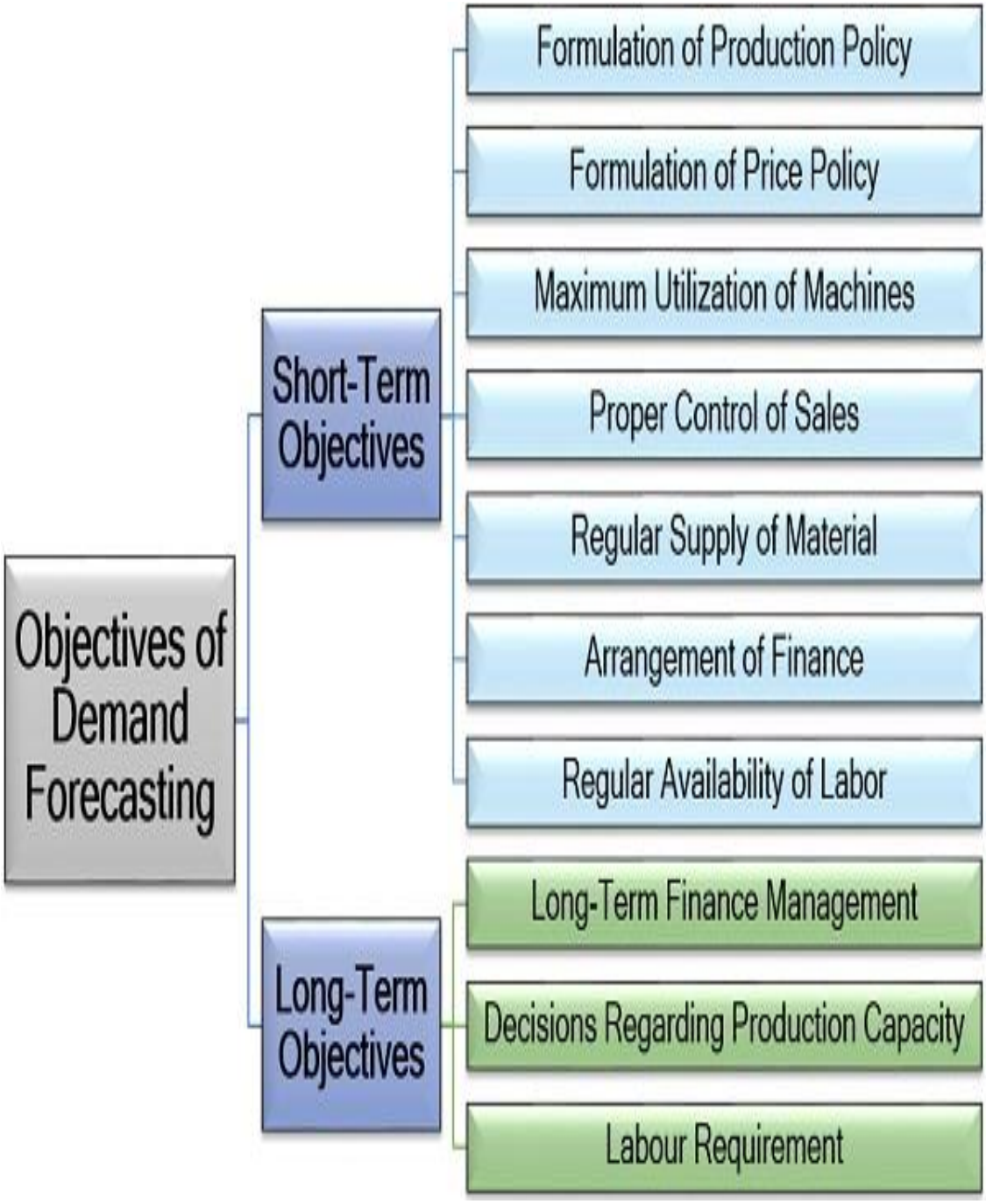
1. **Setting the Objectives**: The purpose for which the demand forecasting is being done, must be clear. Whether it is for short-term or long-term, the market share of the product, the market share of the organization, competitors share, etc. By all these aspects, the objectives for forecasting are framed.

2. **Determining the Time Perspective**: The defined objectives are supported by the period for which the forecasting is being done. The demand for a commodity varies with the change in its determinants over the period.
   There is a negligible change in price, income or other factors in the short run. But, the organization may notice a considerable difference in these determinants over a long-term, affecting the demand of a commodity.
3. **Selecting a Suitable Demand Forecasting Method**: Demand forecasting is based on specific evidence and is determined using a particular technique or method. The method of prediction must be selected wisely. It is dependent on the information available, the purpose of predicting and the period it is done for.
4. **Collecting the Data**: Forecasting is based on past experiences and data. This data or information can be primary or secondary. Primary data comprises of the information directly collected by the analysts and researchers; whereas secondary data includes the physical evidence of the past performance, sales trend in the past years, financial reports, etc.
5. **Estimating the Results**: The data so collected is arranged in a systematic and meaningful manner. The past performance of a product in the market is analyzed 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 organizational activities, whether they are short-term business operations or long-term strategic decisions are dependent on it.

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



1] 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:

a) **Formulation of Production Policy**: Demand forecasting aims at meeting the demand by ensuring uninterrupted production and supply of goods and services.
b) **Formulation of Price Policy**: It helps in formulating an effective price mechanism to deal with the market fluctuations and conditions like inflation.
c) **Maximum Utilization of Machines**: It streamlines the production process and operations such that there is the optimum utilisation of machines.
d) **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.
e) **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.
f) **Arrangement of Finance**: To maintain short-term cash in the organization it is essential to forecast the sales as well as liquidity requirement accordingly.
g) **Regular Availability of Labor**: Estimation of the production capacity provides for the acquisition of suitable skilled and unskilled labour.

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

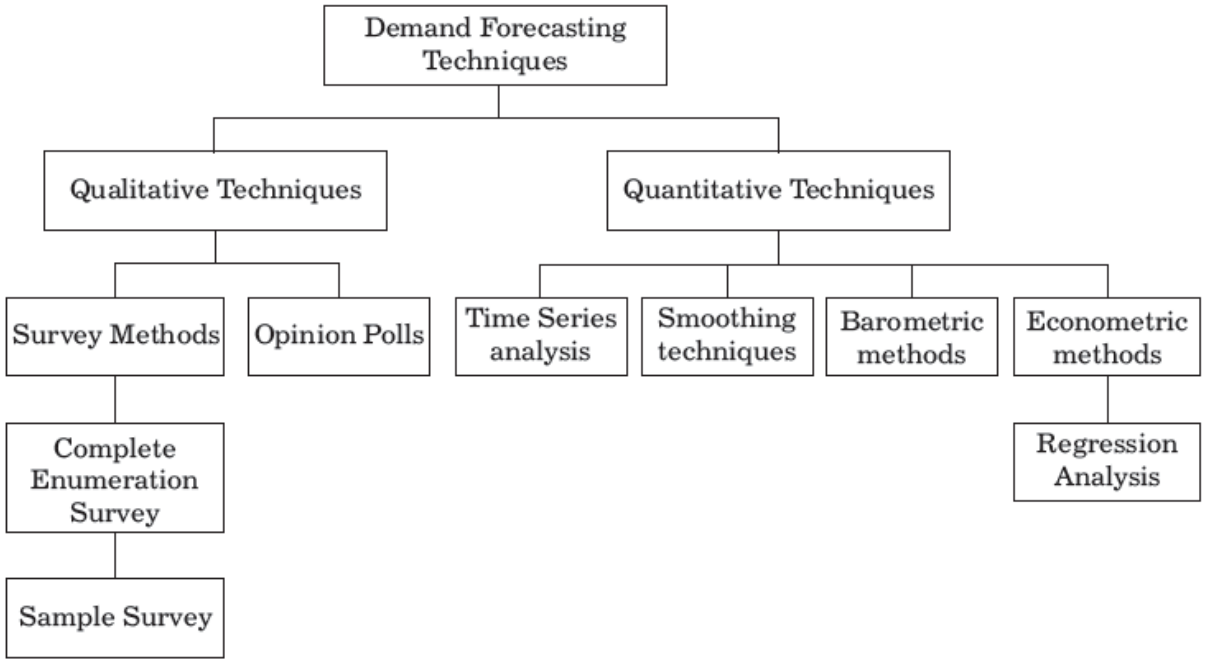
a. **Long-Term Finance Management**: Forecasting sales for the long-term contributes to long-term financial planning and acquisition of funds at reasonable rates and suitable terms and conditions.
b. **Decisions Regarding Production Capacity**: Demand forecast determines the production level which provides a base for decisions related to the expansion of the production unit or size of the plant.
c. **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.

❖ TECHNIQUES & METHODS OF DEMAND FORECASTING

Different organizations rely on different techniques to forecast demand for their products or services for a future time period depending on their requirements and budget.

Methods of demand forecasting are broadly categorized into two types. Let us discuss these techniques & methods of demand forecasting in detail:



1. Qualitative Techniques

Qualitative techniques rely on collecting data on the buying behavior of consumers from experts or through conducting surveys in order to forecast demand. These techniques are generally used to make short term forecasts of demand.

Qualitative techniques are especially useful in situations when historical data is not available; for example, introduction of a new product or service. These techniques are based on experience, judgment, intuition, conjecture, etc.

1. Survey Methods:- Survey methods are the most commonly used methods of forecasting demand in the short run. This method relies on the future purchase plans of consumers and their intentions to anticipate demand.

Thus, in this method, an organization conducts surveys with consumers to determine the demand for their existing products and services and anticipate the future demand accordingly. The two types of survey methods are explained as follows:

I. Complete enumeration survey: This method is also referred to as the census method of demand forecasting. In this method, almost all potential users of the product are contacted and surveyed about their purchasing plans.

Based on these surveys, demand forecasts are made. The aggregate demand forecasts are attained by totaling the probable demands of all individual consumers in the market.

II. Sample survey: In this method, only a few potential consumers (called sample) are selected from the market and surveyed. In this method, the average demand is calculated based on the information gathered from the sample.

2. Opinion Poll Method:- Opinion poll methods involve taking the opinion of those who possess knowledge of market trends, such as sales representatives, marketing experts, and consultants. The most commonly used opinion polls methods are explained as follows:

I. Expert opinion method: In this method, sales representatives of different organizations get in touch with consumers in specific areas. They gather information related to consumers' buying behaviour, their reactions and responses to market changes, their opinion about new products, etc.

II. Delphi method: In this method, market experts are provided with the estimates and assumptions of forecasts made by other experts in the industry. Experts may reconsider and revise their own estimates and assumptions based on the information provided by other experts.

III. Market studies and experiments: This method is also referred to as market experiment method. In this method, organisations initially select certain aspects of a market such as population, income levels, cultural and social background, occupational distribution, and consumers' tastes and preferences.

Among all these aspects, one aspect is selected and its effect on demand is determined while keeping all other aspects constant.

2. Quantitative Techniques

Quantitative techniques for demand forecasting usually make use of statistical tools. In these techniques, demand is forecasted based on historical data.

These methods are generally used to make long-term forecasts of demand. Unlike survey methods, statistical methods are cost effective and reliable as the element of subjectivity is minimum in these methods. Let us discuss different types of quantitative methods:-

1. Time Series Analysis:- Time series analysis or trend projection method is one of the most popular methods used by organizations' for the prediction of demand in the long run. The term time series refers to a sequential order of values of a variable (called trend) at equal time intervals.

Using trends, an organization can predict the demand for its products and services for the projected time. There are four main components of time series analysis that an organization must take into consideration while forecasting the demand for its products and services. These components are:

I. Trend component:- The trend component in time series analysis accounts for the gradual shift in the time series to a relatively higher or lower value over a long period of time.

II. Cyclical component: The cyclical component in time series analysis accounts for the regular pattern of sequences of values above and below the trend line lasting more than one year.

III. Seasonal component: The seasonal component in time series analysis accounts for regular patterns of variability within certain time periods, such as a year.

IV. Irregular component: The irregular component in time series analysis accounts for a short term, unanticipated and non-recurring factors that affect the values of the time series.

2. Smoothing Techniques:- In cases where the time series lacks significant trends, smoothing techniques can be used for demand forecasting. Smoothing techniques are used to eliminate a random variation from the historical demand.

This helps in identifying demand patterns and demand levels that can be used to estimate future demand. The most common methods used in smoothing techniques of demand forecasting are simple moving average method and weighted moving average method.

The simple moving average method is used to calculate the mean of average prices over a period of time and plot these mean prices on a graph which acts as a scale.

For example, a five-day simple moving average is the sum of values of all five days divided by five.

The weighted moving average method uses a predefined number of time periods to calculate the average, all of which have the same importance.

For example, in a four-month moving average, each month represents 25% of the moving average.

3. Barometric Methods:- Barometric methods are used to speculate the future trends based on current developments. This methods are also referred to as the leading indicators approach to demand forecasting.

Many economists use barometric methods to forecast trends in business activities. The basic approach followed in barometric methods of demand analysis is to prepare an index of relevant economic indicators and forecast future trends based on the movements shown in the index.

- **The barometric methods make use of the following indicators:**

a) Leading indicators: When an event that has already occurred is considered to predict the future event, the past event would act as a leading indicator.

For example, the data relating to working women would act as a leading indicator for the demand of working women hostels.

b) Coincident indicators: These indicators move simultaneously with the current event.

For example, a number of employees in the non-agricultural sector, rate of unemployment, per capita income, etc., act as indicators for the current state of a nation's economy.

c) Lagging indicators: These indicators include events that follow a change. Lagging indicators are critical to interpret how the economy would shape up in the future. These indicators are useful in predicting the future economic events.

For example, inflation, unemployment levels, etc. are the indicators of the performance of a country's economy.

4. Econometric Methods:- Econometric methods make use of statistical tools combined with economic theories to assess various economic variables (for example, price change, income level of consumers, changes in economic policies, and so on) for forecasting demand.

The forecasts made using econometric methods are much more reliable than any other demand forecasting method. An econometric model for demand forecasting could be single equation regression analysis or a system of simultaneous equations. A detailed explanation of regression analysis is given in the next section.

5. Regression Analysis: The regression analysis method for demand forecasting measures the relationship between two variables. Using regression analysis a relationship is established between the dependent (quantity demanded) and independent variable (income of the consumer, price of related goods, advertisements, etc.).

For example, regression analysis may be used to establish a relationship between the income of consumers and their demand for a luxury product. In other words, regression analysis is a statistical tool to estimate the unknown value of a variable when the value of the other variable is known.

After establishing the relationship, the regression equation is derived assuming the relationship between variables is linear.The formula for a simple linear regression is as follows:

$$Y = a + bX$$

Where Y is the dependent variable for which the demand needs to be forecasted; b is the slope of the regression curve; X is the independent variable; and a is the Y-intercept. The intercept a will be equal to Y if the value of X is zero.

- **APPLICATIONS OF FORECASTING**

1. Supply chain management:- It includes the movement and storage of raw materials, work-in- process inventory, and finished goods from point of origin to point of consumption.

2. Economic forecasting:- It is the process of making predictions about the economy.

3. Earthquake Forecasting:- It defined as the specification of the time, location, and magnitude of a future earthquake within stated limits", and particularly of "the next strong earthquake to occur in a region.

4. Egain Forecasting:- The process of climate change and increasing energy prices has led to the usage of Egain Forecasting of buildings.

5. Land Use Forecasting:- It undertakes to project the distribution and intensity of trip generating activities in the urban area.

6. Player & Team Performance in Sports :- PECOTA, is a saber metric system for forecasting Major League Baseball player performance.

7. Political Forecasting:- Its aims at predicting the outcome of elections.

8. Transportation Forecasting • the process of estimating the number of vehicles or people that will use a specific transportation facility in the future.

9. Telecommunications Forecasting • Telecommunications service providers perform forecasting calculations to assist them in planning their networks.

10. Product Forecasting • is the science of predicting the degree of success a new product will enjoy in the marketplace.

11. Sales Forecasting:- It is helpful in sale.

12. Technology Forecasting: - It attempts to predict the future characteristics of useful technological machines, procedures or techniques

13. Weather Forecasting:- It is the application of science and technology to predict the state of the atmosphere for a given location.

14. Flood Forecasting:- The use of real-time precipitation and stream flow data in rainfall-runoff and stream flow routing models to forecast flow rates and water levels for periods ranging from a few hours to days ahead, depending on the size of the watershed or river basin.

❖ SIGNIFICANCE OF DEMAND FORECASTING

Significance of demand forecasting is shown in the following points:

i. Fulfilling objectives:- Implies that every business unit starts with certain pre-decided objectives. Demand forecasting helps in fulfilling these objectives. An organization estimates the current demand for its products and services in the market and move forward to achieve the set goals.

For example, an organization has set a target of selling 50, 000 units of its products. In such a case, the organization would perform demand forecasting for its products. If the demand for the organization's products is low, the organization would take corrective actions, so that the set objective can be achieved.

ii. Preparing the budget:- Plays a crucial role in making budget by estimating costs and expected revenues. **For instance**, an organization has forecasted that

the demand for its product, which is priced at Rs. 10, would be 10, 00, 00 units. In such a case, the total expected revenue would be 10* 100000 = Rs. 10, 00, 000. In this way, demand forecasting enables organizations to prepare their budget.

iii. Stabilizing employment and production:- Helps an organization to control its production and recruitment activities. Producing according to the forecasted demand of products helps in avoiding the wastage of the resources of an organization. This further helps an organization to hire human resource according to requirement. For example, if an organization expects a rise in the demand for its products, it may opt for extra labor to fulfill the increased demand.

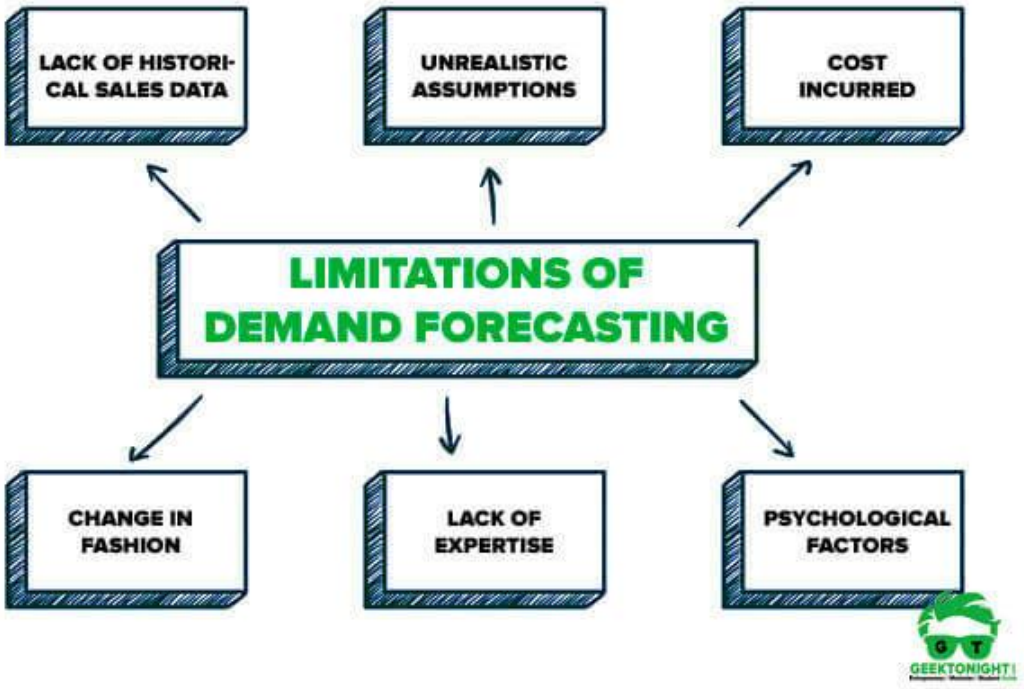
iv. Expanding organizations:- Implies that demand forecasting helps in deciding about the expansion of the business of the organization. If the expected demand for products is higher, then the organization may plan to expand further. On the other hand, if the demand for products is expected to fall, the organization may cut down the investment in the business.

v. Taking Management Decisions:- Helps in making critical decisions, such as deciding the plant capacity, determining the requirement of raw material, and ensuring the availability of labor and capital.

vi. Evaluating Performance:- Helps in making corrections. For example, if the demand for an organization's products is less, it may take corrective actions and improve the level of demand by enhancing the quality of its products or spending more on advertisements.

vii. Helping Government:- Enables the government to coordinate import and export activities and plan international trade.

