



# AVS

## COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

Attur Main Road, Ramalingapuram, Salem - 106.

(Recognized under section 2(f) & 12(B) of UGC Act 1956 and

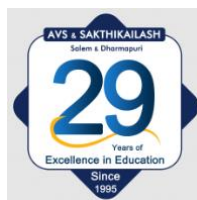
Accredited by NAAC with 'A' Grade)

(Co - Educational Institution | Affiliated to Periyar University, Salem

ISO 9001 : 2015 Certified Institution)

[principal@avscollege.ac.in](mailto:principal@avscollege.ac.in) | [www.avscollege.ac.in](http://www.avscollege.ac.in)

Ph : 98426 29322, 94427 00205.



### Study Material

<b>Paper Name</b>	:	<b>PRINCIPLES OF MANAGEMENT</b>
Paper Code	:	23UBXGE001
Batch	:	2024-25
Semester	:	Odd Semester
Staff In charge	:	R. JOTHIGA ., M.A

**PRINCIPAL**

MODELQUESTIONPAPER

TIME:3HOURS

MA

XIMUM :75MARKS

PART-A(15 x1=15Marks)

[ AnswerallQuestions]

1. FromUnit-I
2. FromUnit-I
3. FromUnit-I
4. FromUnit-II
5. FromUnit-II
6. FromUnit-II
7. FromUnit-III
8. FromUnit-III
9. FromUnit-III
10. FromUnit-IV
11. FromUnit-IV
12. FromUnit-IV
13. FromUnit-V
14. FromUnit-V
15. FromUnit-V

PART-B(2x5 =10Marks)

[AnswerANY TWO Questions& Answertoeachquestionshallnot exceedthreepages]

16. FromUnit-I
17. FromUnit- II
18. FromUnit- III
19. FromUnit- IV
20. FromUnit- V

PART- C (3x10 =30Marks)

[ Answer ALL FIVE Questions & Answer to each questions shall not exceed six pages]

21. A) From Unit – I OR B) From Unit – I
22. A) From Unit – II OR B) From Unit – II
23. A) From Unit – III OR B) From Unit – III
24. A) From Unit – IV OR B) From Unit – IV
25. A) From Unit – V OR B) From Unit – V

**MANAGERIAL ECONOMICS SYLLABUS**

**UNIT I:**

**NATURE AND SCOPE OF BUSINESS ECONOMICS**

Introduction Meaning Definitions Nature and Scope of Managerial Economics Characteristics Features of Managerial Economics. Significance Difference between Economics and Managerial economics Relationship of Managerial economics with other social science Fundamental Concepts and Principles used in Managerial economics

**UNIT-II:**

**DEMAND ANALYSIS**

Meaning Definitions Law of Demand features of Law of Demand. Factors Determining Demand Extension and Contraction in demand increase and decrease in demand Exception to Law of Demand Elasticity of demand - Meaning Price elasticity of Demand types and Measurement Income Elasticity of Demand-types and Measurement Cross Elasticity of Demand factors affecting Elasticity of Demand forecasting Demand forecasting Methods.

**UNIT-III:**

**COST CONCEPTS AND PRICING METHODS**

Cost concept Cost output relationship - Peak load pricing - cost plus pricing - Going rate pricing

- Target Pricing of life cycle product Pioneer Pricing - Skimming Pricing. Surge Pricing, Penetration Price Multiproduct Pricing Transfer Pricing - Product line pricing - Dual Pricing

**UNIT-IV:**

**PROFITS**

Meaning - Accounting and Economic Profits - Measurement - Profit Policy - Aims of profit policy. Profit planning and forecasting - Break Even Analysis-uses of BEP

**UNIT-V:**

**CAPITAL BUDGETING AND PROJECT PROFITABILITY**

Capital budgeting - Need for Capital Budgeting - Forms of capital Budgeting - Demand for supply of capital Rationing - Cost of Capital - Project profitability - Methods of Appraising a project Profitability

Text Books 1. Sankaran S. Business Economics Reference Books 1. Ahuja, HL, Business Economics. 2. Nelli and Parker, TheEssence of Business Economics 3. Ferguron P.R. Rothschild, R. and Ferguron GJ.Business Economics

**MODEL QUESTION PAPER**

**TIME: 3 HOURS**

**MAXIMUM: 75 MARKS**

PART – A (15 x 1 = 15 Marks)

1. From Unit – I
2. From Unit – I

PART – B (2 x 5 = 10 Marks)

**[Answer ANY TWO Questions & Answer to each question shall not exceed three pages]**

16. From Unit – I
17. From Unit – II
18. From Unit – III
19. From Unit – IV
20. From Unit – V

PART – C (3 x 10 = 30 Marks)

**[Answer ALL FIVE Questions & Answer to each question shall not exceed six pages]**

OR B) From Unit – I

OR B) From Unit – II

OR B) From Unit – III

OR B) From Unit – IV

25. A) From Unit – V OR B) From Unit – V

3. From Unit – I

4. From Unit – II 5. From Unit – II

6. From Unit – II

7. From Unit – III

8. From Unit – III

9. From Unit – III

10. From Unit – IV

11. From Unit – IV

12. From Unit – IV

13. From Unit – V

14. From Unit – V

15. From Unit – V

21. A) From Unit – I

22. A) From Unit – II

23. A) From Unit – III

24. A) From Unit – IV

## **UNIT - I**

### **INTRODUCTION TO MANAGERIAL ECONOMICS**

#### **Introduction to Economics**

Economics is a study of human activity both at individual and national level. Any activity involved in efforts aimed at earning money and spending this money to satisfy our wants such as food, Clothing, shelter, and others are called “Economic activities”.