❖ LIMITATIONS OF DEMAND FORECASTING



1. Lack of historical sales data:- Past sales figures may not always be available with an organization. **For example,** in case of a new commodity, there is unavailability of historical sales data. In such cases, new data is required to be collected for demand forecasting, which can be cumbersome and challenging for an organization.

2. Unrealistic assumptions:- Demand forecasting is based on various assumptions, which may not always be consistent with the present market conditions. In such a case, relying on these assumptions may produce incorrect forecasts for the future.

3. Cost incurred:- Demand forecasting incurs different costs for an organization, such as implementation cost, labour cost, and administrative cost. These costs may be very high depending on the complexity of the forecasting method selected and the resources utilized. Owing to limited means, it becomes difficult for new startups and small-scale organizations' to perform demand forecasting.

4. Change in fashion:- Consumers' tastes and preferences continue to change with a change in fashion. This limits the use of demand forecasting as it is generally based on historical trend analysis.

5. Lack of expertise:- Demand forecasting requires effective skills, knowledge and experience of personnel making forecasts. In the absence of trained experts, demand forecasting becomes a challenge for an organization. This is because if the responsibility of demand forecasting is assigned to untrained personnel, it could bring huge losses to the organization.

6. Psychological factors:- Consumers usually prefer a particular type of product over others. However, factors, such as fear of war and changes in economic policy, could affect consumers' psychology. In such cases, the outcomes of forecasting may no longer remain relevant for the time period.

MARKET MECHANISM

❖ MEANING OF MARKET MECHANISM

Market mechanism is often interpreted as a 'free' market system. For a layman 'free' means that when you go to a market, there is no re-striction – you can buy as much as you want OR sell any amount OR choose to do nothing.

You are free to take decisions regarding buying and selling. Adam Smith used this freedom to formulate the notion of an 'invisible' hand.

'Invisible hand' refers to the individual actions/decisions of economic agents that lead to maximum welfare for the economy. It is as if an in-visible force strings together decisions, taken in self-interest by different persons, to give us a result which is the best for all persons considered together.

These decisions operate in terms of demand and supply for a good, which are collectively referred to as the market mechanism. Thus, the market mechanism ensures that the benefits/welfare for the whole group of economic agents is a maximum. This only requires that each agent operates on the basis of self-interest and decides what is best for her alone, assuming there is freedom given to each of them.

Free market is also associated with a capitalist economy, as opposed to socialist economy where markets follow plans made by the government. This reduces the 'freedom' of the market mechanism, though a 'market' may still exist. The 'freedom' given to market mechanism is therefore the crucial distinction between capitalism and socialism.

For example in India, we have a free market for medicines/drugs. Anyone can buy a drug with a prescription or any out-the-counter drug that needs no prescription. This implies buyers and sellers are 'free' to buy and sell any quantity at any price; it is a free market. But the National Pharma Pricing Authority (NPPA) has put limits on the prices of some selected drugs called essential drugs. This means that producers/pharma com-panies cannot charge any price they want. This restricts the 'freedom' of sellers, and is an example of restriction on the market.

As the above example makes clear, the market mechanism refers to the forces of demand and supply. These forces take the form of buyers and sellers in the market. Economists show that if left 'free' these forces use the self-interest of sellers and buyers to reach a point where welfare for all is maximized.

The 'mechanism' refers to the fact that economic agents (buyers and sellers) act in self-interest without any force on them and without any explicit coordination between themselves to maximize their own welfare. In this process the sum total of welfare/gain for all economic agents in an economy is maximized. As compared to any other mechanism (like planning by State in a socialist system) the welfare to society as a whole is maximum in market mechanism.

- **EFFICIENCY UNDER MARKET MECHANISM:**

In everyday use, efficiency means to work in the best possible way, or in a 'smart' way that reduces time taken for any work and makes sure that efforts are not wasted. In Economics 'efficiency' is defined in more clear ways. Alfred Pareto was the first economist to define efficiency, and accordingly we define optimality in terms of Pareto efficient states. According to Pareto, "a Pareto efficient state of affairs is when no one can be made better off without making someone worse off".

Take an example:- Original state-Suppose Vineet earns Rs.10000 per month and Radhika earns Rs.15000 per month working for their manager Mr. Diwan. Total income will be Rs.25000. Welfare will be measured in terms of salaries of both workers and other office costs for Mr. Diwan (electricity, water, rent are some costs incurred in a typical office). Assume that costs equal Rs.5000 for simplicity. Let us consider three options to this original state of affairs. Welfare equals the sum of salaries and other costs = Rs.30000

State 1:- Let both employees argue for higher salary with Mr. Diwan, who refuses to do so as his costs will rise. Instead he offers to change the distribution; he offers Rs.12000 to Vineet and Rs.13000 to Radhika. Now this proposed state makes Vineet better off, but Radhika worse off and Mr. Diwan do not change his costs.

Total welfare remains at Rs.30000. This proposed income change is Not a Pareto improvement over the original income distribution, because one person has been made better off at the cost of someone else being worse off.

State 2:- Instead if Mr. Diwan increases salary for both by an equal amount (however small, say Rs. 500), while reducing his costs on other inputs by Rs. 1000, then it is a Pareto improvement. This is because both will be better off, with none of them worse off.

State 3:- Another option is that Mr. Diwan increases salary for Vineet by Rs. 600 and by Rs. 400 for Radhika. If he does this by reducing his other costs by Rs. 1000, so that Mr. Diwan does not face higher total costs, then this is also a Pareto improvement as both have gained, while Mr. Diwan has not lost as well.

As long as we can make Pareto improvements as outlined in options 2 and 3, we are not efficient. When no Pareto improvements are possible, we have reached an efficient state. In other words, a Pareto efficient state is achieved when there are no Pareto improvements are possible.

Efficiency is also sometimes used interchangeably with Pareto efficiency. Thus, an efficient state is when no Pareto improvements are possible anymore.

When we consider any two states, a movement from one state to another may cause a loss to someone, while someone else may gain. The sum total of all gains and losses can be a loss, which implies that the change was Pareto inefficient. It is better to stay with the original state.

If the sum of gains and losses comes out to be positive number then the change can be categorized as a Pareto improvement. We can continue to make changes and move to new states till no more Pareto improvements are possible. The last state will be Pareto efficient as no changes can give us 'total' gains.

In other words, efficiency is an outcome/state that is best/ optimal for all as there is no change possible that can increase gains/welfare for all agents taken together. While some agents may lose and same gain from a change, the critical thing is to look at the sum of welfare of all agents. In this case we had 3 agents – Mr. Diwan, Vineet and Radhika. Also note that losses and gains in Rs. terms are interchangeably used with welfare. In the example above we used salary as a measure of welfare.

❖ TYPES OF EFFICIENCY

Efficiency is further divided into two types-Productive efficiency and Allocative efficiency. To understand these we must be clear about production possibility curve.

1. Productive Efficiency:- Let us now move to 'define' productive efficiency. This is done at micro (small) and macro (large) level. At micro level we look at the meaning of productive efficiency of a firm. At the macro level we consider ef-ficiency of the whole economy. When all firms (producing units) are productively efficient, the whole economy is efficient.

We will first focus on efficiency at macro level, with the economy as the unit of consideration. Before we understand this we must under-stand what a PPC is. A Production Possibility Curve (PPC) shows us the combinations of two goods that a country can produce with given resources and available technology. This curve is typically bow shaped.

Consider two goods – food and guns as shown in figure 1. Any point on the curve PPC1 (like point B) tells us that we can produce F1 amount of food and G1 amount of guns. We can also be at any point inside the curve like A, where F2 food and G2 guns are produced. We cannot be at any point outside the curve as such points (point E) are unattain-able. This is because we do not have the resources to produce at such points. If technology improves and/or resources increase we will see the PPC shift outwards as shown. The point E is now attainable with new resources and technology as it lies on PPC 2.

- **The PPC Assumes the Following:**

1. Technology remains unchanged when a PPC is drawn. All combina-tions that are on PPC depend on technology used and available. A new technology that is better will cause PPC to shift out to PPC 2.

2. Resources are fixed for every PPC. This means that each PPC is drawn on the basis on given level of resources. These resources refer to the total amount of resources as well as their productivity levels.

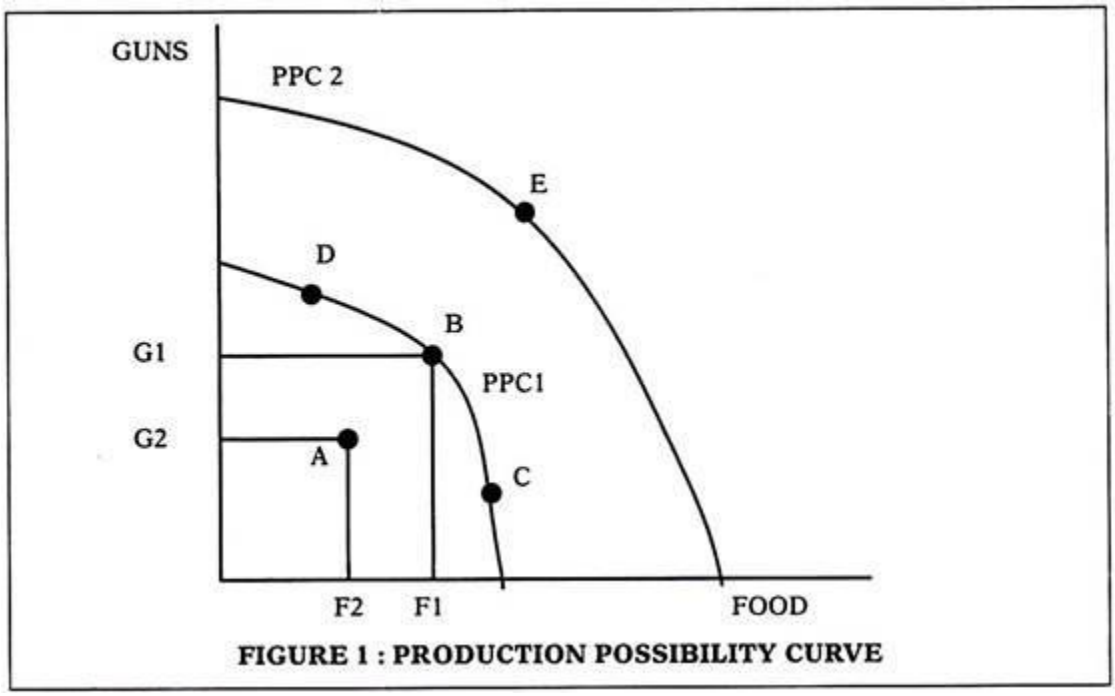


FIGURE 1 : PRODUCTION POSSIBILITY CURVE

- **Note the Following Points that Hold for any PPC:**

1. If all resources are used, we are on PPC (like point B , C, D)

2. If some resources are unused we are inside the PPC(like A)

3. Points like E are unattainable if we refer to PPC1.

4. Any change in resources causes PPC to shift. For example assume an earthquake hits a region. It will cause a decline in number of workers available, which are a resource. This will cause an inward shift of the PPC.

5. Any increase in productivity of resources and/or better technology will shift the PPC outwards, as shown by PPC 2.

Productive efficiency is achieved when we are at any point on the PPC. A point like A, which is inside the PPC, is productively inefficient. A point like B or C or D is productively efficient as they lie on the PPC. These points are Pareto efficient as we cannot increase production of one good, without reducing production of the other good. Consider points B and C, both of which are efficient.

If we want to move from B to C then we must reduce guns and increase food. This move from B to C is not a Pareto improvement as it entails reduction in production of guns, to increase food production. Thus, there is no Pareto improve-ment possible if we start of any of these points that lie on the PPC.

This implies that all points on PPC are Pareto efficient and no point is better than any other point. But if we move from a point inside the curve to a point on the curve then it is a Pareto improvement. Consider a move from A to B, which is a Pareto improvement as production of both food and guns rises.

It is important to note the shape of the curve as it cannot take any shape at random. Based on the assumptions we made for drawing PPC, it is bow shaped. This means that to produce more of food we must reduce gun production. This is because resources are fixed. To produce more food, we have to pull out resources (like labour) from gun factories and put them on the fields.

Consider figure 2. Assume that we want to increase food production. We want to move from B to C. Since all the resources are already used up (as we are on the curve already) we have to free up some land. This land will have to come from the land used for gun production.

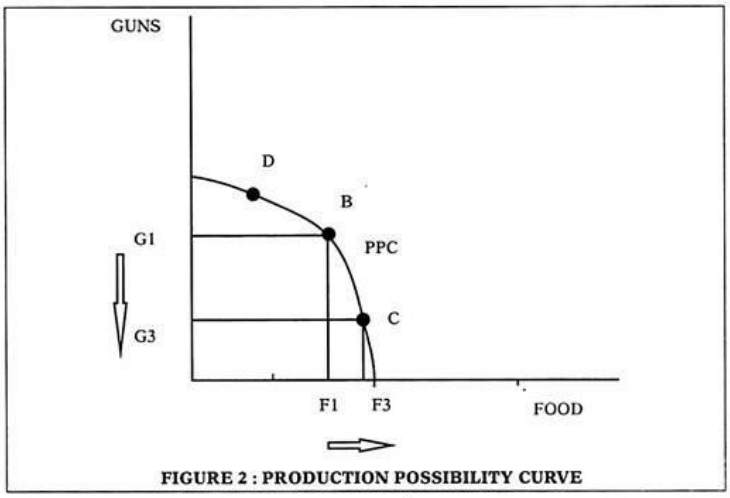


FIGURE 2 : PRODUCTION POSSIBILITY CURVE

So a factory for guns may have to be shut down for freeing up land. This implies fall in gun production as the factory shuts down. To increase production of 1 good (shown by the arrow on X axis) we must reduce production of the other good (shown by the arrow on Y axis). This causes the bow shape of the PPC.

While the PPC looks at the economy from a 'macro' perspective, we can define productive efficiency at micro level for a firm also. A firm achieves productive efficiency when it produces at the lowest cost level. If the average cost is minimized for a firm at point E in figure 3, then it is a point of productive efficiency. Note that each firm acts in its own self-interest to minimize costs and achieve productive efficiency.

For those of us who are familiar with Microeconomics, we know that typical cost curves for any firm are U shaped. With output on the X axis and costs on the vertical axis, we can show that a productive effi-cient point for a firm to be E. This is the point where average costs are minimum. The efficient output level is Q* and average cost is AC*. At any other point (like E1) average cost is higher (AC1 > AC*). If a firm produces less than Q* it is productively inefficient. This concept applies to an output level that exceeds Q* also. At E2 average cost is AC2 while output is Q2. Note that AC2 > AC*.

This makes E2 also inefficient. (See Figure 3)

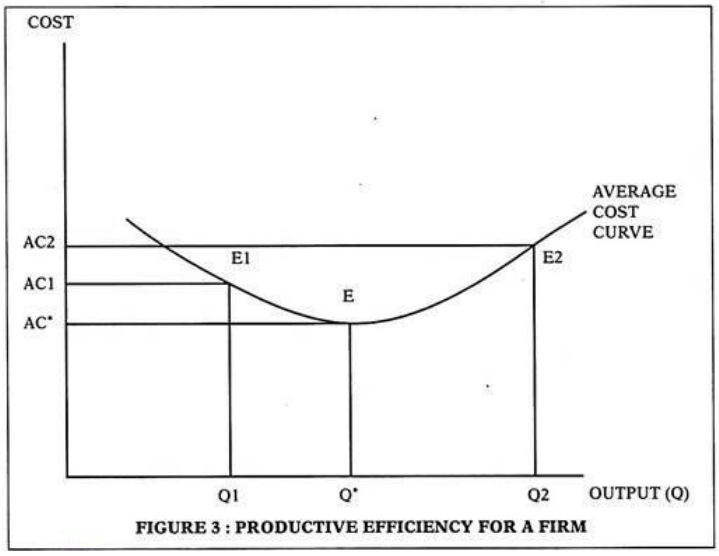


FIGURE 3 : PRODUCTIVE EFFICIENCY FOR A FIRM

2. Allocative Efficiency:- Till now we looked at efficient levels of production/output of differ-ent goods produced in an economy. Allocative efficiency takes a step backwards, to look at behind the scenes of production and considers the distribution and allocation of resources used for achieving these output levels. Let us consider figure 4, which is a simple PPC that we borrow from figure 1. Note that E1 and B are both on the PPC which qualifies them as productively efficient.

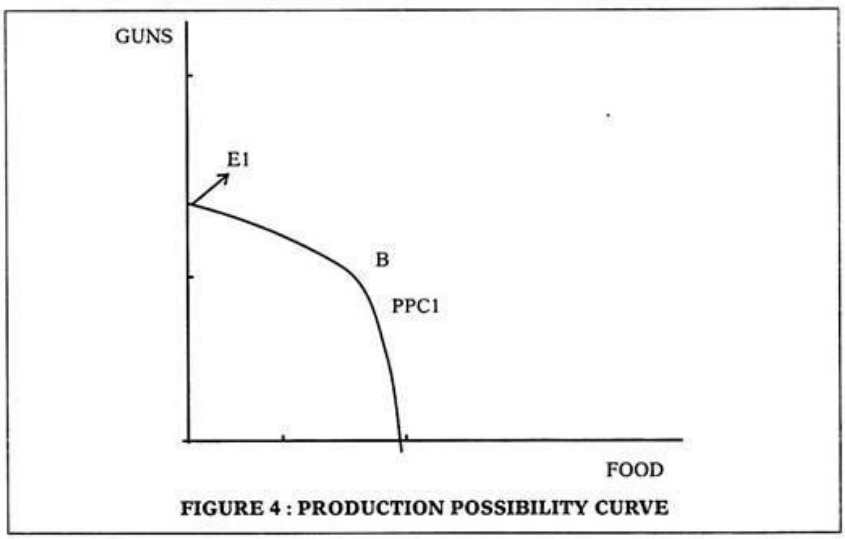


FIGURE 4 : PRODUCTION POSSIBILITY CURVE

However, despite such efficien-cy El involves zero food production. All resources are devoted to gun production, and we have no food. The economy

cannot live without food, which makes El a little difficult to imagine as efficient. A point like B where both guns and food are produced is more realistic and also efficient in a productive sense.

Devoting all resources to guns does not 'seem' correct or in the best welfare of society, (though gun makers will be really happy!). This is where allocative efficiency comes in. It looks beyond production levels and associated costs alone, and looks towards benefits of any activity, in marginal terms.

To understand this, consider that we want to get to the nearest Metro station. We have 2 options – to walk for 10 minutes or hire a rickshaw that takes 5 minutes. In making a choice, we are comparing both modes of transport in terms of the cost involved and the advantages (or benefits).

Using a rickshaw saves time (which must be considered as a benefit), but involves a price that we pay to the driver of the rickshaw (which is a cost of this option). We know that the cost is (assume) Rs.20, but we must put a monetary value to the time we save. This value depends on individual preferences.

A person who has an interview in the next hour will assign a value of Rs.100 to the time saved, while another person who has no appointments may assign only Rs.10 to the time saved. In this case, the net benefits= 100 – 20 = 80 for the person who has an interview or 10 – 20 = -10 for the person with no appointment.

On the other hand, walking costs us time but give health benefits. The cost of walking is the time we spend on it. Suppose it takes 10 minutes for any person to walk to Metro. The cost of 10 minutes again depends on individual preferences. For the person who has an interview this time is more valuable than for the person with no appointments. In the same way the value of benefits can vary across people.

The man with an interview would not like to miss it so he may value health benefits at only Rs.5. This gives net benefits of 5 – 100 = -95 to him. If he now compares the 2 options he has net benefits of +80 from using a rickshaw and net benefits of -95 from walking. Common sense dictates that he will choose to use the rickshaw.

The above example was discussed to illustrate that each decision we take involves comparing costs and benefits to arrive at net benefits from each option available to us. We choose the option with higher net benefits. The difference in some people opting for rickshaw or walking is the value they assign to benefits and costs. The differences in these valuations lead to different choices when two people are faced with same options

Every person attributes a different value to the cost and benefits to options available. A calculation of net benefits (= benefits – costs) is done. The option with highest net benefits is taken by a rational person.

The same logic applies in Microeconomics – any economic activity must be done if the marginal benefit from that activity exceeds or equals its marginal cost, or net marginal benefits are positive. If two activities are given and one has to be chosen then the activity with higher net mar-ginal benefits must be done. The use of the word marginal is done as we compare costs and benefits of the last unit of output. The decision is always about the next unit – to produce or not produce.

❖ INTERACTION OF DEMAND AND SUPPLY

We have studied demand and supply separately. Now we put them together to get the whole market. The operation of demand and supply in a market is known as the market mechanism.

We are familiar with the upward sloping supply curve and the downward sloping demand curve. Combine the two on one diagram and we have a model of a market (Figure 1).

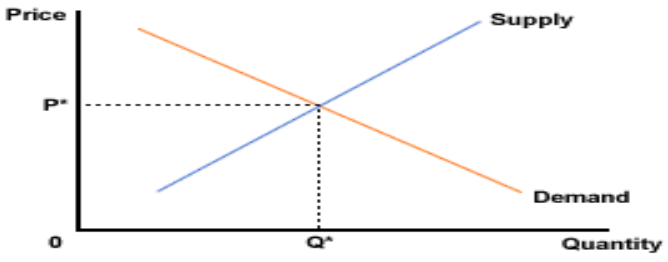


Figure 1 The demand and supply model of a market

The market will be in equilibrium at price P, when quantity Q will be bought and sold. In figure 1 OP* is the equilibrium or market clearing price at which the amount demanded exactly matches the amount supplied.

Changes in demand and supply

We can now see how shifts of supply and demand curves cause changes in prices and quantities bought and sold. In the next two sections, there are two example markets with a series of changes to each. Try working through each one and check that you understand how the curves shift.

Example 1 - the market for DVD players

Try copying out Figure 1 below, but label it as the market for DVD players.

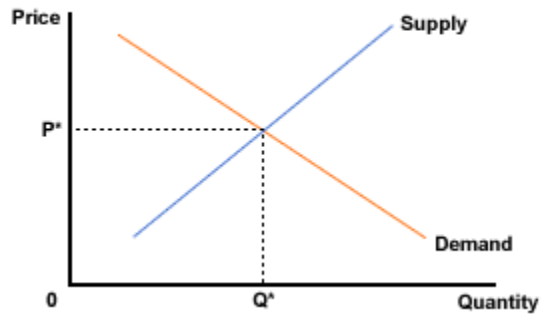
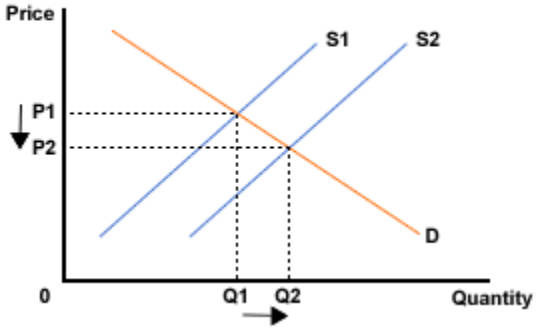


Figure 1 The demand and supply model of a market

Now work through the following changes, and adjust the diagram as you go. After you have had a go at each change, follow the answer link below and see if you made the right changes. Treat each change as a separate change - in other words start with Figure 1 each time.

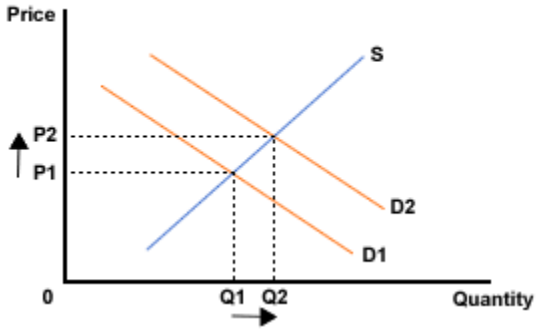
Change 1. The development of a new microchip enables manufacturers to reduce the price of their products.



Supply curve shifts right

This will influence supply. New technology will cause the supply curve to shift to the right. S1 will be replaced by S2. Market price will fall and there will be a movement along the demand curve. The quantity demanded and supplied will grow to Q2 and price will fall to P2.

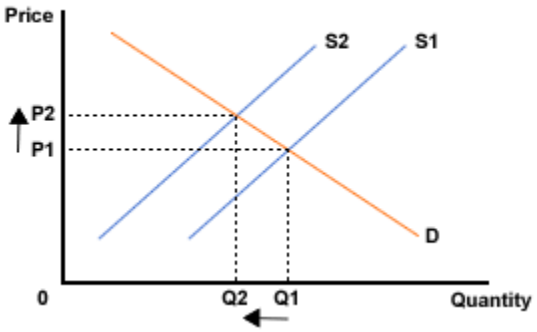
Change 2. The firm mounts a major successful advertising campaign for DVD's.



Demand curve shifts right

This will affect demand. Advertising is one of the ceteris paribus factors of demand, so will result in a shift to the right. D1 will be replaced by D2. Supply, however, will be unchanged. Equilibrium will be re-established at price P2 and quantity Q2.

Change 3. The government applies VAT to all home entertainment equipment.



Supply curve shifts left

This will reduce supply. It is one of the ceteris paribus factors so will shift the supply curve to the left to S2. Price will rise again to P2, but the market will decline with the equilibrium quantity ending up at Q2.

Example 2 - the market for fish

Let's look at another example, and make sure that you understand how the shifts and movements occur and interact. Now work through the following changes, and adjust the diagram as you go. After you have had a go at each change, follow the answer link below and see if you made the right changes.

Figure 1 represents the market for fish at the start of a week. Assume that all demand and supply changes occur without delay, i.e. they react instantly. The changes given are all sequential. In other words use the diagram you end up with as the starting point for the next change.

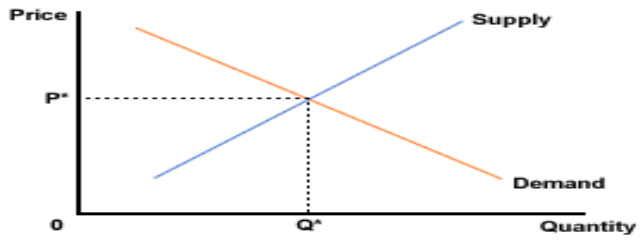
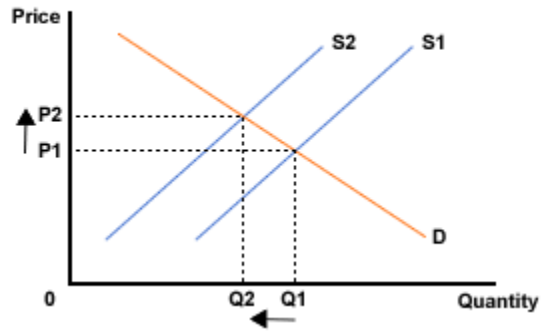


Figure 1 The Market for fish

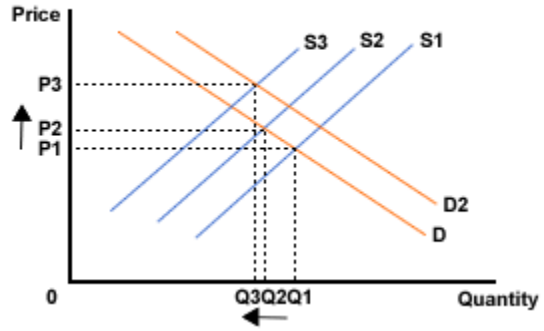
Change 1. There are very rough seas, and small boats cannot fish.



Supply curve shifts left

This will cause a shift of the supply curve. It is effectively a deterioration in technology. S1 will be replaced by S2. Demand is unchanged so price rises to P2 and quantity falls to Q2.

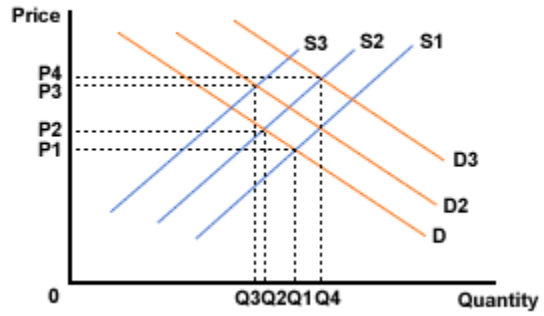
Change 2. It is Thursday, a day where the demand for fish is very high. Seas become even rougher.



Change 2 - supply shifts left and demand right

This means a further shift in the supply curve to S3 because of even rougher seas, but there is a shift of the demand curve to D2 as well. More fish is demanded from a reduced supply so the price rises fast. In this case sales have fallen slightly further as even the higher price was not attractive enough to persuade fisherman to take more risks.

Change 3. It is Friday, when demand for fish is even higher. Storms weaken, though, and fishing becomes easier.



Change 3 - supply shifts to right and demand to right

Supply eases back to S2, but demand rises even more to D3. Fish reaches a new high price of P4. Sales are also now higher at Q4. The higher price and easier weather has now been enough to persuade the fishermen to fish once more and take a greater risk.

PRODUCTION ANALYSIS

❖ INTRODUCTION

Production is a process of using various material and immaterial inputs in order to make output for consumption. Production process creates economic well-being. The satisfaction of needs originates from the output. Production is the result of cooperation of four factors of production (land, labour, capital and organisation). In Economics, production refers to the creation or addition of value. It simply transforms the inputs into output.

Production may be at varying levels. The scale of production influences the cost of production. All manufacturers are aware that when production of a commodity takes place on a larger scale, the average cost of its production is low. This is the reason why the entrepreneurs are interested in enlarging the scale of production of their commodities. They stand to benefit from the resulting economies of scale. There is also the possibility of making their products available in the market at lower prices.

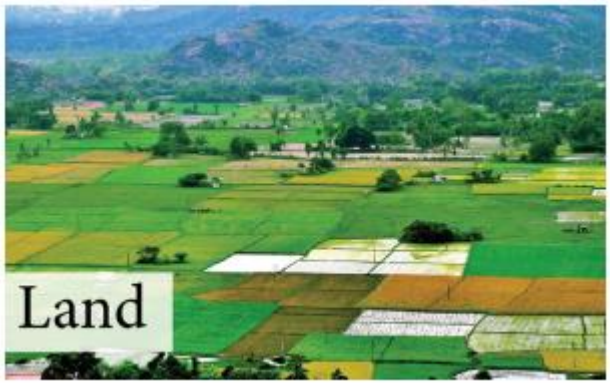
❖ FEATURES OF THE FACTORS OF PRODUCTION

Factors of production means resources used in the process of production of commodities. There are of four types viz., land, labour, capital and organization or enterprise. Here, land represents natural resources (such as soil, mineral deposits, seas, rivers, natural forests, fisheries etc). Labour represents human resources. Together, these two factors are called the 'primary factors of production'.

These two factors produce some units of goods for the purpose of consumption. And as consumption of these goods takes place, there is the possibility of some of these goods getting left over. Thus, saving is production minus consumption. This saved amount is called as capital, which serves as investment in the production process. Also, organisation or enterprise is a special form of labour. The third and the fourth factors are called 'secondary factors of production'.

These four factors depend on each other. They have a coordinated impact on production of goods and services.

1. Land:- In ordinary sense 'land' refers to the soil or the surface of the earth or ground. But, in Economics, land means all gifts of Nature owned and controlled by human beings which yield an income. Land is the original source of all material wealth. The economic prosperity of a country depends on the richness of her natural resources. The quality and quantity of agricultural wealth are determined by the nature of soil, climate and rainfall.



The agricultural products are the basis of trade and industry. Industry survives on the availability of coal-mines or waterfall for electricity production. Hence, all aspects of economic life like agriculture, trade and industry are generally influenced by natural resources which are called as "Land" in economics.

➢ Characteristics of Land

1. Land is a primary factor of production.
2. Land is a passive factor of production.
3. Land is the free gift of Nature.
4. Land has no cost of production.
5. Land is fixed in supply. It is inelastic in supply.
6. Land is permanent.
7. Land is immovable.
8. Land is heterogeneous as it differs in fertility.
9. Land has alternative uses.
10. Land is subject to Law of Diminishing Returns.

2. Labour:- Labour is the active factor of production. In common parlance, labour means manual labour or unskilled work. But in Economics the term 'labour' has a wider meaning.

It refers to any work undertaken for securing an income or reward. Such work may be manual or intellectual. For example, the work done by an agricultural worker or a cook or rickshaw puller or a mason is manual. The work of a doctor

or teacher or an engineer is intellectual. In short, labour in economics refers to any type of work performed by a labourer for earning an income.

According to Marshall, labour represents services provided by the factor labour, which helps in yielding an income to the owner of the labour-power.

- **Characteristics of Labour**

a. Labour is the animate factor of production.

b. Labour is an active factor of production.

c. Labour implies several types: it may be manual (farmer) or intellectual (teacher, lawyer etc).

d. Labour is perishable.

e. Labour is inseparable from the Labourer.

f. Labour is less mobile between places and occupations.

g. Labour is a means as well as an end. It is both the cause of production and consumer of the product.

h. Labour units are heterogeneous.

i. Labour differs in ability.

j. Labour-supply determines its reward (wage).

k. Labour has weak bargaining power.

3. Capital:- Marshall says "capital consists of all kinds of wealth other than free gifts of nature, which yield income". Bohm-Bawerk defines it as 'a produced means of production'. As said earlier, capital is a secondary means of production. It refers to that part of production which represents 'saving used as investment' in the further production process. For example, the entire mango is not eaten; a part of that (its nut) is used to produce more mangoes.

Bohm-Bawerk

It is a stock concept. All capital is wealth but all wealth is not capital. For example, tractor is a capital asset which can be used in cultivation (production) of farm, but due to some reason the same is kept unused (idle) for some period. It cannot be termed as capital for that period. It is only wealth.

- **Characteristics of Capital**

a. Capital is a man-made factor.

b. Capital is mobile between places and persons.

c. Capital is a passive factor of production.

d. Capital's supply is elastic.

e. Capital's demand is a derived demand.

f. Capital is durable.

Capital may be tangible or intangible. For example, buildings, plants and machinery, factories, inventories of inputs, warehouses, roads, highways etc

are tangible capital. The examples for intangible capital are investment on advertisement, expenses on training programme etc.

Financial Capital means the assets needed by a firm to provide goods and services measured in term of money value . It is normally raised through debt and equity issues .The prime aim of it is to a mass wealth in terms of profit.

4. Organization:- The man behind organizing the business is called as 'Organizer' or 'Entrepreneur'. An organiser is the most important factor of production. He represents a special type of labour. Joseph Schumpeter says that an entrepreneur innovates, coordinates other factors of production, plans and runs a business. He not only runs the business, but bears the risk of business. His reward is residual. This residual is either positive (profit) or negative (loss) or zero.


Joseph Schumpeter

- **Functions of an Organizer (Entrepreneur)**

1. **Initiation:** An organizer is the initiator of the business, by considering the situation and availability of resources and planning the entire process of business or production.
2. **Innovation:** A successful entrepreneur is always an innovator. He introduces new methods in the production process.
3. **Coordination:** An organizer applies a particular combination of the factors of production to start and run the business or production.
4. **Control, Direction and Supervision:** An organiser controls so that nothing prevents the organisation from achieving its goal. He directs the factors to get better results and supervises for the efficient functioning of all the factors involved in the process of production.

5. **Risk-taking and Uncertainty-bearing:** There are risk-taking and uncertainty-bearing obstacles. Risks may be insured but uncertainties cannot be insured. They reduce the profit.

❖ PRODUCTION FUNCTION

Production function refers to the relationship among units of the factors of production (inputs) and the resultant quantity of a good produced (output).

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


George J.Stigler

Production function may be expressed as: Q = f (N, L, K, T) Where, Q = Quantity of output, N = Land; L = Labour; K = Capital; and T = Technology. Depending on the efficiency of the producer, this production function varies.

The function implies that the level of output (Q) depends on the quantities of different inputs (N, L, K, T) available to the firm.

➢ Short-run Production and Long run Production

In Micro economics, the distinction between long run and short run is made on the basis of fixed inputs that inhibit the production.

The short-run is the period where some inputs are variable, while others are fixed. Another feature is that firms do not enter into the industry and existing firms may not leave the industry.

Long run, on the other hand, is the period featured by the entry of new firms to the industry and the exit of existing firms from the industry.

In general, Production function may be classified into two

a. Short-run Production Function as illustrated by the Law of Variable Proportions.
b. Long-run Production Function as explained by the Laws of Returns to Scale.

- **Law of Variable Proportions**

The law states that if all other factors are fixed and one input is varied in the short run, the total output will increase at an increasing rate at first instance, be constant at a point and then eventually decrease. Marginal product will become negative at last.

According to G.Stigler, *"As equal increments of one input are added, the inputs of other productive services being held constant, beyond a certain point, the resulting increments of product will decrease, i.e., the marginal product will diminish".*

Assumptions

The Law of Variable Proportions is based on the following assumptions.

I. Only one factor is variable while others are held constant.

II. All units of the variable factor are homogeneous.

III. The product is measured in physical units.

IV. There is no change in the state of technology.

V. There is no change in the price of the product.

1. Total Product (TP):- It refers to the total amount of commodity produced by the combination of all inputs in a given period of time.

„Summation of marginal products, i.e.

TP = ∑MP

where, TP= Total Product, MP= Marginal Product

2. **Average Product (AP):-** It is the result of the total product divided by the total units of the input employed. In other words, it refers to the output per unit of the input.

Mathematically, ***AP = TP/N***

Where,

AP= Average Product

TP= Total Product

N= Total units of inputs employed

3. **Marginal Product (MP):-** It is the addition or the increment made to the total product when one more unit of the variable input is employed. In other words, it is the ratio of the change in the total product to the change in the units of the input. It is expressed as

MP= ΔTP/Δ N

where,

MP = Marginal Product

ΔTP = Change in total product

ΔN = Change in units of input It

is also expressed as

MP = TP (n) – TP (n-1)

Where,

MP = Marginal Product

TP(n) = Total product of employing nth unit of a factor

TP(n-1) = Total product of employing the previous unit of a factor, that is, (n-1)th unit of a factor.

The Law of Variable Proportions is explained with the help of the following schedule and diagram:

In table 3.1, units of variable factor (labour) are employed along with other fixed factors of production.