It was only during the eighteenth century that Adam Smith, the Father of Economics, defined economics as the study of nature and uses of national wealth’.

**Definition:**

Dr. Alfred Marshall, one of the greatest economists of the nineteenth century, writes

“Economics is a study of man’s actions in the ordinary business of life: it enquires how he gets his income and how he uses it”.

Prof. Lionel Robbins defined Economics as “the science, which studies human behavior as a relationship between ends and scarce means which have alternative uses”.

**Microeconomics**

- The study of an individual consumer or a firm is called microeconomics.
- Micro means ‘one millionth’.
- Microeconomics deals with behavior and problems of single individual and of micro organization.
- It is concerned with the application of the concepts such as price theory, Law of Demand and theories of market structure and so on.

**Macroeconomics:**

- The study of ‘aggregate’ or total level of economic activity in a country is called macroeconomics.
- It studies the flow of economics resources or factors of production (such as land, labor, capital, organization and technology) from the resource owner to the business firms and then from the business firms to the households.
- It is concerned with the level of employment in the economy.
- It discusses aggregate consumption, aggregate investment, price level, and payment, theories of employment, and so on.

## **MANAGERIAL ECONOMICS**

Managerial Economics refers to the firm's decision making process. It could be also interpreted as "Economics of Management" or "Industrial economics" or "Business economics".

### **Nature of managerial Economics:**

- **Close to microeconomics :**

Managerial economics is concerned with finding the solutions for different managerial problems of a particular firm. Thus, it is more close to microeconomics.

- **Operates against the backdrop of macroeconomics :**

The macroeconomics conditions of the economy are also seen as limiting factors for the firm to operate. In other words, the managerial economist has to be aware of the limits set by the macroeconomics conditions such as government industrial policy, inflation and so on.

- **Normative statements:**

- A normative statement usually includes or implies the words 'ought' or 'should'. They reflect people's moral attitudes and are expressions of what a team of people ought to do
- . Such statement are based on value judgments and express views of what is 'good' or 'bad', 'right' or ' wrong'.
- One problem with normative statements is that they cannot to verify by looking at the facts, because they mostly deal with the future. Disagreements about such statements are usually settled by voting on them.

- **Prescriptive actions:**

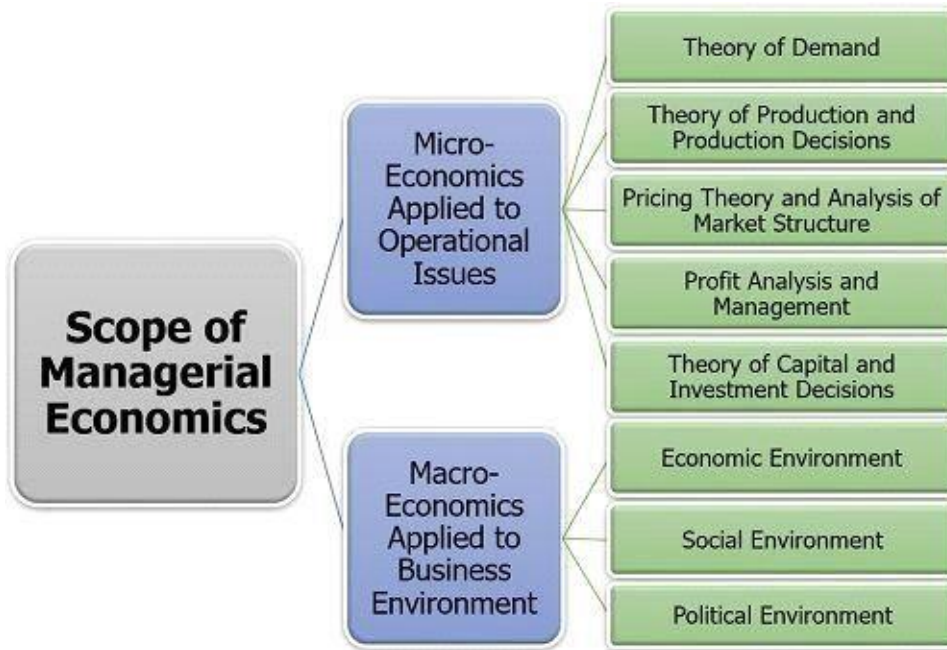
- Prescriptive action is goal oriented.
- Given a problem and the objectives of the firm, it suggests the course of action from the available alternatives for optimal solution.



- It also explains whether the concept can be applied in a given context or not. For instance, the fact that variable costs are marginal costs can be used to judge the feasibility of an export order.
- **Applied in nature:**
  - ‘Models’ are built to reflect the real life complex business situations and these models are of immense help to managers for decisionmaking.
  - The different areas where models are extensively used include inventory control, optimization, project management etc.
  - In managerial economics, we also employ case study methods to conceptualize the problem, identify that alternative and determine the best course of action.
- **Offers scope to evaluate each alternative:**
  - Managerial economics provides an opportunity to evaluate each alternative in terms of its costs and revenue.
  - The managerial economist can decide which is the better alternative to maximize the profits for the firm.
- **Interdisciplinary:**
  - The contents, tools and techniques of managerial economics are drawn from different subjects such as economics, management, mathematics, statistics, accountancy, psychology, organizational behavior, sociology and etc.

### **SCOPE OF MANAGERIAL ECONOMICS:**

Managerial economics is widely applied in organizations to deal with different business issues. Both the micro and macroeconomics equally impact the business and its functioning.



**Theory of Demand:** The demand theory emphasizes on the consumer's behavior towards a product or service. It takes into consideration the needs, wants, preferences and requirement of the consumers to enhance the production process.