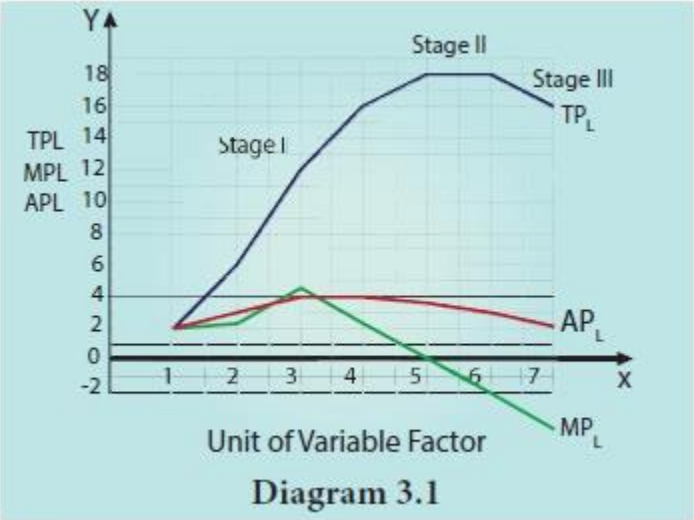


Diagram 3.1

Table 3.1 Stages of Production

Units of variable factor (L)	Total Product (TP_L)	Marginal Product (MP_L)	Average Product (AP_L)	Stages
1	2	2	2	I
2	6	4	3	
3	12	6	4	
4	16	4	4	II
5	18	2	3.6	
6	18	0	3	III
7	16	-2	2.28	

The table illustrates that there are three stages of production. Though total product increases steadily at first instant, constant at the maximum point and then diminishes, it is always positive for ever. While total product increases, marginal product increases up to a point and then decreases. Total product increases up to the point where the marginal product is zero. When total product tends to diminish marginal product becomes negative.

In diagram 3.1, the number of workers is measured on X axis while TP_L, AP_L and MPL are denoted on Y axis. The diagram explains the three stages of production as given in the above table.

Stage I:- In the first stage MPL increases up to third labourer and it is higher than the average product, so that total product is increasing at an increasing rate. The tendency of total product to increase at an increasing rate stops at the point A and it begins to increase at a decreasing rate. This point is known as ***'Point of Inflexion'***.

Stage II:- In the second stage, MPL decreases up to sixth unit of labour where MPL curve intersects the X-axis. At fourth unit of labor $MP_L = AP_L$. After this, MP_L curve is lower than the AP_L. TP_L increases at a decreasing rate.

Stage III:- Third stage of production shows that the sixth unit of labour is marked by negative MP_L, the AP_L continues to fall but remains positive. After the sixth unit, TP_L declines with the employment of more units of variable factor, labour.

- **Relationship among Total, Average and Marginal Products**

Relationship among Total, Average and Marginal Products

Stages	Total Product	Marginal Product	Average Product
Stage I	Initially it increases at an increasing rate and then increases at a deceasing rate	At the beginning it increases, then reaches a maximum and starts to decrease	At the first instant it increases, then attains maximum
Stage II	It continues to increase at a diminishing rate and reaches maximum.	It continues to diminish and becomes equal to zero	It is equal to MP and then begins to diminish
Stage III	It diminishes	It becomes negative	It continues to diminish but always greater than zero (positive)

- **LAWS OF RETURNS TO SCALE**

In the long- run, there is no fixed factor; all factors are variable. The laws of returns to scale explain the relationship between output and the scale of inputs in the long-run when all the inputs are increased in the same proportion.

- **Assumptions**

Laws of Returns to Scale are based on the following assumptions.

1. All the factors of production (such as land, labour and capital) are variable but organization is fixed.

2. There is no change in technology.

3. There is perfect competition in the market.

4. Outputs or returns are measured in physical quantities.

➢ Three Phases of Returns to Scale

1. Increasing Returns to Scale:- In this case if all inputs are increased by one per cent, output increase by more than one per cent.

2. Constant Returns to Scale:- In this case if all inputs are increased by one per cen, output increases exactly by one per cent.

3. Diminishing Returns to Scale: Diminishing Returns to Scale:- In this case if all inputs are increased by one per cent, output increases by less than one per cent.

➢ Diagrammatic Illustration

The three laws of returns to scale can be explained with the help of the diagram below.
In the diagram 3.2, the movement from point a to point b represents increasing returns to scale. Because, between these two points output has doubled, but output has tripled.

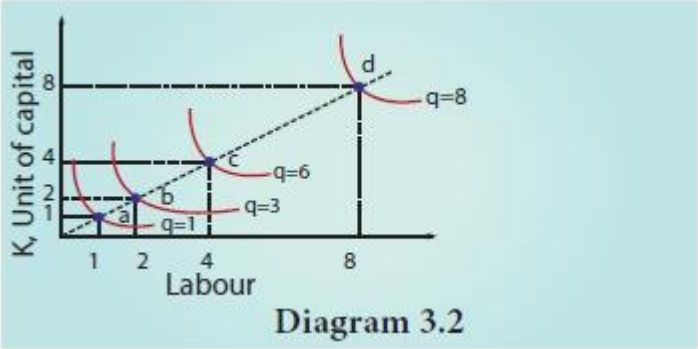


Diagram 3.2

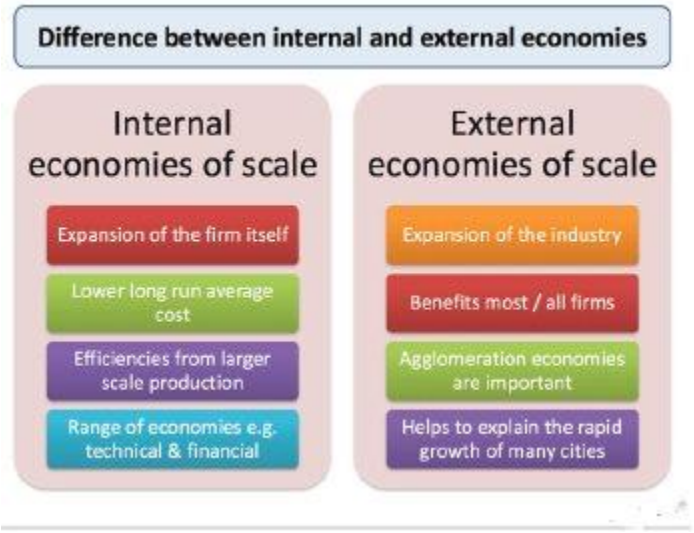
Stages	Input	Output	Returns to Scale
a to b	100% ↑	200% ↑	Increasing
b to c	100% ↑	100% ↑	Constant
c to d	100% ↑	33.33% ↑	Decreasing

The law of constant returns to scale is implied by the movement from the point ***b*** to point ***c***. Because, between these two points inputs have doubled and output also has doubled.

Decreasing returns to scale are denoted by the movement from the point **c** to point **d** since doubling the factors from 4 units to 8 units produce less than the increase in inputs, that is, by only 33.33%

❖ ECONOMIES OF SCALE

'Scale of Production' refers to the ratio of factors of production. This ratio can change because of availability of factors. The Scale of Production is an important fact or affecting the cost of production. Every producer wishes to reduce the costs of production. Hence he(he includes she as well) uses an advantage of economy of scale. This economy of scale is effected both by the internal and external factors of the firm. Accordingly, Economies are broadly divided into two types by Marshall.



1. Internal Economies and

2. External Economies

Economies of scale reduce the cost of production: and, diseconomies of scale increase the cost of production.

1. Internal Economies of Scale:- The term Internal Economies of Scale› refers to the advantages enjoyed by the production unit which causes a reduction in the cost of production of the commodity. For example, a firm enjoying the advantage of an application of most modern machinery, generation of internal capital, an improvement in managerial skill etc. is sure to reduce the cost of production. They are of various types:

I. ***Technical Economies*** **:** When the size of the firm is large, large amount of capital can be used. There is a possibility to introduce up- to-date technologies; this improves productivity of the firm. Here research and development strategies can be applied easily.

II. ***Financial Economies*****:** Big firms can float shares in the market for capital expansion, while small firms cannot easily float shares in the market.

III. ***Managerial Economies*****:** Large scale production facilitates specialisation and delegation.

IV. ***Labour Economies*****:** Large scale production implies greater and minute division of labour. This leads to specialisation which enhances the quality. This increases the productivity of the firm.

V. ***Marketing Economies*****:** In the context of large scale production, the producers can both buy raw- materials in bulk at cheaper cost and can take the products to distant markets. They enjoy a huge bargaining power.

VI. ***Economies of Survival*****:** Product diversification is possible when there is large scale production. This reduces the risk in production. Even if the market for one product collapses, market for other commodities offsets it.

2. External Economies of Scale:- External Economies of Scale refer to changes in any factor outside the firm causing an improvement in the production

process. This can take place in the case of industry also. These are the advantages enjoyed by all the firms in the industry due to the structural growth. Important external economies of scale are listed below.

1. *Increased transport facilities*
2. *Banking facilities*
3. *Development of townships*
4. *Development of information and communication*

❖ DISECONOMIES OF SCALE

The diseconomies of the scale are a disadvantage to a firm or an industry or an organisation. This necessarily increases the cost of production of a commodity or service. Further it delays the speed of the supply of the product to the market. These diseconomies are of two types:

a. *Internal Diseconomies of Scale: and*
b. *External Diseconomies of Scale*

1. Internal Diseconomies of Scale:- When the scale of production increases beyond optimum limit, its efficiency may come down.

2. External Diseconomies of Scale:- The term "External diseconomies of scale" refers to the threat or disturbance to a firm or an industry from factor lying outside it. For example a bus strike prevents the easy and correct entry of the workers into a firm. Similarly the rent of a firm increases very much if new economic units are established in the locality.

❖ ISO-QUANTS

Production function may involve, at a time, the use of more than one variable input. This is presented with the help of iso- quant curves. The two words 'Iso' and 'quant' are derived from the Greek language, meaning 'equal' and 'quantity' respectively. In our presentation only two factors, labour and capital are used.

In Economics, an iso-quant is a curve drawn by joining the combinations of changing the quantities of two or more inputs which give the same level of output. Isoquants are similar to indifference curves.

Table 3.2 Iso-quant

Combination	Units of Labour	Units of Capital	Output of Cloth (meters)
A	2	30	400
B	4	22	400
C	6	16	400
D	8	12	400
E	10	10	400

An iso- quant curve can be defined as the locus of points representing various combinations of two inputs capital and labour yielding the same output. The iso-quant is also called as the "*Equal Product Curve*" or the "*Product Indifference Curve*"

- **Definition of Iso-quant**

According to Ferguson, «*An iso-quant is a curve showing all possible combinations of inputs physically capable of producing a given level of output*"

It is seen from the table 3.2 that the five combinations of labour units and units of capital yield the same level of output, i.e., 400 meters of cloth.

- **Iso-quants are based on the following assumptions.**

1. It is assumed that only two factors are used to produce a commodity.

2. Factors of production can be divided into small parts.

3. Technique of production is constant.

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

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

- **Iso-quant Schedule**

Let us suppose that there are two factors namely., labour and capital. An Iso-quant schedule shows the different combinations of these two inputs that yield the same level of output. It is given below.

- **Iso-quant Curve**

An equal product curve represents all those combinations of two inputs which are capable of producing the same level of output. An iso-product curve can be drawn with the help of isoquant schedule.

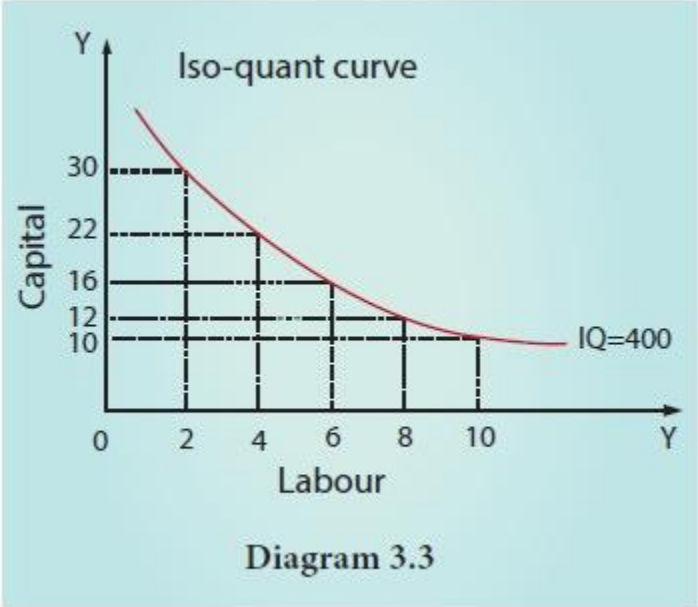


Diagram 3.3

3. Iso-quant Map

An iso-quant map has different iso-quant curves representing the different combinations of factors of production, yielding the different levels of output. In simple term, an iso-quant map is a family of iso-quants. In other words, if more than one iso-quant is drawn in a diagram, it is called iso-quant map.

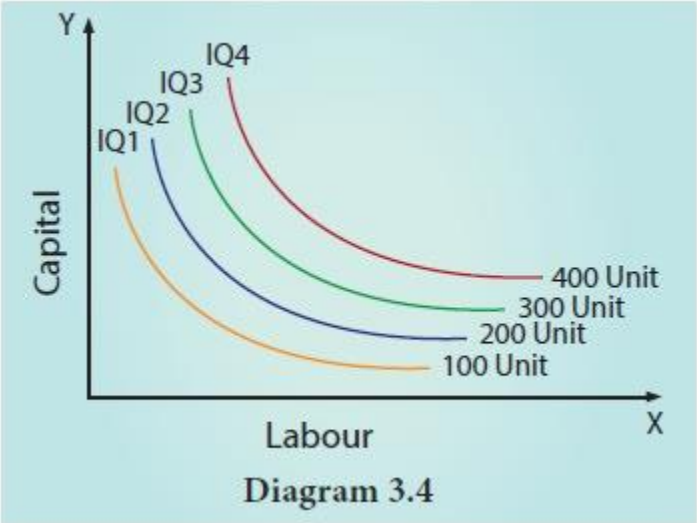


Diagram 3.4

- **Properties of Iso-quant**

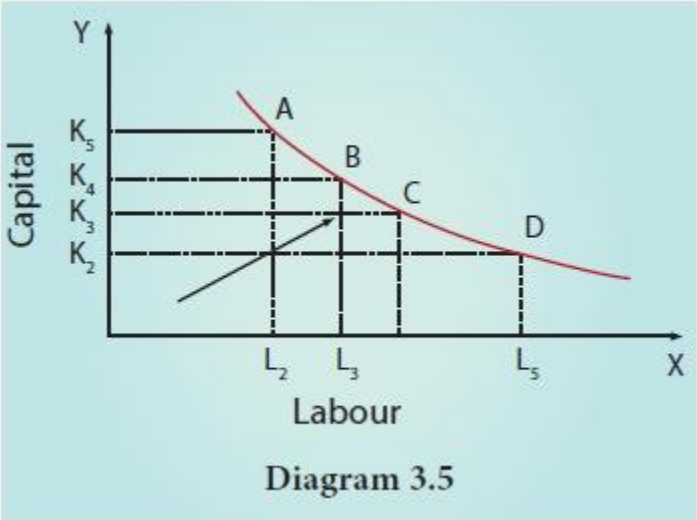


Diagram 3.5

1. The iso-quant curve has negative slope.

It slopes downwards from left to right indicating that the factors are substitutable. If more of one factor is used, less of the other factor is needed for producing the same level of output.

In the diagram combination A refers to more of capital K5 and less of labour L2. As the producer moves to B, C, and D, more labour and less capital are used.

2. Convex to the origin.

This explains the concept of diminishing Marginal Rate of Technical Substitution ($MRTS_{LK}$). For example, the capital substituted by 1 unit of labour goes on decreasing when moved from top to bottom. If so, it is called diminishing MRTS. Constant MRTS (straight line) and increasing MRTS (concave) are also possible. It depends on the nature of iso-quant curve.

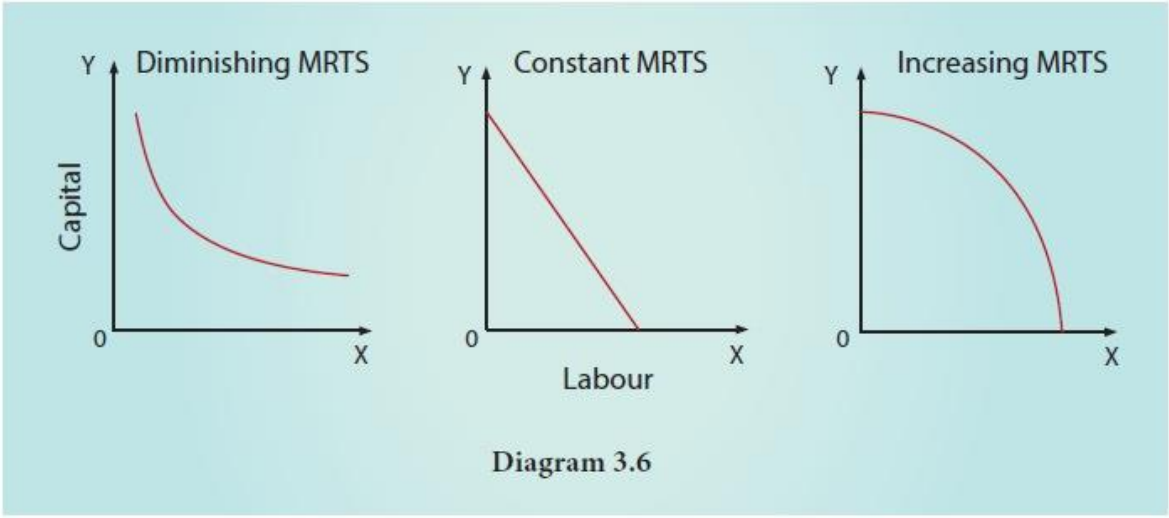


Diagram 3.6

This means that factors of production are substitutable to each other. The capital substituted per unit of labour goes on decreasing when the iso-quant is convex to the origin.

3. Non inter-section of Iso-quant curves.

For instance, point A lie on the iso-quants IQ1 and IQ2. But the point C shows a higher output and the point B shows a lower level of output IQ1. If C=A, B=A, then C=B. But C>B which is illogical.

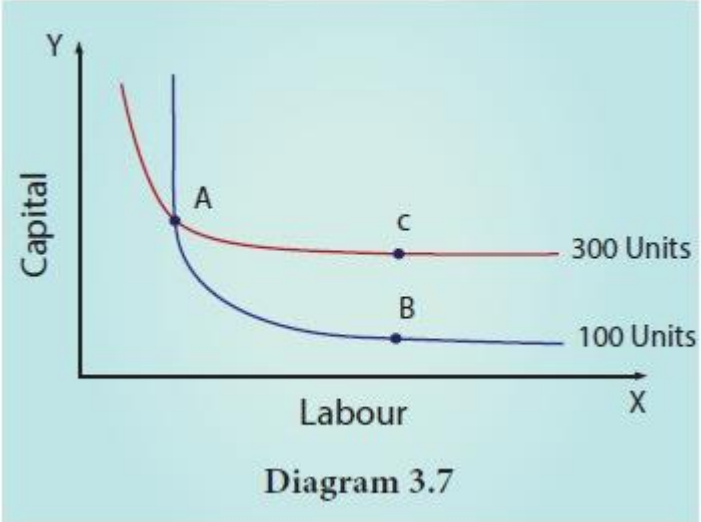


Diagram 3.7

4. An *upper iso-quant curve represents a higher level of output*.

Higher IQs show higher outputs and lower IQs show lower outputs, for upper iso-quant curve implies the use of more factors than the lower isoquant curve.