**Theory of Production and Production Decisions:** This theory is majorly concerned with the volume of production, process, capital and labor required, cost involved, etc. It aims At maximizing the output to meet the customer's demand.

**Pricing Theory and Analysis of Market Structure:** It focuses on the price determination of a product keeping in mind the competitors, market conditions, cost of production, maximizing sales volume, etc.

**Profit Analysis and Management:** The organizations work for a profit. Therefore the Always aim at profit maximization. It depends upon the market demand, cost of input, competition level, etc. **Theory**

**of Capital and Investment Decisions:** Capital is the most critical factor of business. This theory prevails the proper allocation of the organization's capital and making investments in profitable projects or venture to improve organizational efficiency.

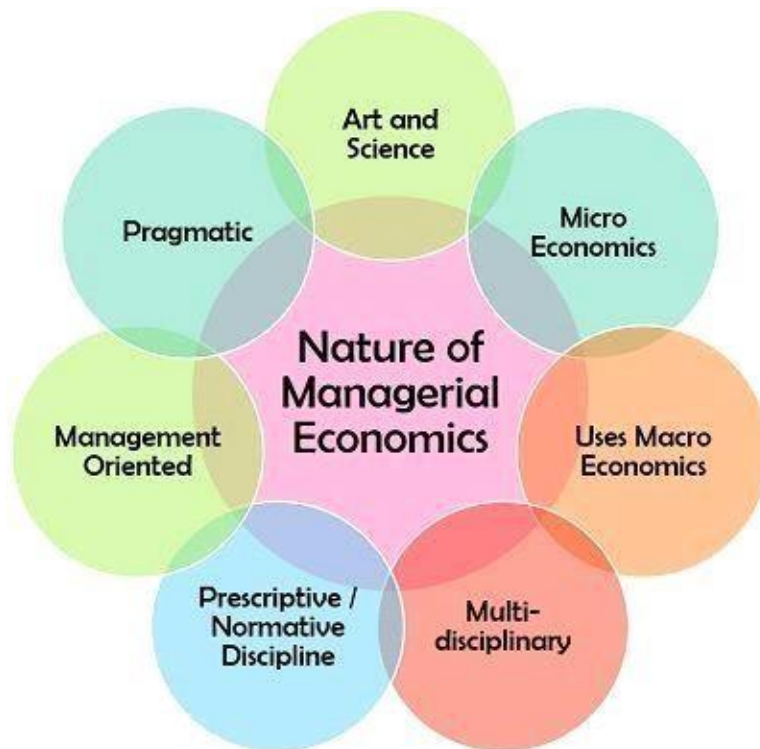
## CHARACTERISTICS OF MANAGERIAL ECONOMICS

- **Micro economic character:** Managerial economics is micro economic in character because it is a unit of study i.e. firm. It only deals the problems of firms but not deal with the entire economy

as a unit of study. However, it takes the help of macroeconomic to understand and adjust to the environment in which the firm operates.

- **Choice and Allocation:** Managerial economics is concerned with decision-making of economic nature. This implies that managerial economics deals with identification of economic choices and allocation of scarce resources.
  - **Goal oriented:** Managerial economics is goal-oriented and prescriptive. It deals with how decisions should be formulated by managers to achieve the organizational goals.
  - **Conceptual and Metrical:** Managerial economics is both 'Conceptual and Metrical'. An intelligent application of quantitative techniques to business presupposes considered judgment and hard and careful thinking about the nature of the particular problem to be solved. Managerial economics provides necessary conceptual tools to achieve this. Moreover, it helps the decisionmaker by providing measurement of various economic entities and their relationships. This metrical dimension of managerial economics is complementary to its conceptual framework.
  - **Pragmatic:** Managerial economics is pragmatic. It is concerned with those analytical tools, which are useful in improving decision-making. Economic theory appropriately ignores the variety of backgrounds and training found in individual firms but managerial economics considers the particular environment of decision making.
  - **Normative:** Managerial economics belongs to normative economics rather than positive economics. In other words, it is prescriptive rather than descriptive. The main body of economic theory confines itself to descriptive hypothesis, attempting to generalize about the relations among different variables without judgment about what is desirable or undesirable. Managerial economics firstly tells what aims and objectives a firm should pursue and secondly, it tells how best to achieve these aims in particular situations.
  - **Multi-disciplinary:** Managerial economics is related with different disciplines such as Statistics, Mathematics, Management, Operational Research, Psychology etc
- 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:



**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.

**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.

**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 analyses the different factors of macroeconomics such as market conditions, economic reforms, government policies, etc. and their impact on the organization.

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

**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.

**Pragmatic:** It is a practical and logical approach towards the day to day business problem.

## **Importance of managerial economics:**

### **1) Efficient business process:**

Internal factors like the organization's goal, product demand, price, output, resource availability, etc., affect the smooth functioning of the organization. A comprehensive analysis of all internal factors helps you make better decisions in improving the internal business process.

Making rational decisions to suit the emerging trends and economic climate is the need of the hour. You need to schedule and monitor all production activities of the organization. And ensure effective functioning as per the process standards.

### **2) Framing policies:**

Formulate policies after continuous testing and based on your past experiences. **Managerial economics** involves humans; with varied perspectives and approaches. The scope for universal application of policies is limited, and they are adapted depending on situations.

### **3) Long-term planning:**

Analyze the internal and external factors; influencing the business environment using diverse economic theories and tools. It's a continuous process; and focuses on the what, how and who of the production process.

The future is uncertain; focus on effective long-term planning and devise strategies to utilize limited resources to maximize profits and reduce production costs.

### **4) Sourcing raw materials:**

With the scarcity of raw materials, make suitable decisions involving suppliers, competitors, and customers. Including the internal business environment; to efficiently manage resources to lower costs. It enables you to handle scarce resources and find suitable alternatives.

## **5) Demand Analysis:**

Demand theory helps you decide on the type of product/service. It involves studying consumer behavior, purchase trends, factors influencing purchase patterns, etc.

Demand analysis is critical in decision-making. Assessing and forecasting future sales helps strengthen the organization's position in the market and improve profitability. It also gives you the insight to handle losses with minimal impact.

## **6) Profit Analysis:**

Profits decide an organization's success and failure. Earning reasonable profits is crucial for every business. Organizations take huge risks with capital investments to achieve long-term profitability.

Proper planning, profit analysis, profit distribution, and analyzing the scope for further investment are challenging aspects of managerial economics.

## **7) Efficient management of Funds:**

Production, cost analysis, and project appraisal strategies help you make decisions concerning raw materials, production techniques, machinery, recruiting professionals, etc.

Budgeting and controlling the flow of funds are essential for every business. It involves a considerable amount of time and labor. Cost of capital and return on investment (ROI) is vital to capital management.

## **8) Effective market research:**

A meticulous analysis of the market trends helps you to fix product prices and make output decisions.

Analyzing domestic and foreign markets is crucial as it helps determine niche market segments and allows for global expansion. Thereby; reducing production costs and increasing product life.

## **9) Measure Efficiency:**

You will be involved with utilizing various tools and techniques to measure the efficiency of the business process. Prepare necessary reports with the statistics and keep the management updated; with enhancement strategies for improving efficiency.

## **10) Economic Intelligence:**

External factors like government policies, employment opportunities, stages of the product cycle, exchange rates, emerging economic, market trends, etc., affect the efficient functioning of the organization.

A complete survey and analysis of these factors help understand their impact on the organization. Update the management with the relevant data and the latest approaches.

### 11) Maintain healthy relationships:

You will also need to maintain healthy relationships with all internal and external parties concerned, like employees, suppliers, government agencies, financial institutions, etc., to ensure the smooth functioning of the business process.

### PRINCIPLES OF MANAGERIAL ECONOMICS



#### The Incremental Principle

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

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

The incremental principle may be stated as follows: A decision is clearly a profitable one if

- It increases revenue more than costs.
- It decreases some cost to a greater extent than it increases others.
- It increases some revenues more than it decreases others.
- It reduces costs more than revenues.
- **Marginal Principle**

Marginal analysis implies judging the impact of a unit change in one variable on the other. Marginal generally refers to small changes. Marginal revenue is change in total revenue per unit change in output sold. Marginal cost refers to change in total costs per unit change in output produced (While incremental cost refers to change in total costs due to change in total output). The decision of a firm to change the price would depend upon the resulting impact/change in marginal revenue and marginal cost. If the marginal revenue is greater than the marginal cost, then the firm should bring about the change in price.

- **The Opportunity Cost Principle**

Both micro and macroeconomics make abundant use of the fundamental concept of opportunity cost. In everyday life, we apply the notion of opportunity cost even if we are unable to articulate its significance. In Managerial Economics, the opportunity cost concept is useful in decision involving a choice between different alternative courses of action.

Resources are scarce, we cannot produce all the commodities. For the production of one commodity, we have to forego the production of another commodity. We cannot have everything we want. We are, therefore, forced to make a choice.

Opportunity cost of a decision is the sacrifice of alternatives required by that decision. Sacrifice of alternatives is involved when carrying out a decision requires using a resource that is limited

### **Difference between Economics and Managerial Economics**

<b>Basis of Difference</b>	<b>Economics</b>	<b>Managerial Economics</b>
----------------------------	------------------	-----------------------------



<b>Meaning</b>	It involves the framing of economic principles to solve economic Problems.	It involves the application of economic principles to solve Economic problems.
<b>Character</b>	It is microeconomic as well as macroeconomic in character.	It is microeconomic in character.
<b>Main Task</b>	In it, the fulfilment of the needs of individuals as well as entities is the Main task.	It involves proper decision making as its main task.
<b>Nature</b>	It is positive as well as normative in nature.	It is only normative in nature.
<b>Scope</b>	It has a wider scope.	It has a narrower scope as compared to the scope of Economics.
<b>Branches</b>	It involves managerial economics as its applied branch.	It is an applied branch of economics.
<b>Concerned with</b>	It is concerned with all the theories starting from production to	It is concerned with only profit theory and ignores other theories.
	Consumption including distribution.	
<b>Analysis Involved</b>	It includes the analysis of macro-level issues like growth, inflation, and employment, etc.	It includes the analysis of microlevel issues like demand, supply, and profit, etc.

<b>Concentration</b>	It concentrates only on the economic aspects of any business problem.	It concentrates on both economic as well as noneconomic aspects of any Business problem.
<b>Validity of Assumptions</b>	It is based on certain assumptions.	In it, some assumptions become invalid when applied.

## **MANAGERIAL ECONOMICS RELATED WITH OTHER DISCIPLINES**

### **Managerial Economics and Traditional Economics**

Economics and Managerial economics both are facing identical problems, i.e., problem of scarcity and resource allocation. Since labor and capital are always limited it must find way for effective utilizing of these resources.

## **MANAGERIAL ECONOMICS AND OPERATIONS RESEARCH**

Both operations research and managerial economics are concerned with taking effective decisions, managerial economics is a fundamental academic subject which seeks to understand and to analyses the problems of business decision making while OR is an activity carried out by functional specialist within the firm to help the manager to do his job of solving decision problems. Its main contribution to managerial economics OR models like queuing, linear programming etc., are widely used in managerial economics Model building, economic models are more general and confined to broad economic decision making.