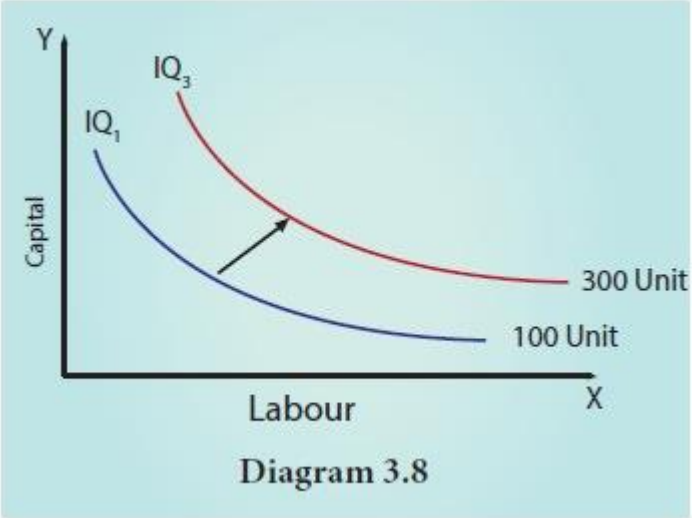


Diagram 3.8

The arrow in the figure shows an increase in the output with a right and upward shift of an iso-quant curve.

5. Iso-quant curve does not touch either X axis or Y axis.

No iso-quant curve touches the X axis or axis because in IQ1, only capital is used, and in IQ2 only labour is used.

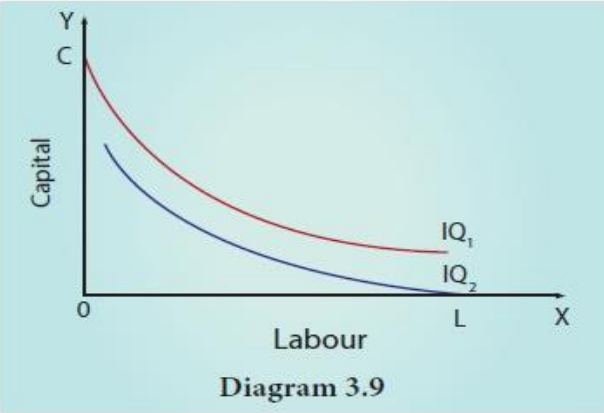


Diagram 3.9

- **The Iso-cost Line**

The iso-cost line is an important component in analysing producer's behaviour. The iso-cost line illustrates all the possible combinations of two factors that can be used at given costs and for a given producer's budget. Simply stated, an iso-cost line represents different combinations of inputs which shows the same amount of cost. The iso- cost line gives information on factor prices and financial resources of the firm. It is otherwise called as "iso-price line" or "iso-income line" or "iso-expenditure line" or "total outlay curve".

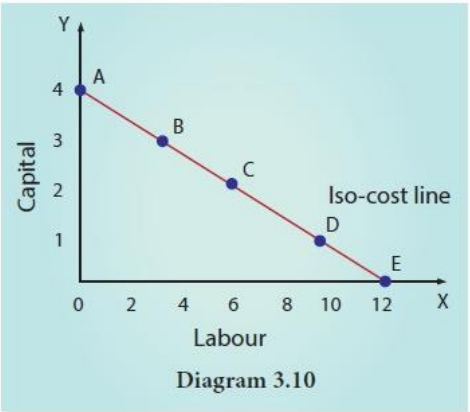


Diagram 3.10

Table 3.3 The Iso-cost

Combinations	Units of Capital Price = ₹30	Units of Labour Price = ₹10	Total Expenditure (in Rupees)
A	4	0	120
B	3	3	120
C	2	6	120
D	1	9	120
E	0	12	120

Suppose that a producer has a total budget of Rs.120 and for producing a certain level of output, he has to spend this amount on two factors Labour (L) and Capital (K). Prices of factors K is Rs. 30 and L is Rs.10. Iso Cost Curve can be drawn by using the following hypothetical table.

As shown in Table, there are five combinations of capital and labour such as combination A represents 4 units of capital and zero units of labour and this combination costs Rs.120. Similarly other combinations (B,C,D and E) cost same amount of rupees (Rs.120).

Symbolically,

4K + 0L= Rs..120

3K + 3L= Rs..120

2K + 6L= Rs..120

1K + 9L= Rs..120, and

0K + 12L= Rs..120.

Thus, all the combinations A, B, C, D and E cost the same total expenditure.

From the figure 3.10, it is shown that the costs to be incurred on capital and labour are represented by the triangle OAE. The line AE is called as Iso-cost line.

- **PRODUCER'S EQUILIBRIUM**

Producer equilibrium implies the situation where producer maximizes his output. It is also known as *optimum combination of the factors of production.* In short, the producer manufactures a given amount of output with *'least cost combination of factors'*, with his given budget.

- **Optimum Combination of Factors implies either**

a. there is output maximization for given inputs or

b. there is cost minimization for the given output.

- ***Conditions for Producer Equilibrium***

The two conditions that are to be fulfilled for the attainment of producer equilibrium are:

a. The iso-cost line must be tangent to iso-quant curve.

b. At point of tangency, the iso-quant curve must be convex to the origin or $MRTS_{Lk}$ must be declining.

When the outlay and prices of two factors, namely, labour and capital are given, producers attain equilibrium (or least cost combination of factors is attained by the firm) where the iso-cost line is tangent to an iso-product curve. It is illustrated in the following Diagram 3.11.

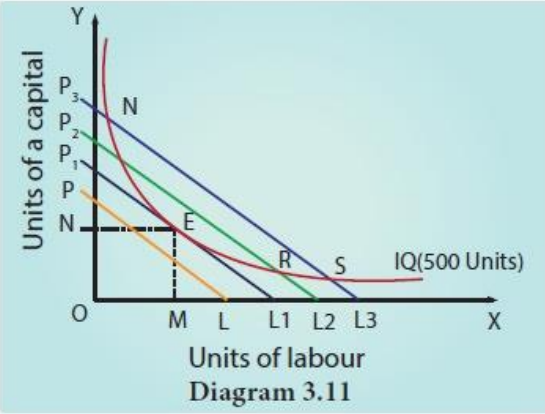


Diagram 3.11

In the above figure, profit of the firm (or the producer) is maximised at the point of equilibrium E.

At the point of equilibrium, the slope of the iso cost line is equal to the slope of iso product curve (or the MRTS of labour for capital is equal to the price ratio of the two factors)

Hence, it can be stated as follows.

$$MRTS_{L,K} = \frac{P_L}{P_K} = 10/30 = 1/3 = 0.333$$

At point E, the firm employs OM units of labour and ON units of capital. In other words, it obtains least cost combination or optimum combination of the two factors to produce the level of output denoted by the iso-quant IQ.

The other points such as H, K, R and S lie on higher iso cost lines indicating that a larger outlay is required, which exceeds the financial resources of the firm.

➢ COBB-DOUGLAS PRODUCTION FUNCTION

Cobb -Douglas Production Function is a specific standard equation applied to describe how much output can be made with capital and labour inputs. It is used in empirical studies of manufacturing industries and in inter-industry comparisons. The relative shares of labour and capital in total output can also be determined. It is still used in the analysis of economies of modern, developed and stable nations in the world.

W.Cobb and Paul H.Douglas

The Cobb-Douglas Production Function was developed by Charles W. Cobb and Paul H. Douglas, based on their empirical study of American manufacturing

industry. It is a linear homogeneous production function which implies that the factors of production can be substituted for one another up to a certain extent only.

The Cobb-Douglas production function can be expressed as follows.

$$Q = AL^{\alpha} K^{ß}$$

Where, Q = output; A = positive constant; K = capital; L = Labor α and β are positive fractions showing, the elasticity coefficients of outputs for the inputs labor and capital, respectively.

ß= (1- α) since α + ß = 1. denoting constant returns to scale.

Factor intensity can be measured by the ratio ß / α.

The sum of a + ß shows the returns to scale.

i. (α + ß) =1, constant returns to scale.

ii. (α + ß) <1, diminishing returns to scale.

iii. (α + ß) >1, increasing returns to scale.

a. The production function explains that with the proportionate increase in the factors, the output also increases in the same proportion.

b. Cobb-Douglas production function implies constant returns to scale.

c. Cobb-Douglas production function considered only two factors like

d. Cobb-Douglas Production Function is a specific standard equation applied to describe how much output can be made with capital and labour inputs. It is used in empirical studies of manufacturing industries and in inter-industry comparisons. The relative shares of labour and capital in total output can also be determined. It is still used in the analysis of economies of modern, developed and stable nations in the world.

e. labour and capital. Production takes place only when both factors are employed.

f. Labour contributes three-fourth of production and capital contributes one-fourth of production.

g. The elasticity of substitution between the factors is equal to one.

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.

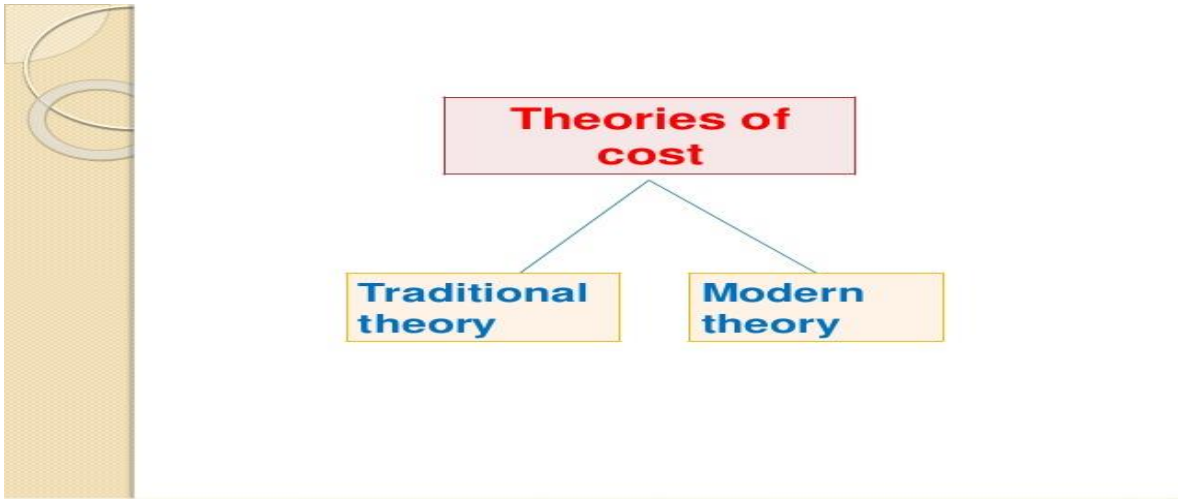
(25)Long run Cost:

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.

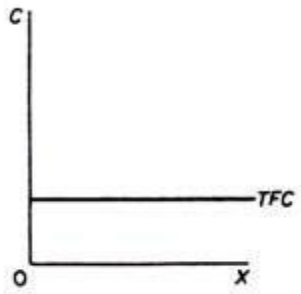


Figure 4.1

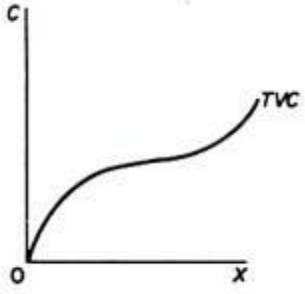


Figure 4.2

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.

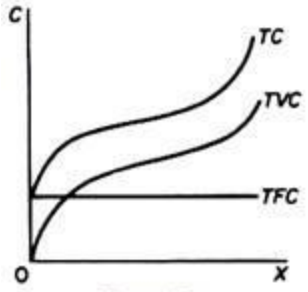


Figure 4.3

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).

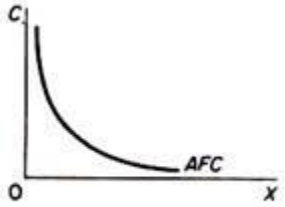


Figure 4.4

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).

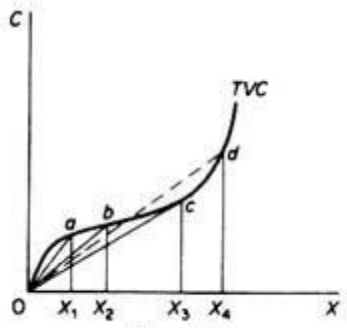


Figure 4.5

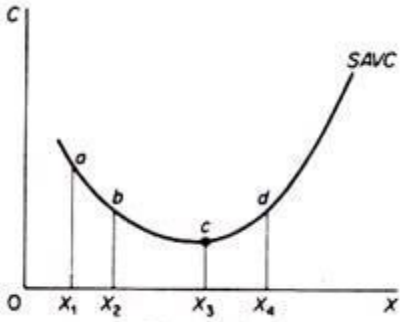


Figure 4.6

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).

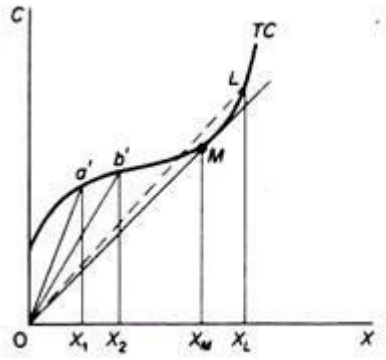


Figure 4.7

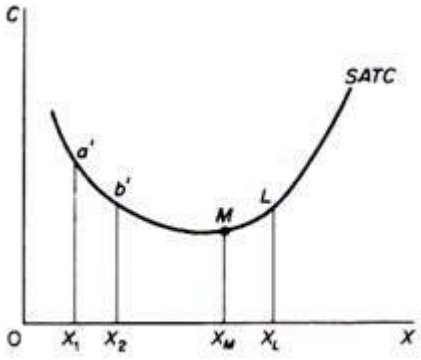


Figure 4.8

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.

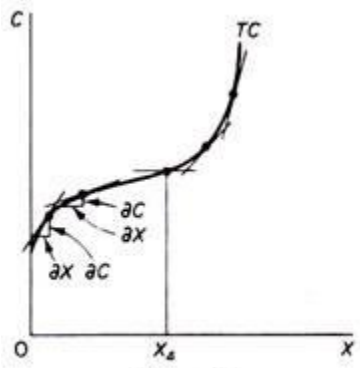


Figure 4.9

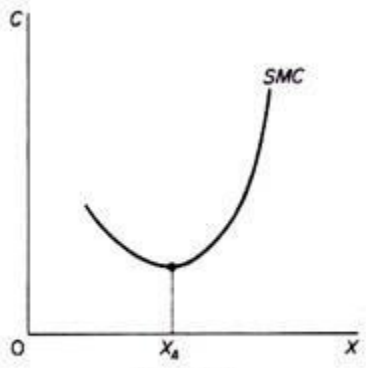


Figure 4.10

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.

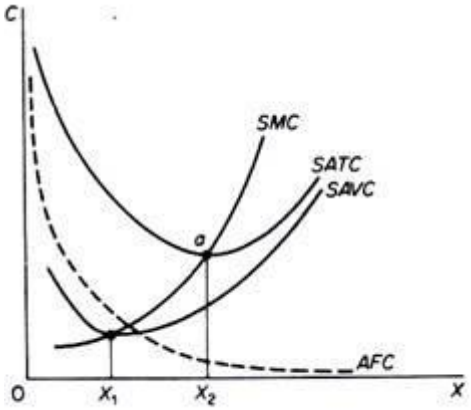


Figure 4.11

- **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.

3. **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.

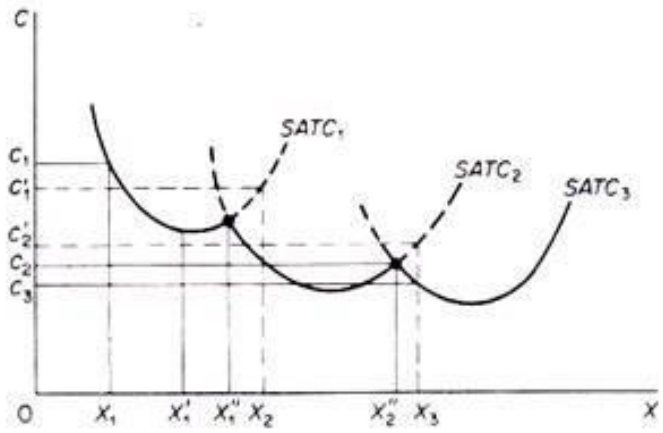


Figure 4.12

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).

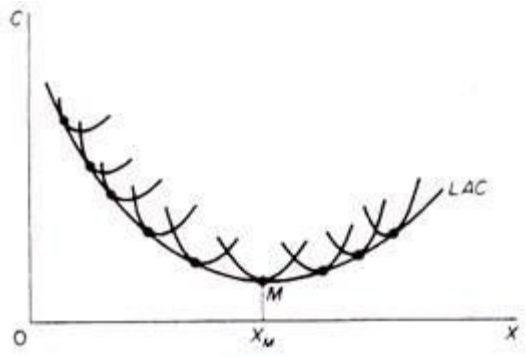


Figure 4.13

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.

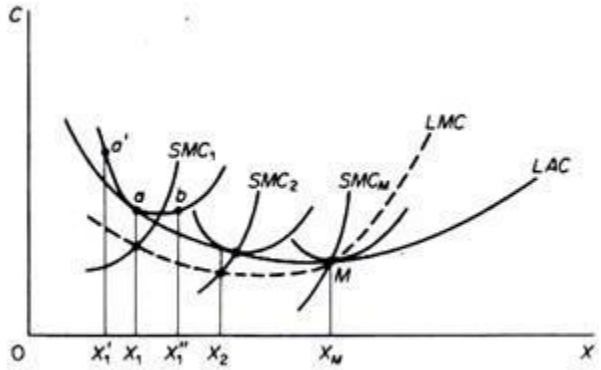


Figure 4.14

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).

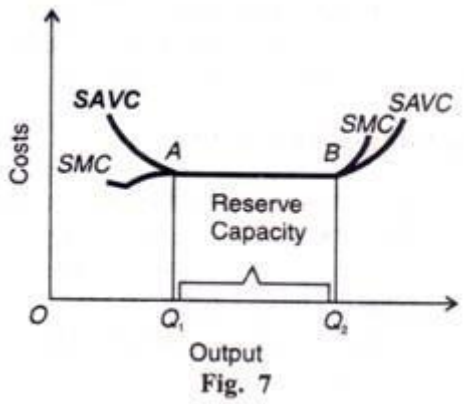


Fig. 7

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.

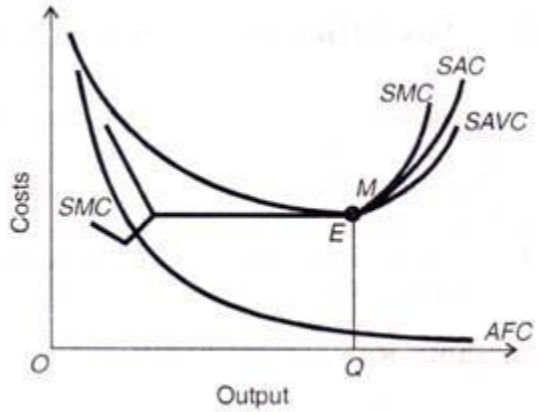


Fig. 8

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.

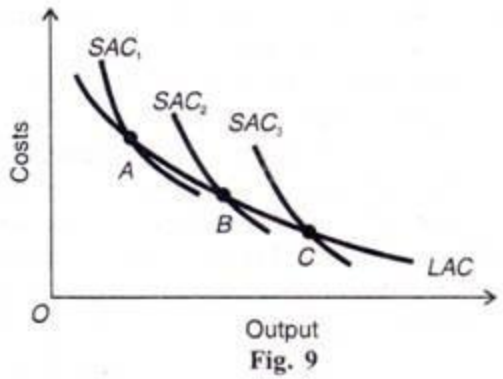


Fig. 9

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.