## **MANAGERIAL ECONOMICS AND MATHEMATICS**

Mathematics is closely related to managerial because managerial economics, being conceptual but also metrical. Its metrical property is used to estimate and predict the relevant economic factors for decision making and forward planning. Its main contribution to managerial economics

Geometry, algebra and calculus Logarithms and exponential, vectors and determinants, input-output tables etc.,

## **CONCEPT OF MANAGERIAL ECONOMICS**

### **Economics Concept # 1. Value:**

Ordinarily, the concept of value is related to the concept of utility. Utility is the want satisfying quality of a thing when we use or consume it. Thus utility is the value-in-use of a commodity. In economics, value means the power that goods and services have to exchange other goods and services, i.e. value-in-exchange. If one pen can be exchanged for two pencils, then the value of one pen is equal to two pencils. For a commodity to have value, it must possess the following three characteristics.

- **Utility:**

It should have utility. A rotten egg has no utility because it cannot be exchanged for anything. It possesses no value-in-exchange.

- **Scarcity:**

Mere utility does not create value unless it is scarce. A good or service is scarce (limited) in relation to its demand. All economic goods like pen, book, etc. are scarce and have value. But free goods like air do not possess value. Thus goods possessing the quality of scarcity have value.

- **Transferability:**

Besides the above two characteristics, a good should be transferable from one place to another or from one person to another. Thus a commodity to have value-in-exchange must possess the qualities of utility, scarcity and transferability.

### **Basic Concept of Economics # 2. Value and Price:**

In common language, the terms 'value' and 'price' are used as synonyms (i.e. the same). But in economics, the meaning of price is different from that of value. Price is value expressed in terms of money. Value is expressed in terms of other goods. **Basic Concept of Economics # 3.**

### **Wealth:**

In common use, the term 'wealth' means money, property, gold, etc. But in economics it is used to describe all things that have value. For a commodity to be called wealth, it must possess utility, scarcity and transferability. Forms of Wealth: Wealth may be of the following types:

- **Individual Wealth:**

Wealth owned by an individual is called private or individual wealth such as a car, house, company, etc. • Social Wealth:

Goods which are owned by the society are called social or collective wealth, such as schools, colleges, roads, canals, mines, forests, etc.

• National or Real Wealth:

National wealth includes all individual and social wealth. It consists of material assets possessed by the society. National wealth is real wealth. International Wealth:

The United Nations Organization and its various agencies like the World Bank, IMF, WHO, etc. are international wealth because all countries contribute towards their operations.

5. Financial Wealth:

Financial wealth is the holding of money, stocks, bonds, etc. by individuals in the society.

Financial wealth is excluded from national wealth. This is because money, stocks, bonds, etc. which individuals hold as wealth are claims against one another.

#### **Basic Concept of Economics # 4. Stocks and Flows:**

Distinction may be made here between a stock variable and a flow variable. A stock variable has no time dimension. Its value is ascertained at some point in time. A stock variable does not involve the specification of any particular length of time. On the other hand, a flow variable has a time dimension. It is related to a specified period of time.

So national income is a flow and national wealth is a stock. Change in any variable which can be measured over a period of time relates to a flow. In this sense, inventories are stocks but change in inventories is a flow.

A number of other examples of stocks and flows can also be given. Money is a stock but the spending of money is flow. Government debt is stock. Saving and investment and operating surplus during a year are flows but if they relate to the past year, they are stocks. But certain variables are only in the form of flows such as NNP, NDP, value added, dividends, tax payments, imports, exports, net foreign investment, social security benefits, wages and salaries, etc.

#### **Basic Concept of Economics # 5. Optimization:**

Optimization means the most efficient use of resources subject to certain constraints it is the choice from all possible uses of resources which gives the best results, it is the task of maximization or minimization of an objective function it is a technique which is used by a consumer and a producer as decision-maker.

A consumer wants to buy the best combination of a consumer good when his objective function is to maximize his utility, given his fixed income as the constraints. Similarly, a producer wants to produce the most suitable level of output to maximize his profit, given the raw materials, capital, etc. as constraints.

As against this, a firm can hence the objective of minimization of its cost of production by choosing the best combination of factors of production, given the manpower resources, capital, etc. as constraints. Thus optimization is the determination of the maximization or minimization of an objective function.

## UNIT – 1

### Question bank

#### PART – B (5) MARKS

1. Definition of managerial economics.
2. Nature of managerial economics.
3. Principles of managerial economics.
4. Difference between economics and managerial economics?

#### PART – C (10) MARKS

1. Scope and characteristics of managerial economics
3. Briefly note on concept of managerial economics.
4. Importance of managerial economics?

\*\*\*\*\*

## UNIT-II

### DEMAND ANALYSIS

### **Meaning of Demand Analysis:**

Ordinarily, by demand is meant the desire or want for something. In economics, however demand means much more than that, it is effective demand i.e. the amount buyers are willing to purchase at a given price and over a given period of time. From managerial economics point of view, thus, the demand may be looked upon as follows: -

Demand is the desire or want backed up by money. Demand means effective desire or want for a commodity, which is backed up by the ability (i.e. money or purchasing power) and willingness to pay for it.

The demand does not mean simply the desire or even need for a commodity obviously, a buyer's wish for the product without possessing money to buy it or unwillingness to pay a given price for it will not constitute a demand for it for example a beggar's wish for a Bike will not constitute its potential demand, as he has no ability to pay for it.

In short

Demand = Desire + Ability to pay + Willingness to spend

### **Demand Estimation and Demand Forecasting**

In Demand estimating manager attempts to quantify the links or relationship between the level of demand and the variables which are determinants to it and is generally used in designing pricing strategy of the firm. In demand estimation manager analyses the impact of future change in price on the quantity demanded. Firm can charge a price that the market will ready to wear to sell its product. Over estimation of demand may lead to an excessive price and lost sales whereas under estimates may lead to setting of low price resulting in reduced profits. In demand estimation data is collected for short period usually a year or less and analyses in relation to various variables to know the impact of each variables mainly the price on the demand behavior of the customers. It is for a short period.

In Demand forecasting mangers forecast the most likely future demand of a product so that he can make necessary arrangement for the various factor of production i.e labor, raw material, machines, money etc. Demand forecasting tells the expected level of demand at some future date on the basis of past and present information. It helped in production planning, new product development, capacity

enhancement or new schemes etc. Demand forecasting is generally used for short term estimation as well as long term forecasting.

Thus, demand estimation and forecasting means when, how, where, by whom and how much will be the demand for a product or service in near future. The process of demand estimation/forecasting can be broken into two parts i.e. analysis of the past conditions and analysis of current conditions with reference to a probable future trend. It helps in estimating the most likely demand of a good or service under given business conditions.

### **DETERMINANTS OF DEMAND**

The main determinants of demand are the following:

- 1. Price of the Product.** The price of commodity or services directly affects its demand. The fall in the price of a commodity leads to rise in its demand and rise in price leads to fall in its demand. Price is the only determinant of demand in the short run.
- 2. Price of Related Goods.** Two or more goods can be complementary or substitutes of each other. The demand for a commodity is also affected by changes in price of its complementary or substitute good. If two goods are substitute for each other than the increase in price of one will result in increased demand for the other and vice-versa. E.g. Pepsi and Coca-Cola are substitute of each other. The rise in the price of Coca-Cola increases demand for Pepsi and vice-versa. Complementary goods are those which, are jointly demanded to satisfy a particular demand. There is opposite relationship between price of one complementary commodity and the amount demand of the other complementary commodity. If price of one complimentary rises, the demand for the other complementary falls. E.g. A fall in the price of Car will lead to increase in the demand for petrol.
- 3. Level of Income.** Income is an important determinant of demand for a commodity, ordinarily, with an increase in income, demand for goods increase. There is a direct relationship between income and quantity demanded. Rich consumers usually demand more and more goods than the poor customers. Demand for luxury and expensive goods is related to the income.
- 4. Taste, Habits and preferences of Consumer.** The demand for many goods also depends on consumer's taste, habit and preferences. Demand for goods changes with change in fashion, habits, customs, traditions and general life-style of the society. Demand for several products like ice-cream, chocolates etc. depends on taste and demand tea, cigarettes, tobacco is a matter of habits.

**5. Future trend of Prices.** If it is expected that in future the price of a commodity will go up the demand for the commodity in the present also will go up. If the prices are expected to fall then the demand would fall.

**6. Changes in Population.** Generally the demand for a commodity increases with increase in size of population, other things being equal, it is not merely the change in the size of population but the changes in the composition of population also affect the demand for certain commodities. In a country of increasing population like India where hundreds of children's are born daily in big cities there will naturally be demand for toys, baby food and alike.

**7. State of Business.** If the country is passing through prosperity and boom conditions, there will be a marked increase in demand. When the country is passing through recession and depression then level of demand would go down.

**8. Distribution of Income and Wealth.** If the distribution of income is more equal than the demand for all normal goods will be more. If the income is so unevenly distributed that majority of population is poor then the demand for inferior and necessities' will be larger.

**9. Availability of Consumer Credit.** If the credit facilities are available sufficiently to consumers for the purchase of high priced durable goods such as car, color TV, scooters and alike, then their demand will increase.

**10. Different Uses.** When the price of a commodity is high, it will be used only in its more important use. As the price of the commodity falls it will be used even in less important uses. Thus, the demand increases will fall in price and vice-versa. Example of gram or electricity can be cited.

**11. Change in the number of Buyers.** With the fall in the price of a commodity the number of its purchasers increase and vice-versa. Therefore, demand increases with fall in price and decreases with fall in price and decreases with rise in price.

**12. Advertisement and Salesmanship.** In the modern market, advertisement greatly influence the demand for a commodity. Infact, the demand for many products like toothpaste, Cosmetics etc. is greatly affected by advertisement. The best salesmanship is the one who does not merely sell what buyers want but who makes the buyers buy what he sells.



**13. Inventions and Innovations.** Introduction of new goods or substitutes as a result of inventions and innovations in a dynamic modern economy tends to adversely affect the demand for the existing products.

**14. Climate and weather conditions.** demand for certain products is determined by climatic and weather conditions for example, in summers there is a great demand for cold drinks, fans, air conditioners etc.

**15. Fashions.** The demand for many products is affected by changing fashions. For example demand for jeans is based on current fashions.

**16. Customs.** demand for certain goods is determined by social customs, festivals etc., for example, during the Diwali days there is a great demand for sweets & during Christmas cake are more in demand

## **LAW OF DEMAND**

The law of demand describes the general tendency of consumer's behavior in demanding a commodity in relation to the changes in its price. The Law of demand expresses the relationship between price and quantity demanded of a commodity. According to the law of demand the demand of a commodity extends with fall in its price and contracts with rise in the price, other things being constant. 'Other things being constant' means that the other determinates of demand except price remain unchanged. it explains the inverse relationship between price and quantity demanded.