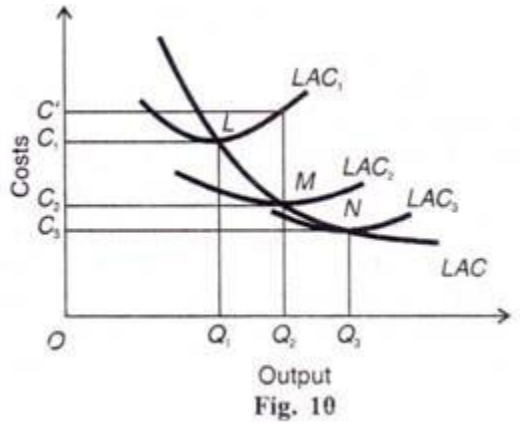


Fig. 10

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.

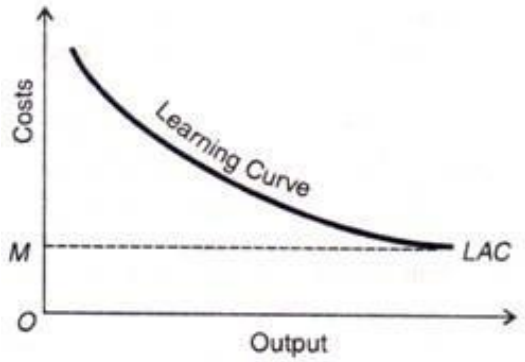


Fig. 11.

- **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.

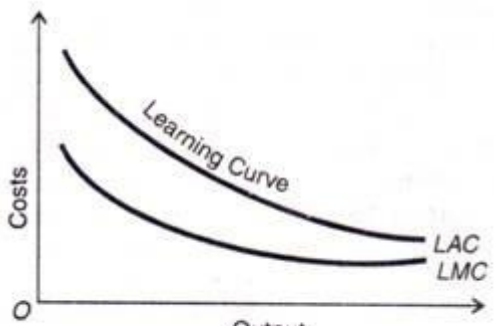


Fig. 12.

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.

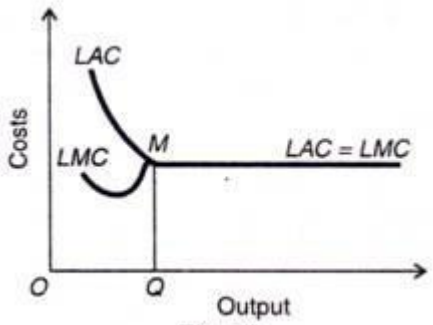


Fig. 13.

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.

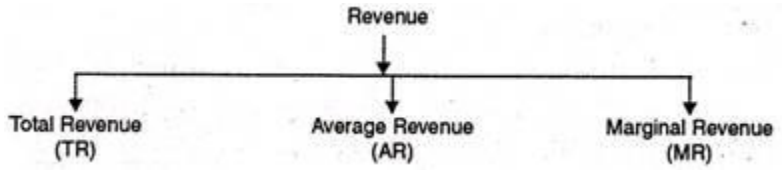
Revenue is a very important concept in economic analysis. It is directly influenced by sales level, i.e., as sales increases, revenue also increases.

➢ 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.

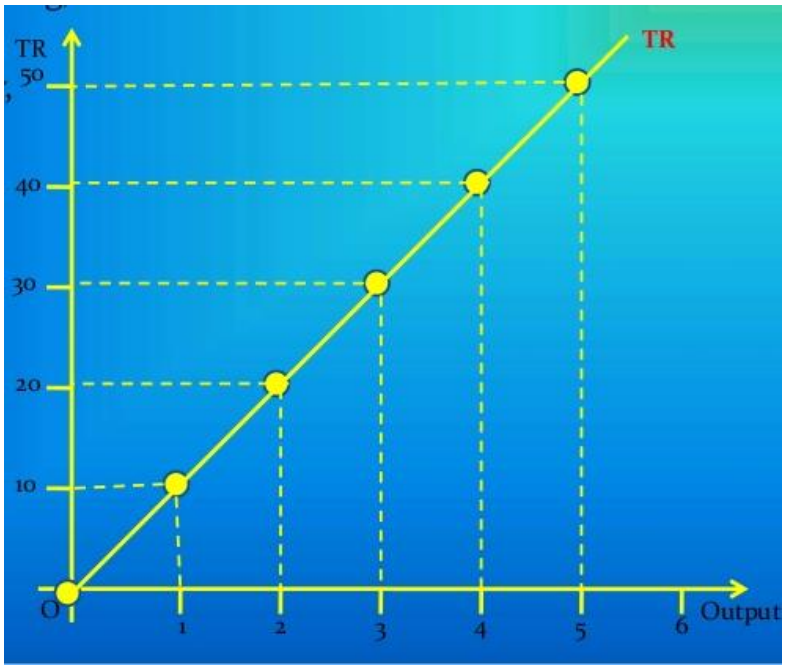
It can be explained with the help of following table and graph.

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

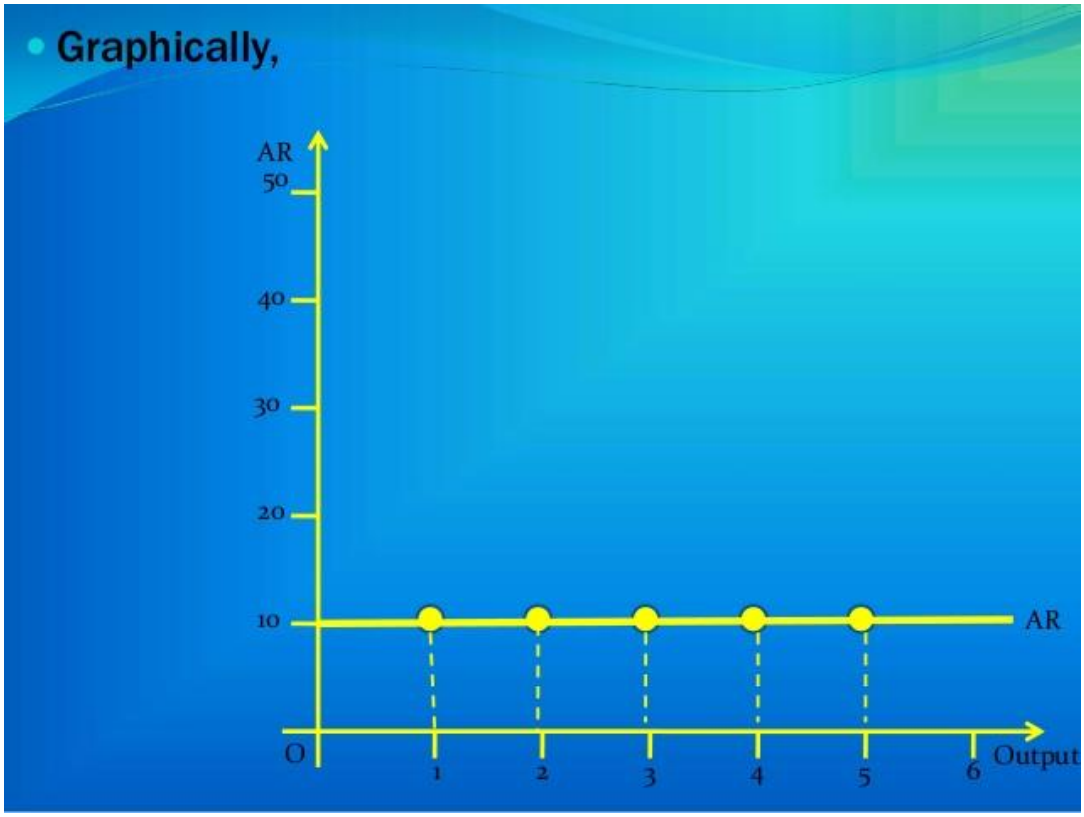
Units of Output (Q)	Per Unit Price (P)	Total Revenue (TR)	Average Revenue (AR) = TR/Q
0	10	0	-
1	10	10	10
2	10	20	10
3	10	30	10
4	10	40	10
5	10	50	10

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.

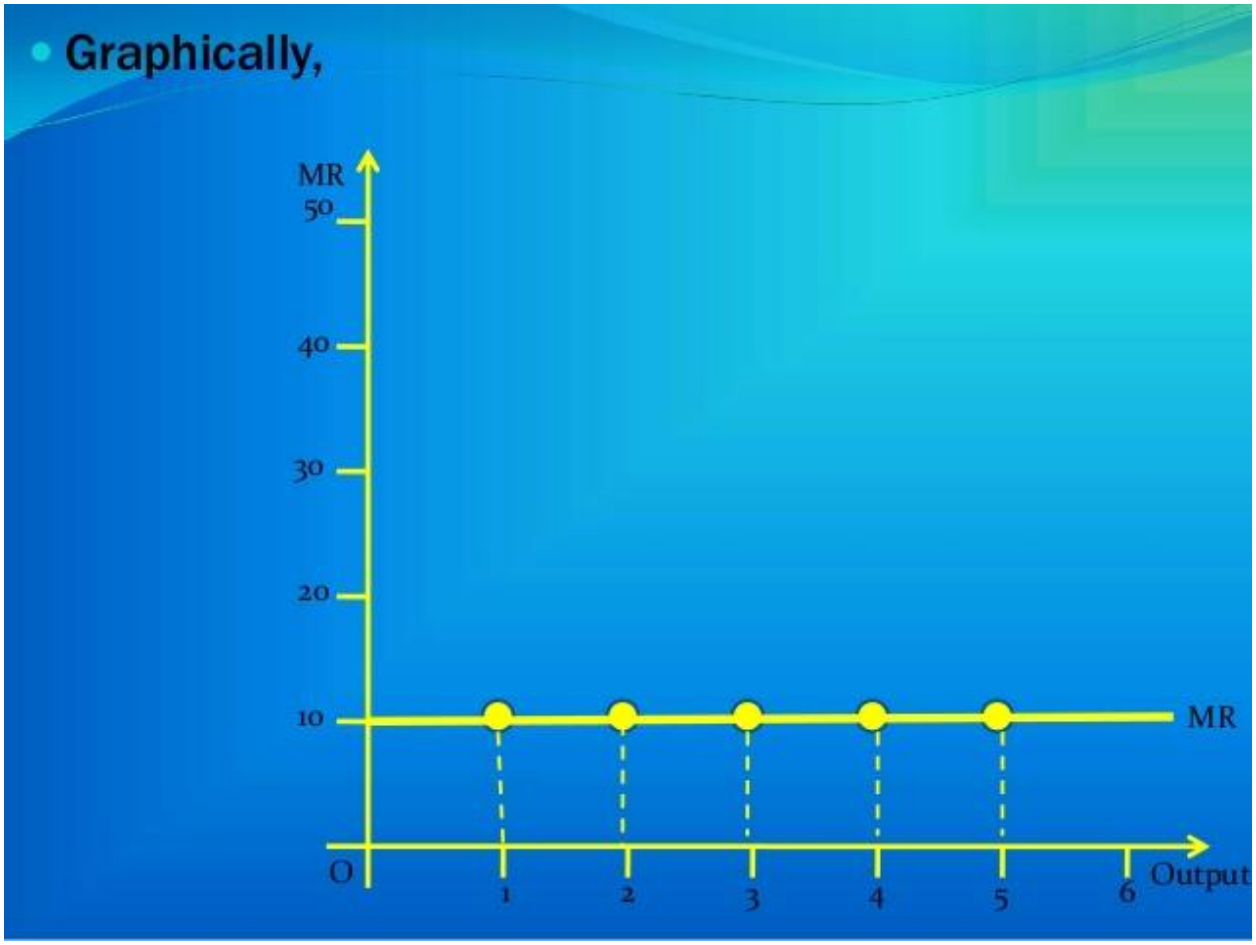
It can be explained with the help of following table and graph.

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.

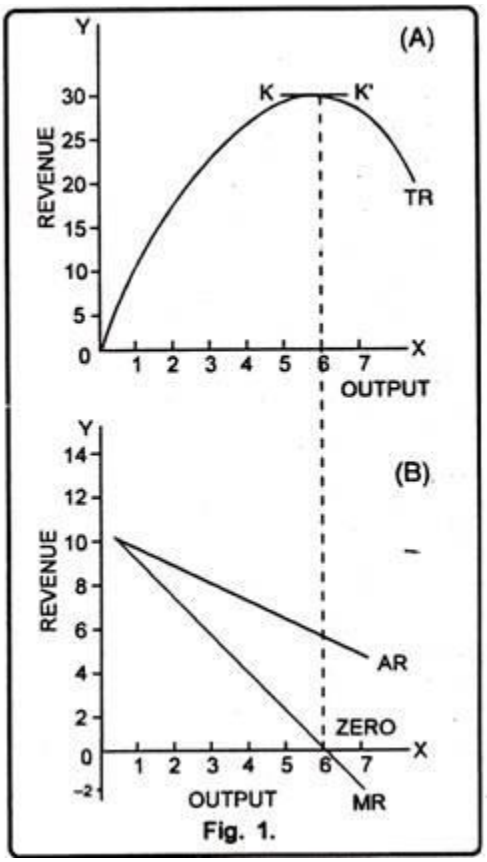


Fig. 1.

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.

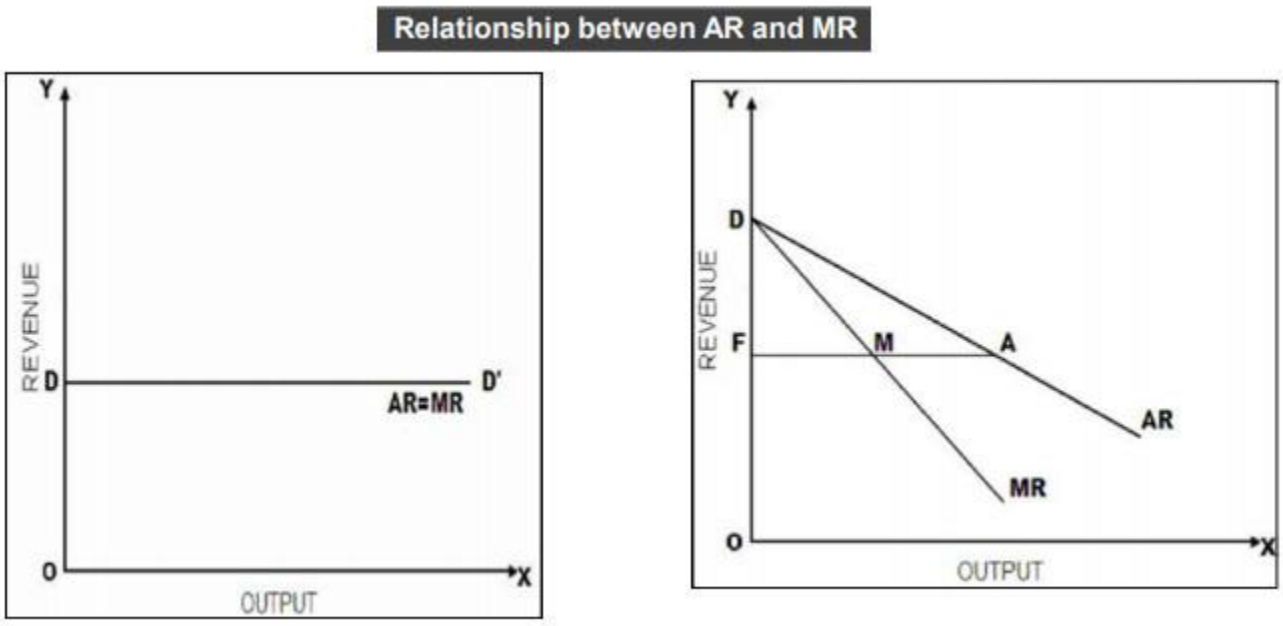
However, if MR is falling with the increase in the quantity of sale, then the TR curve will gain height at a decreasing rate. When the MR curve touches the X-axis, the TR curve reaches its maximum height.

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.

❖ Important Questions

1. Define Managerial Economics? Explain the Nature & Scope Of Managerial Economics?
2. Define Managerial Economics? Discuss the Relationship Between Other Disciplines Of Managerial Economics?
3. Discuss The Role of Managerial Economics in Decision Making?
4. Define Demand? Discuss Its Characteristics, Schedule & Curve & Its Determinants?
5. Explain The Law of Demand. Why Does Demand Curve Slopes Downwards to the Right? Explain the Circumstances In Which Demand Curve Slope ? Explain The Methods Of Elasticity Of Demand ?
6. Write The Short Note On Followings:-
   A) Demand Estimation.
   B) Demand Forecasting.
   C) Types Of Demand
7. Define Theory Of Cost? Exaplain Its Types & Determinants?
8. Define Modern Theory ? Discuss Its Types & Importance?
9. Discuss Relationship Between Cost And Production Function?
10. Define Revenue? Explain Its Types, Shapes And Curves?
11. Explain Relationship Between Marginal Revenue & Elasticity of Demand?
12. Discuss the concept of interaction of Demand & Supply forces.
13. Write the detailed note on Market Mechanism.
14. Discuss the concept of Marginal Utility.

GROUP-II

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).

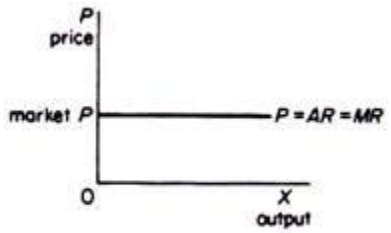


Figure 5.1

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:

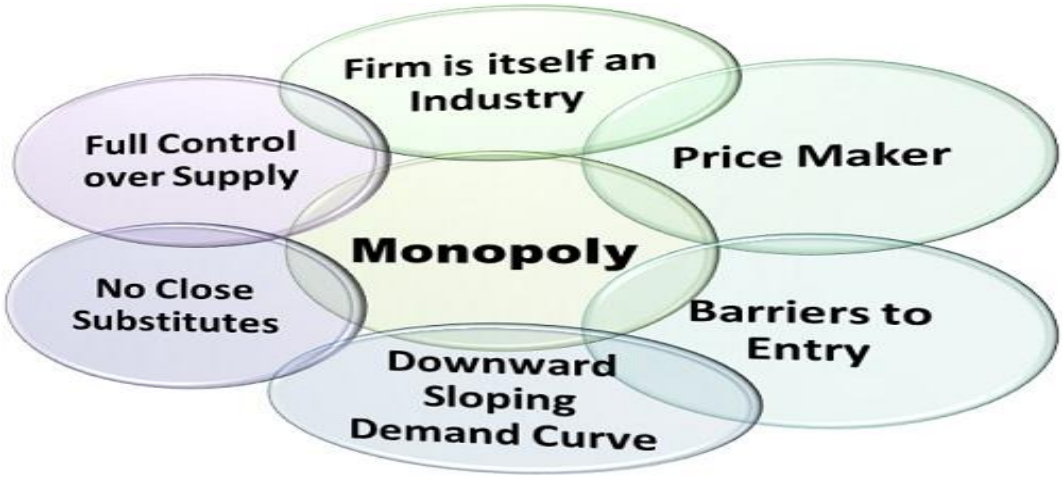
It is assumed that all sellers and buyers have complete knowledge of the conditions of the market. This knowledge refers not only to the prevailing

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.