**Statement of law of demand:-** “Ceteris paribus, the higher the price of a commodity, the smaller is the quantity demanded and lower the price, larger the quantity demanded”.

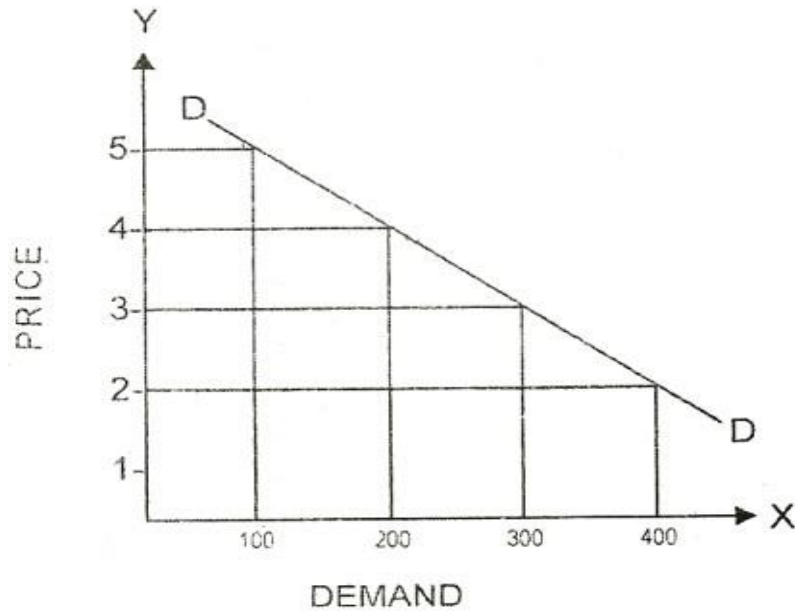
## **DEMAND SCHEDULES AND DEMAND CURVE**

Demand Schedule is a table or statement showing how much of a commodity is demanded in a particular market at different prices. A demand schedule may be individual demand schedule or market demand schedule. The following is the imaginary demand schedule of the consumer,

### **Demand schedule**

Price	Quantity demanded
Rs.5	100 units
Rs4	200units
Rs3	300units
Rs2	400units

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



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.

**Assumptions of the Law of Demand::**

- (i) There is no change in the tastes and preferences of the consumer;
- (ii) The income of the consumer remains constant;
- (iii) There is no change in customs;
- (iv) The commodity to be used should not confer distinction on the consumer;
- (v) There should not be any substitutes of the commodity;
- (vi) There should not be any change in the prices of other products;
- (vii) There should not be any possibility of change in the price of the product being used;
- (viii) There should not be any change in the quality of the product; and
- (ix) The habits of the consumers should remain unchanged. Given these conditions, the law of demand operates. If there is change even in one of these conditions, it will stop operating.

**TYPES OF DEMAND**

**Price Demand**

Price demand means to various quantities of a commodity or service that a consumer would purchase at a given time at different prices in a market when other things remain constant.

**Income Demand**

Income demand refers to the different quantities of a commodity or service which consumers will buy at different level of income, other things remaining same.

## **Cross Demand**

Cross demand refers to the quantities of commodity or service which will be purchased with reference to changes; not of that particular commodity, but of other inter related commodities, other things remaining same.

## **Characteristics of the Law of Demand**

The following are the chief characteristics of the Law of Demand.

- 1. Inverse Relationship.** The relationship between price and the demand of a particular commodity is inverse i.e., the demand of a commodity will fall with the increase in the price of the commodity or it will increase with the fall in-the price.
- 2. Price an Independent Variable and Demand a Dependent Variable.** In the Law of Demand, price is regarded as an independent variable that affects the demand inversely. Thus, it is the effect of price on demand that is to be examined and not the effect of demand on price.
- 3. It is a Qualitative Statement.** The Law of Demand simply explains the direction of change in the demand with the increase or decrease in the price of a commodity. It does not explain the quantum of change. The law is thus, a qualitative statement? and not a quantitative statement.
- 4. Other thing remains the same.** The Law of Demand applies only when other things remain the same. In other words, there should be no change in factors influencing demand except price.

## **Meaning of Elasticity of Demand:**

Demand extends or contracts respectively with a fall or rise in price. This quality of demand by virtue of which it changes (increases or decreases) when price changes (decreases or increases) is called Elasticity of Demand.

“The elasticity (or responsiveness) of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price”. – Dr. Marshall.

Elasticity means sensitiveness or responsiveness of demand to the change in price.

This change, sensitiveness or responsiveness, may be small or great. Take the case of salt. Even a big fall in its price may not induce an appreciable extension in its demand. On the other hand, a slight fall in the price of oranges may cause a considerable extension in their demand. That is why we say that the demand in the former case is 'inelastic' and in the latter case it is 'elastic'.

The demand is elastic when with a small change in price there is a great change in demand; it is inelastic or less elastic when even a big change in price induces only a slight change in demand.

In the words of Dr. Marshall, "The elasticity (or responsiveness) of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price. "But the demand cannot be perfectly 'elastic' or 'inelastic'.

Completely elastic demand will mean that a slight fall (or rise) in the price of the commodity concerned induces an infinite extension (or contraction) in its demand. Completely inelastic demand will mean that any amount of fall (or rise) in the price of the commodity would not induce any extension (or contraction) in its demand. Both these conditions are unrealistic. That is why we say that elasticity of demand may be 'more or less', but it is seldom perfectly elastic or absolutely inelastic.