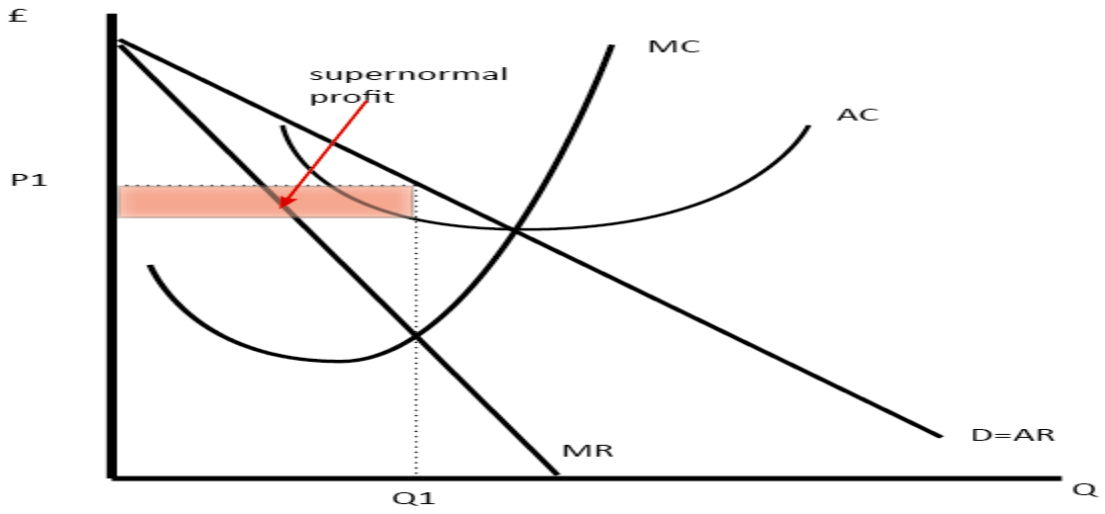
- ✓ **Features of Monopolistic Competition**

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.

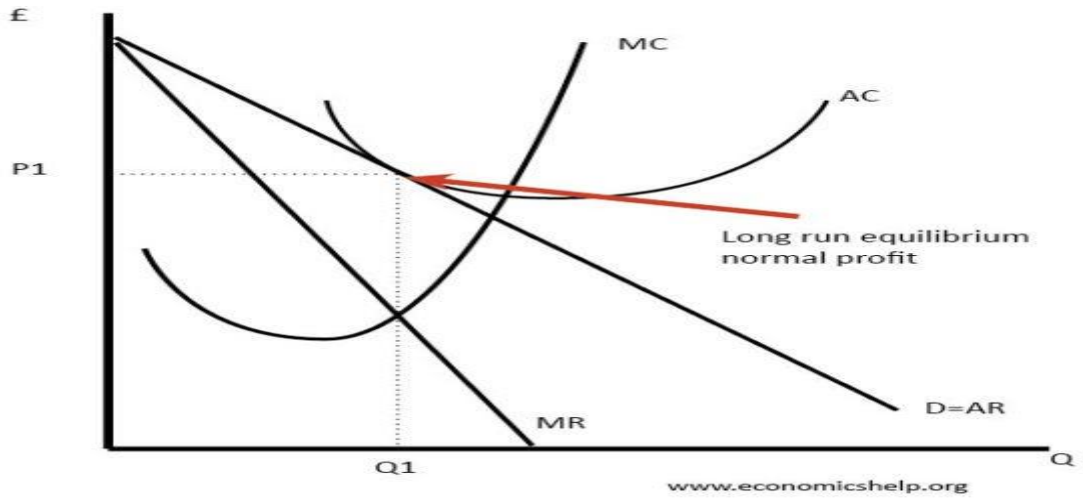
Diagram monopolistic competition short run



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

- Some firms will be better at brand differentiation and therefore, in the real world, they will be able to make supernormal profit.
- New firms will not be seen as a close substitute.
- 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
- 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.
- 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.

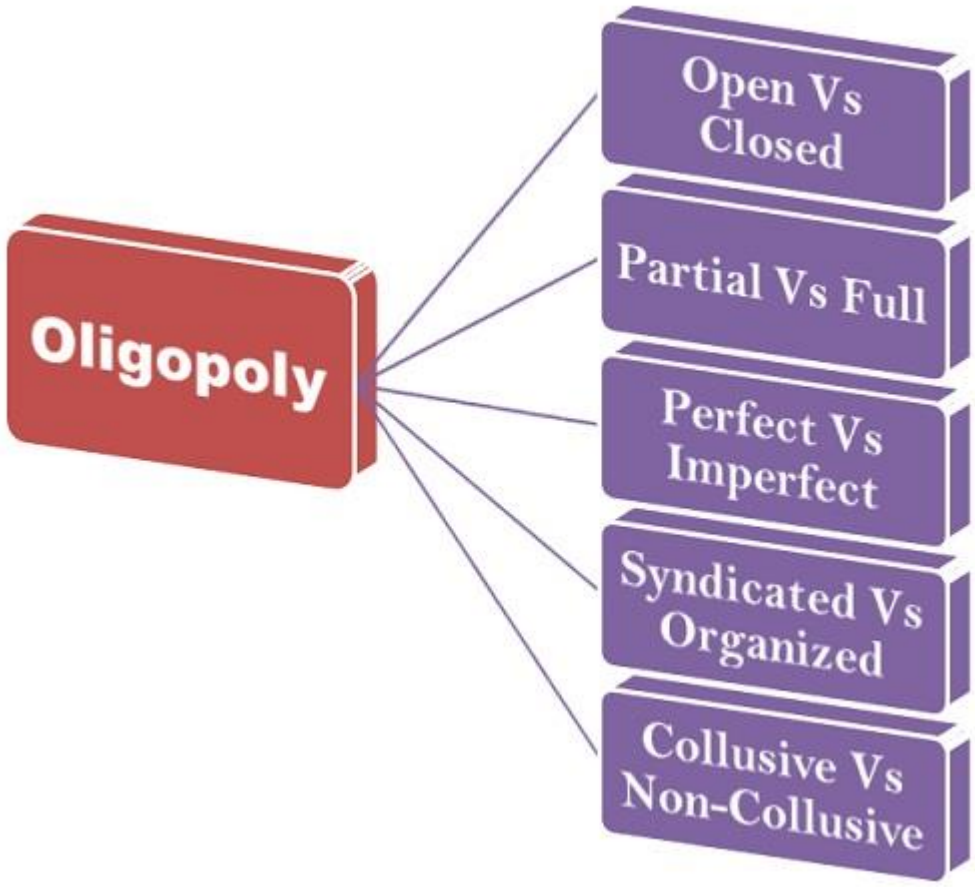
6. Lack of Uniformity:

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.

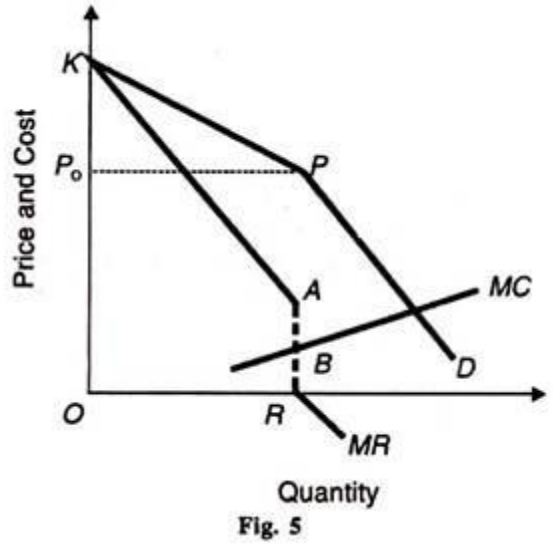


Fig. 5

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:

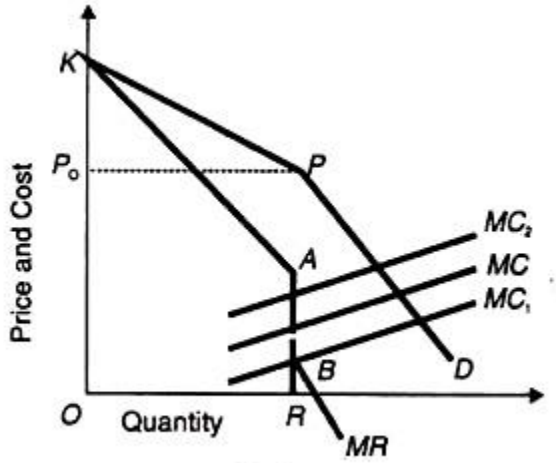


Fig. 6

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.

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.

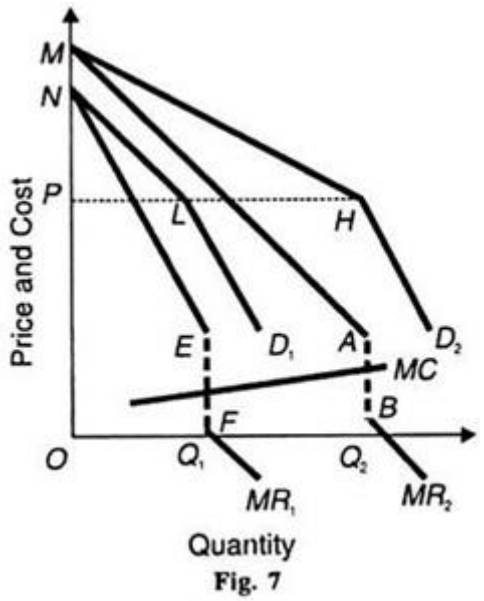


Fig. 7

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.

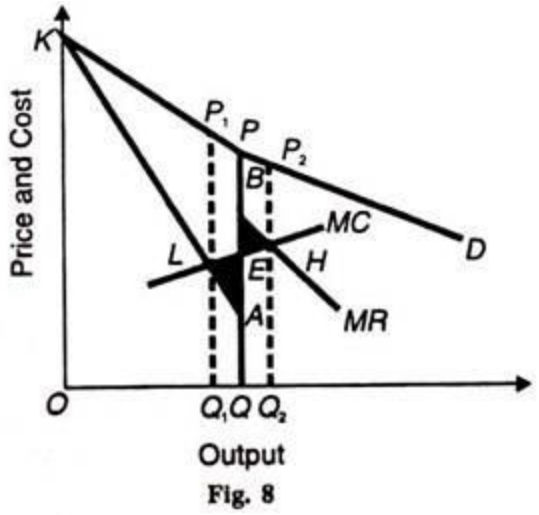


Fig. 8

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."**

❖ ROLE OF MACROECONOMIC ANALYSIS IN FORMULATION OF BUSINESS POLICIES & DECISION MAKING

Macro economics helps the business in in-depth knowledge of macro economic environment of business relating to industrial policy, licensing policy, economic planning monetary and fiscal framework and overall economic policy. The role of macro economics in business policy formulation is being discussed in the following points:

1. Macro economic policy:- Macro economics helps in formulation of economic policy. The subjects of an economic policy are monetary policy, fiscal policy, incomes policies and policy on balance of payment. Economic policy should be such that it promotes the business environment and provides impetus to business activities.

2. Economic planning:- A serious attempt towards self sustained growth of business is only possible by efficient planning. Planning is now a days synonymous with growth and development. Identification of priority areas, estimation of resources and coordination among various sectors of economy can be done through proper planning. Planning directs the growth in desirable corners.

3. Solving macro paradoxes:- Macro economics helps in solving macro paradoxes like paradox of thrift related to savings, paradox of assumption by

commercial banks that all depositors would not withdraw their money on any particular day and their right to withdrawal.

4. Tracing effect of government policy on business:- Macro economics helps in tracing the implications of government policy changes on existing business activity.

5. Help in solving problem of general unemployment:- Effective demand is the focal point of macro economics. Reduction in effective demand brings economic depression and thereby general unemployment. Hence, the level of effective demand should be increased in order to increase the level of employment.

6. Analysis of trade cycles:- Macro economics tries to know about the behavior and occurrence of booms and slumps and their implication on business activity. This analysis is very useful for a free enterprise economy. Business cycles are bound to occur. Macro economics helps the business in facing booms and slumps so that negative impact is minimized.

7. Macro analysis helps in development of micro analysis:- In the deductive method process of logic goes from general to particular. We go on deducting to draw specific conclusions. Many of micro economic conclusions are outcome of macro conclusion. The assumption that consumer is rational has been decided only after knowing about the behavior of a group. A medico is allowed to specialize in some part of human body from surgical view point only when he has understood the anatomy and physiology of human body.

8. Inability of micro economics to study some areas:- Micro economics is not able to study monetary problems, fiscal problems, financial sector problems, foreign exchange regulation problems and inflationary and recessionary situations problems. Business needs to be protected from these ticklish problems and therefore, needs the help of macro economics.

9. Macro economic models:- Macro economics helps in building or constructing macro economic models. The major objective function of a macro economic model is to maintain the macro equilibrium in the country at the full employment level. The role of government through its monetary and fiscal operations becomes important as independent variables i.e. these policies are used to explain the dependent variable i.e. maintaining macro equilibrium.

ECONOMICS SYSTEM

❖ MEANING OF ECONOMIC SYSTEM

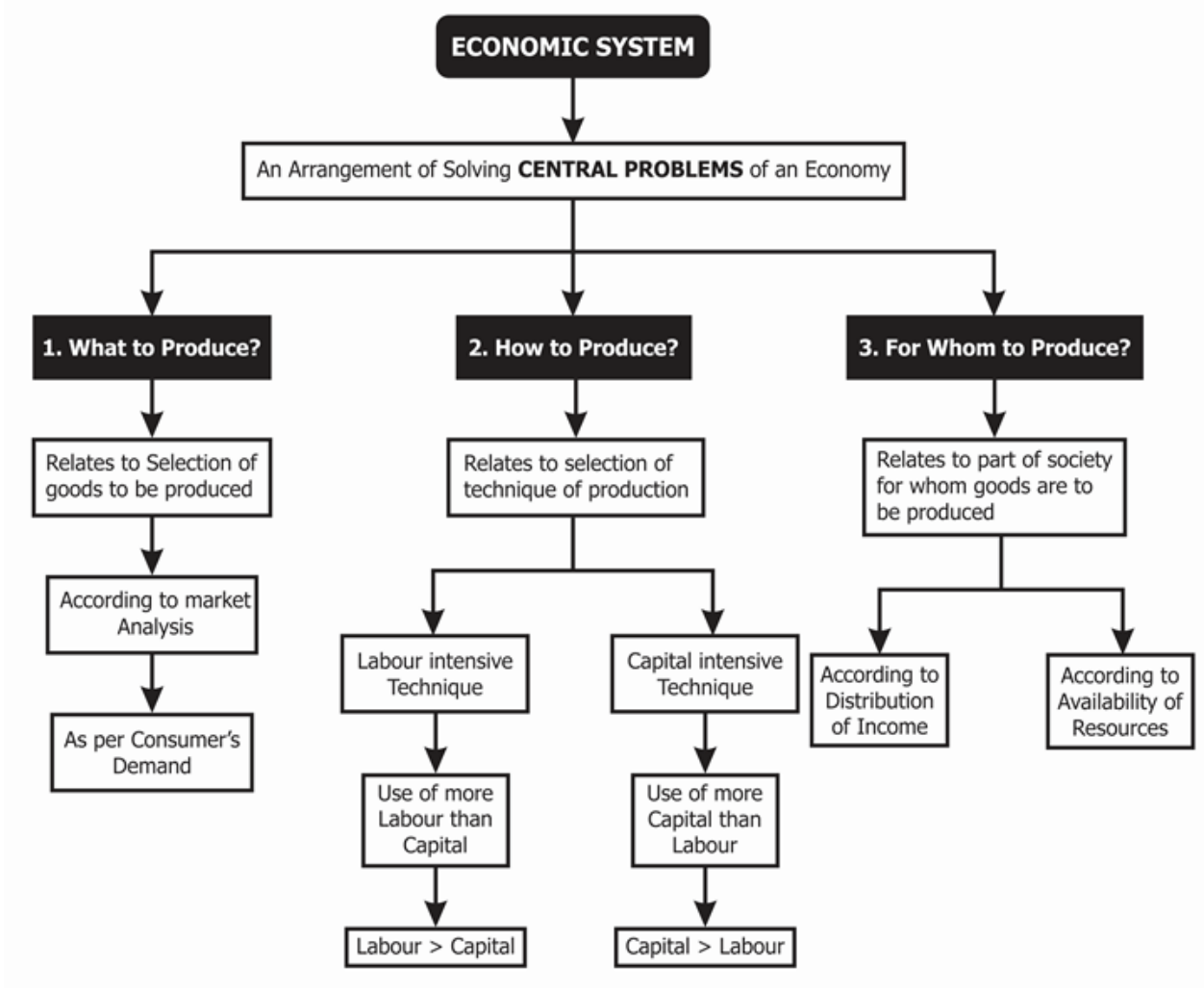
An economic system is a mechanism with the help of which the government plans and allocates accessible services, resources and commodities across the country. Economic systems manage elements of production, combining wealth, labour, physical resources and business people. An economic system incorporates many companies, agencies, objects, models, as well as for deciding procedures.

❖ TYPES OF ECONOMIC SYSTEMS

1. Capitalist Economy- In a capitalist system, the products manufactured are divided among people not according to what people want but on the basis of Purchasing Power—which is the ability to buy products and services. This means an individual needs to have the money with him to buy the goods and services. The Low-cost housing for the underprivileged is much required but will not include as demand in the market because the needy do not have the buying power to back the demand. Therefore, the commodity will not be manufactured and provided as per market forces.

2. Socialist Economy- This economy system acknowledges the three inquiries in a different way. In a socialist society, the government determines what products are to be manufactured in accordance with the requirements of society. It is believed that the government understands what is appropriate for the citizen of the country, therefore, the passions of individual buyers are not given much attention. The government concludes how products are to be created and how the product should be disposed of. In principle, sharing under socialism is assumed to be based on what an individual needs and not what they can buy. A socialist system does not have a separate estate because everything is controlled by the government.

3. Mixed Economic – Mixed systems have characteristics of both the command and market economic systems. For this purpose, the mixed economic systems are also called dual economic systems. However, there is no sincere method to determine a mixed system. Sometimes, the word represents a market system beneath the strict administrative control in certain sections of the economy.



❖ ECONOMIC SECTOR

The economic sector is divided into three economic sectors

1. Primary Sector: It is that sector which relies on the environment for any production or manufacturing. A few examples of the primary sector are mining, farming, agriculture, fishing, etc.

2. Secondary Sector: In this sector, the raw material is transferred to a valuable product. A few examples are construction industries and manufacturing of steel, etc.

3. Tertiary Sector: It is also known as Service Sector, and includes production and exchange of services. A few examples are banking, insurance, transportation, communication, etc.

❖ DIFFERENCE BETWEEN CAPITALIST, SOCIALIST & MIXED ECONOMY

Basis	Capitalist Economy	Socialist Economy	Mixed Economy
Ownership of Property	Private ownership	Public ownership	Both public and private ownership
Price Determination	Prices are determined by the market forces of demand and supply	Prices are determined by the central planning authority.	Prices are determined by central planning authority and demand and supply.
Motive of Production	Profit motive	Social welfare	The profit motive in the private sector and welfare motive in the public sector.
Role of Government	No role	Complete role	Full role in the public sector and limited role in the private sector
Competition	Exists	No competition	Exist only in the private sector
Distribution of income	Very Unequal	Quite Equal	Considerable inequalities exist.

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.

Definitions of National Income:

The definitions of national income can be grouped into two classes: One, the traditional definitions advanced by Marshall, Pigou and Fisher; and two, modern definitions.

I. Traditional Definitions

1. The Marshallian Definition:

According to Marshall: "The labour and capital of a country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds. This is the true net annual income or revenue of the country or national dividend."

In this definition, the word 'net' refers to deductions from the gross national income in respect of depreciation and wearing out of machines. And to this, must be added income from abroad.

It's Defects:

Though the definition advanced by Marshall is simple and comprehensive, yet it suffers from a number of limitations. First, in the present day world, so varied and numerous are the goods and services produced that it is very difficult to have a correct estimation of them.

Consequently, the national income cannot be calculated correctly. Second, there always exists the fear of the mistake of double counting, and hence the national income cannot be correctly estimated. Double counting means that a particular commodity or service like raw material or labour, etc. might get included in the national income twice or more than twice.

For example, a peasant sells wheat worth Rs.2000 to a flour mill which sells wheat flour to the wholesaler and the wholesaler sells it to the retailer who, in turn, sells it to the customers. If each time, this wheat or its flour is taken into consideration, it will work out to Rs.8000, whereas, in actuality, there is only an increase of Rs.2000 in the national income.

Third, it is again not possible to have a correct estimation of national income because many of the commodities produced are not marketed and the producer either keeps the produce for self-consumption or exchanges it for other commodities. It generally happens in an agriculture- oriented country like India. Thus the volume of national income is underestimated.

2. The Pigouvian Definition:

A.C. Pigou has in his definition of national income included that income which can be measured in terms of money.

In the words of Pigou, "National income is that part of objective income of the community, including of course income derived from abroad which can be measured in money."

This definition is better than the Marshallian definition. It has proved to be more practical also. While calculating the national income now-a- days, estimates are prepared in accordance with the two criteria laid down in this definition.

First, avoiding double counting, the goods and services which can be measured in money are included in national income.

Second, income received on account of investment in foreign countries is included in national income.

It's Defects:

The Pigouvian definition is precise, simple and practical but it is not free from criticism. First, in the light of the definition put forth by Pigou, we have to unnecessarily differentiate between commodities which can and which cannot be exchanged for money.

But, in actuality, there is no difference in the fundamental forms of such commodities, no matter they can be exchanged for money. Second, according to this definition when only such commodities as can be exchanged for money are included in estimation of national income, the national income cannot be correctly measured.

According to Pigou, a woman's services as a nurse would be included in national income but excluded when she worked in the home to look after her children because she did not receive any salary for it. Similarly, Pigou is of the view that if a man marries his lady secretary, the national income diminishes as he has no longer to pay for her services.

Thus the Pigovian definition gives rise to a number of paradoxes. Third, the Pigovian definition is applicable only to the developed countries where goods and services are exchanged for money in the market.

According to this definition, in the backward and underdeveloped countries of the world, where a major portion of the produce is simply bartered, correct estimate of national income will not be possible, because it will always work out less than the real level of income. Thus the definition advanced by Pigou has a limited scope.

3. Fisher's Definition:

Fisher adopted 'consumption' as the criterion of national income whereas Marshall and Pigou regarded it to be production. According to Fisher, "The National dividend or income consists solely of services as received by ultimate consumers, whether from their material or from the human environments. Thus, a piano, or an overcoat made for me this year is not a part of this year's income, but an addition to the capital. Only the services rendered to me during this year by these things are income."

Fisher's definition is considered to be better than that of Marshall or Pigou, because Fisher's definition provides an adequate concept of economic welfare which is dependent on consumption and consumption represents our standard of living.

It's Defects:

But from the practical point of view, this definition is less useful, because there are certain difficulties in measuring the goods and services in terms of money. First, it is more difficult to estimate the money value of net consumption than that of net production.

In one country there are several individuals who consume a particular good and that too at different places and, therefore, it is very difficult to estimate their total consumption in terms of money. Second, certain consumption goods are durable and last for many years.

If we consider the example of piano or overcoat, as given by Fisher, only the services rendered for use during one year by them will be included in income. If an overcoat costs Rs. 100 and lasts for ten years, Fisher will take into account only Rs. 100 as national income during one year, whereas Marshall and Pigou will include Rs. 100 in the national income for the year, when it is made.

Besides, it cannot be said with certainty that the overcoat will last only for ten years. It may last longer or for a shorter period. Third, the durable goods generally keep changing hands leading to a change in their ownership and value too.

It, therefore, becomes difficult to measure in money the service-value of these goods from the point of view of consumption. **For instance, the owner of a Maruti car sells it at a price higher than its real price and the purchaser after using it for a number of years further sells it at its actual price**.

Now the question is as to which of its price, whether actual or black market one, should we take into account, and afterwards when it is transferred from one person to another, which of its value according to its average age should be included in national income?

But the definitions advanced by Marshall, Pigou and Fisher are not altogether flawless. However, the Marshallian and Pigovian definitions tell us of the reasons influencing economic welfare, whereas Fisher's definition helps us compare economic welfare in different years.

II Modern Definitions:

From the modern point of view,

1. Simon Kuznets has defined national income as "the net output of commodities and services flowing during the year from the country's productive system in the hands of the ultimate consumers."

On the other hand, in one of the reports of United Nations, national income has been defined on the basis of the systems of estimating national income, as net national product, as addition to the shares of different factors, and as net national expenditure in a country in a year's time. In practice, while estimating national income, any of these three definitions may be adopted, because the same national income would be derived, if different items were correctly included in the estimate.

❖ Assumption of National Income

This basic model of national income (GDP) determination is based on the following assumptions.

1. The economy has only two sectors, viz., households and business enterprises. The households spend money on consumption and the business enterprises on investment.

2. There is no government or the government does not interfere in the economy in any manner. It neither imposes taxes, nor does it spend money on subsidies consumption or investment.

3. The country has a closed economy. It neither exports, nor imports goods services and thus has no economic relationship with the rest of the world.

4. Prices of all goods produced in the economy and all inputs used in production are fixed.

5. The economy has excess capacity, i.e., all the production units are producing less than their capacity output. Hence there are no constraints on expansion of output.

6. In this model of GDP determination, we are dealing with a short period of time short run here means that a deviation of actual GDP from the potential GDP and the consequent excess capacity, unemployment and recessionary trends, etc., are likely to be maintained during this time span as the time period is not sufficient for the operation of the automatic adjustment mechanism to restore equilibrium at the potential GDP level.

❖ 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 = (PXQ)

Where,GDP = gross domestic product

P = Price of goods and services

Q= Quantity of goods and services

GDP is made up of 4 Components

a) Consumption
b) Investment
c) Government Expenditure
d) Net Foreign Exports Of A Country

GD=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): Is calculated by dividing the national income of the country by the total population of a country.

Thus, PCI=Total National Income/Total National Population

- **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

(i) Compensation of employees: (Wage) salaries paid in cash and kind and other benefits provided to employees.
(ii) Consumption of Fixed Capital: wear and tear of machinery which are replaced by new parts.
(iii) 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:
(i) Goods and services actually sold in the market.
(ii) Goods and services not sold but supplied free of cost. (No Charge/Complementary)

Some of the goods and services not included in production are:
(i)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.
(ii)Production due to unwarranted/ illegal activities.
(iii) Non-economic goods or natural goods such as air and water.
(iv) Transfer Payments such as scholarships, pensions etc. are excluded as there is income received, but no good or service is produced in return.
(v) Imputed rental for owner-occupied housing is also excluded.
(vi) Here the Gross Value of final goods and services produced in a country in certain year is calculated.
(vii) 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;
(i) 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.

(ii) 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.

(iii) 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.

(iv) 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.

- **Difficulties or Limitations in the Measurement of National Income**

The following points highlight the eight major difficulties in the measurement of national income.

1. Prevalence of Non-Monetized Transactions:-There are certain transactions in India in which a considerable part of output does not come into the market at all.

For example:-Agriculture in which a major part of output is consumed at the farm level itself. The national income statistician, therefore, has to face the problem of finding a suitable measure for this part of output.

2. Illiteracy:-The majority of people in India are illiterate and they do not keep any accounts about the production and sales of their products. Under the circumstances the estimates of production and earned incomes are simply guess work.

3. Occupational Specialisation is Still Incomplete and Lacking:-There is the lack of occupational specialisation in our country which makes the calculation of national income by product method difficult. Besides the crop, farmers are also engaged is supplementary occupations like—dairying, poultry, cloth-making etc. But income from such productive activities is not included in the national income estimates.

4. Lack of Availability of Adequate Statistical Data:-Adequate and correct produc-tion and cost data are not available in our country. For estimating national income data on unearned incomes and on persons employed in the service are not available. Moreover data on consumption and investment expenditures of the rural and urban population are not available for the estimation of national income. Moreover, there is no machinery for the collection of data in the country.

5. Value of Inventory Changes:-The value of all inventory changes (i.e., changes in stock etc.) which may be either positive or negative are added or subtracted from the current production of the firm. Remember, if in the change

in inventories and not total inventories for the year that are taken into account in national income estimates.

6. The Calculation of Depreciation:-The calculation of depreciation on capital consumption presents another formidable difficulty. There are no accepted standard rates of depreciation applicable to the various categories of machine. Unless from the gross national income correct deductions are made for depreciation the estimate of net national income is bound to go wrong.

7. Difficulty of Avoiding the Double Counting System:- The very important difficulty which a calculator has to face in measurement is the difficulty of avoiding double counting.

For example:-If the value of the output of sugar and sugar cane are counted separately, the value of the sugarcane utilised in the manufacture of sugar will have been counted twice, which is not proper. This must be avoided for a correct measurement.

8. Difficulty of Expenditure Method:- The application of expenditure method in the calculation of national income has become a difficult task and it is full of difficulties. Because in this method it is difficult to estimate all personal as well as investment expenditures.

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 reditors 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, pre-determinable 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.

5. 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.

❖ Foreign Trade Multiplier

The foreign trade multiplier, also known as the export multiplier, operates like the investment multiplier of Keynes. It may be defined as the amount by which the national income of a country will be raised by a unit increase in domestic investment on exports.

As exports increase, there is an increase in the income of all persons associated with export industries. These, in turn, create demand for goods. But this is dependent upon their marginal propensity to save (MPS) and the marginal propensity to import (MPM). The smaller these two marginal propensities are, the larger will be the value of the multiplier, and vice versa.

It's working:

The foreign trade multiplier process can be explained like this. Suppose the exports of the country increase. To begin with, the exporters will sell their products to foreign countries and receive more income. In order to meet the foreign demand, they will engage more factors of production to produce more.

This will raise the income of the owners of factors of production. This process will continue and the national income increases by the value of the multiplier. The value of the multiplier depends on the value of MPS and MPM, there being an inverse relation between the two propensities and the export multiplier.

The foreign trade multiplier can be derived algebraically as follows:

The national income identity in an open economy is **Y = C + I + X – M**

Where

Y is national income,

C is national consumption,

I is total investment,

X is exports and

M is imports.

The above relationship can be solved as:

Y-C = 1 + X-M

or S = I+X-M (S=Y-C)

S + M = I + X

Thus at equilibrium levels of income the sum of savings and imports (S+M) must equal the sum of investment and export (1+X).

In an open economy the investment component (I) is divided into domestic investment (Id) and foreign investment (If)

I=S

Id + If = S... (1)

Foreign investment (If) is the difference between exports and imports of goods and services.

If =X-M.... (2)

Substituting (2) into (1), we have

ld+ X-M – S

or Id + X = S+M

Which is the equilibrium condition of national income in an open economy. The foreign trade multiplier coefficient (Kf) is equal to

Kf = ΔY/ΔX

And ΔX = ΔS + ΔM

Dividing both sides by ΔY, we get

$$\frac{\Delta X}{\Delta Y} = \frac{\Delta S + \Delta M}{\Delta Y}$$

or $$\frac{\Delta Y}{\Delta X} = \frac{\Delta Y}{\Delta S + \Delta M}$$

or $$K_f = \frac{\Delta Y}{\Delta S + \Delta M} \qquad \left(\because K_f = \frac{\Delta Y}{\Delta X}\right)$$

$$K_f = \frac{1}{\frac{\Delta S}{\Delta Y} + \frac{\Delta M}{\Delta Y}} \qquad (\because \text{Dividing by } \Delta Y)$$

Hence $$K_f = \frac{1}{MPS + MPM} \qquad \left(\begin{matrix}\because MPS = \Delta S / \Delta Y \\ \because MPM = \Delta M / \Delta Y\end{matrix}\right)$$

Let us understand it with the help of an example.

Suppose MPS=0.3, MPM = 0.2 and ΔX (increase in exports) = Rs. 1000 crores, we get

$$K_f = \frac{\Delta Y}{\Delta X} = \frac{1}{MPS + MPM}$$

or $$\Delta Y = \frac{1}{MPS + MPM} \Delta X$$

$$= \frac{1}{0.3 + 0.2} \times 1000 = \text{Rs. } 2000 \text{ crores}$$

It shows that an increase in exports by Rs. 1000 crores has raised national income through the foreign trade multiplier by Rs. 2000 crores, given the values of MPS and MPM.

❖ Assumptions foreign trade multiplier

The foreign trade multiplier is based on the following assumptions:

1. There is full employment in the domestic economy.

2. There is direct link between domestic and foreign country in exporting and importing goods.

3. The country is small with no foreign repercussion effects.

4. It is on a fixed exchange rate system.

5. The multiplier is based on instantaneous process without time lags.

6. There is no accelerator.

7. There are no tariff barriers and exchange controls.

8. Domestic investment (Id) remains constant.

9. Government expenditure is constant.

10. The analysis is applicable to only two countries.

❖ Implications of Foreign Repercussion:

The following are the implications of foreign repercussion effects:

1. The foreign repercussion effects suggest a mechanism for the transmission of income disturbances between trading countries. If a country is small, it will be affected by change in income of other countries that will alter the demand for its exports. But it will not be able to transmit its own income disturbances to the latter.

If a country is large, it may transmit its own income disturbances to other countries and, in turn, be affected by income disturbances in them. It implies that a boom or slump in one country has repercussion on the incomes of other countries. Thus swings in business cycles are likely to be internationally contagious, as happened in the 1930s and 2008.

2. The repercussion effects also suggest that since the backwash effects ultimately peter out, automatic income changes cannot eliminate completely the current account BOP deficit or surplus produced by an automatic disturbance.

3. The policy implications of the backwash effects suggest that export promotion policies raise national income in the trading partners at a lower rate than by an increase in domestic investment. The export promotion measures raise national income via the simple foreign trade multiplier, whereas increase in domestic investment policies raise national income many times in multiplier rounds via the repercussion effects.

- **Criticisms of Foreign Trade Multiplier:**

The two models of the foreign trade multiplier presented above are based on certain assumptions which make the analysis unrealistic.

1. Exports and Investment not Independent:-The analysis of simple foreign trade multiplier is based on the assumption that exports and investment (both domestic and foreign) are independent of changes in the level of national income. But, in reality, this is not so. A rise in exports does not always lead to increase in national income. On the contrary, certain imports, of say capital goods, have the effect of increasing national income.

2. Legless Analysis:- The foreign trade multiplier is assumed to be an instantaneous process whereby it provides the final results. Thus it involves no lags and is unrealistic.

3. Full Employment not Realistic:-The analysis is based on the assumption of a fully employed economy. But there is less than full employment in every

economy. Thus the foreign trade multiplier does not find clear expression in an economy with less than full employment.

4. Not Applicable to More than two Countries:-The whole analysis is applicable to a two-country model. If there are more than two countries, it becomes complicated to analyse and interpret the foreign repercussions of this theory.

5. Neglects Trade Restrictions:-The foreign trade multiplier assumes that there are no tariff barriers and exchange controls. In reality, such trade restrictions exist which restrict the operations of the foreign trade multiplier.

6. Neglects Monetary-Fiscal Measures:-This analysis is based on the unrealistic assumption that the government expenditure is constant. But governments always interfere through monetary and fiscal policies which affect exports, imports and national income. Despite these shortcomings, the foreign trade multiplier is a powerful tool of economic analysis which helps in formulating policy measures.

INFLATION

❖ Meaning of 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."*

❖ Characteristics Of Inflation

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:

1. 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:

(i) Monetary Factors, i.e., an increase in the supply of money
(ii) Real Factors, i.e., an increase in the demand for real output

(i) 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.

(ii) Demand-pull Inflation due to Real Factors: The following are some of the real factors that cause demand-pull inflation in the economy:

I. Increase in government expenditure without any change in the tax revenue.
II. Cut in the tax rates without any change in the government expenditure.
III. Upward shift in the Investment Function
IV. Downward shift in the Saving Function
V. Upward shift in the Export Function
VI. 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.

II. 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:

I. Increase in wage rate due to an increase in the productivity.
II. Rise in wage rate due to inflation caused by other factors.
III. Rise in wage where the unionized wage bill is very small.
IV. Wage rises due to the shortage of labor.

III. 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.'

IV. 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

I. 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 rediscounts 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.

II. 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.

BUSINESS CYCLE

- **Meaning of 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. 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**

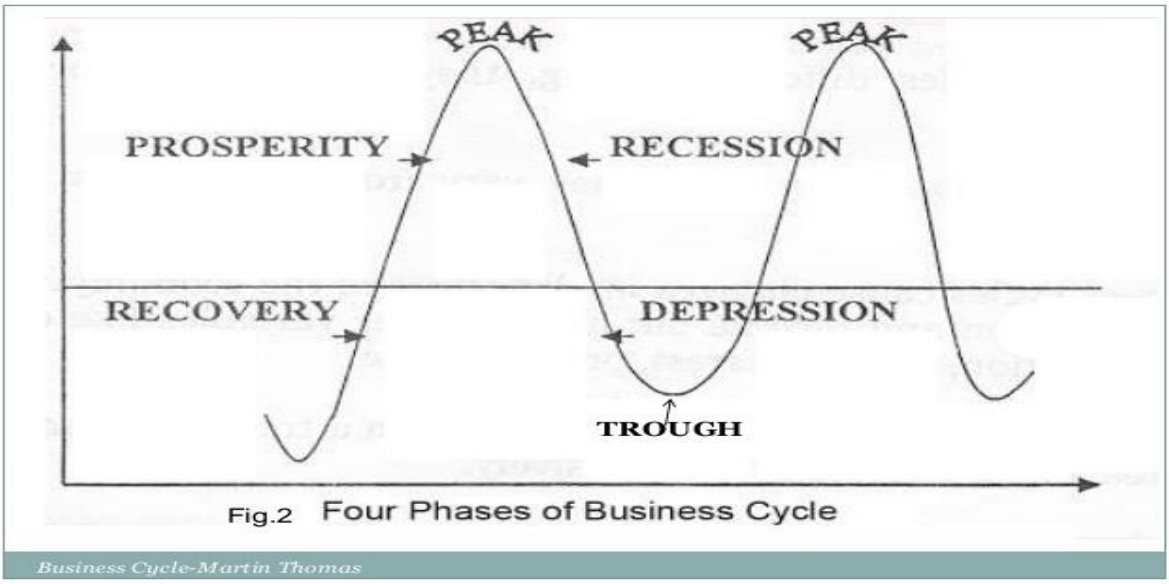


Fig.2 Four Phases of Business Cycle

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**

I. 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.

II. 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.

- **Limitations of Monetary Policy:**

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.

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.

II. 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.

III. 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 Question

1. Define Business Cycle? Discuss the various phases and types of business cycle?
2. Explain the features of Multiplier. Show it's forward and backward working. What are its main limitations?
3. What are the leakages of multiplier?
4. Distinguish between static multiplier and dynamic multiplier. Explain them with the help of appropriate graphs?
5. Write the detailed note on Foreign Trade Multiplier?
6. What is Inflation? Discuss its Theories of Inflation & How to control it?
7. What are causes of Inflation? Critically examine the effects of Inflation on different sections of society.
8. What is inflation? Distinguish between demand-pull inflation and cost-push inflation. Suggest measures to control cost-push inflation.
9. What are the methods of measuring national income? What conceptual problems arise in estimating national income?
10. What is the income method of estimation of national income? What precautions should be taken while using income method ?
11. What is the income method of estimation of national income? What precautions should be taken while using income method ?
12. Write detailed note on economic system.
13. What Is Market Structure? Discuss Its Types & Determinants?
14. Discussed The Concept Of Perfect Competition Under Equiblirium?
15. Define Monoply? Explian Its Features & Types?
16. Define Monoplistic Competition? Discuss Its Under Short & Long Run?
17. Discuss Price And Output Determination Under Collusive & Non-Collusive Oligopy?

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