### **Types of Elasticity:**

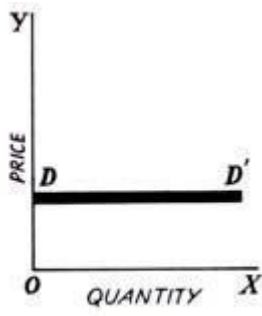
Distinction may be made between Price Elasticity, Income Elasticity and Cross Elasticity. Price Elasticity is the responsiveness of demand to change in price; income elasticity means a change in demand in response to a change in the consumer's income; and cross elasticity means a change in the demand for a commodity owing to change in the price of another commodity.

### **Degrees of Elasticity of Demand:**

We have seen above that some commodities have very elastic demand, while others have less elastic demand. Let us now try to understand the different degrees of elasticity of demand with the help of curves.

#### **(a) Infinite or Perfect Elasticity of Demand:**

Let us first take one extreme case of elasticity of demand, viz., when it is infinite or perfect. Elasticity of demand is infinity when even a negligible fall in the price of the commodity leads to an infinite extension in the demand for it. In Fig. 10.1 the horizontal straight line DD' shows infinite elasticity of demand. Even when the price remains the same, the demand goes on changing.

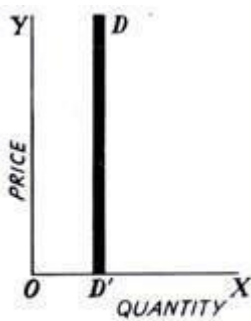


**Infinite Elasticity**  
Fig. 10.1

**(b) Perfectly Inelastic Demand:**

The other extreme limit is when demand is perfectly inelastic. It means that howsoever great the rise or fall in the price of the commodity in question, its demand remains absolutely unchanged.

In Fig. 10.2, the vertical line DD' shows a perfectly inelastic demand. In other words, in this case elasticity of demand is zero. No amount of change in price induces a change in demand.



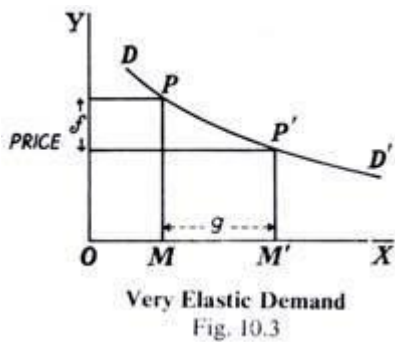
**Zero Elasticity**  
Fig. 10.2

In the real world, there is no commodity the demand for which may be absolutely inelastic, i.e., changes in its price will fail to bring about any change at all in the demand for it. Some extension/contraction is bound to occur that is why economists say that elasticity of demand is a matter of degree only. In the same manner, there are few commodities in whose case the demand is perfectly elastic. Thus, in real life, the elasticity of demand of most goods and services lies between the two limits given above, viz., infinity and zero. Some have highly elastic demand while others have less elastic demand.

**(c) Very Elastic Demand:**

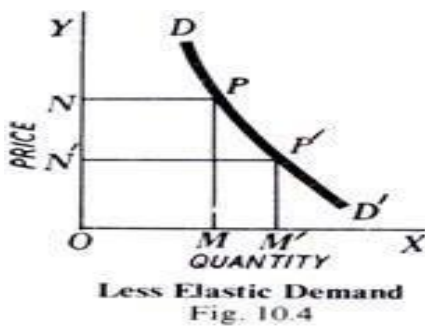
Demand is said to be very elastic when even a small change in the price of a commodity leads to a considerable extension/contraction of the amount demanded of it. In Fig. 10.3, DD' curve illustrates

such a demand. As a result of change of T in the price, the quantity demanded extends/contracts by  $MM'$ , which clearly is comparatively a large change in demand.



**(d) Less Elastic Demand:**

When even a substantial change in price brings only a small extension/contraction in demand, it is said to be less elastic. In Fig. 10.4,  $DD'$  shows less elastic demand. A fall of  $NN'$  in price extends demand by  $MM'$  only, which is very small.



**Elasticity of Demand: 4 Types**

The following points highlight the four main types of elasticity of demand. The types are: 1. Price Elasticity of Demand 2. Cross Elasticity of Demand 3. Income Elasticity of Demand 4.

Advertising or Promotional Elasticity of Demand.

**Price Elasticity of Demand:**

The elasticity of demand is the degree of responsiveness of demand to change in price.

**In the words of Prof. Lipsey:**

“Elasticity of demand may be defined as the ratio of the percentage change in demand to the percentage change in price.”

**Mrs. Robinson's definition is more clear:**

“The elasticity of demand at any price.... is the proportional change of amount purchased in response to a small change in price, divided by the proportional change of price.”

Thus, price elasticity of demand is the ratio of percentage change in amount demanded to a percentage change in price.

$E_p$  = Percentage change in amount demanded/Percentage change in price

If we use  $\Delta$  (delta) for a change,  $q$  for amount demanded and  $p$  for price, the algebraic equation is

$$E_p = \frac{\frac{\Delta q}{q}}{\frac{\Delta p}{p}} = \frac{\Delta q}{q} \times \frac{p}{-\Delta p} = -\frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

$E_p$ , the coefficient of price elasticity of demand is always negative because when price changes demand moves in the opposite direction. It is, however, customary to disregard the negative sign. If the percentages for quantity and prices are known the value of the coefficient  $E_p$  can be calculated:

Price elasticity of demand may be unity, greater than unity, less than unity, zero or infinite. These five cases are explained with the aid of the following figures.

Price elasticity of demand is unity when the change in demand is exactly proportionate to the change in price. For example, a 20% change in price causes 20% change in demand,  $E_p = 20\%/20\% = 1$ . In the diagrams of Figure 1,  $\Delta p$  represents change in price,  $\Delta q$  change in demand, and DD the demand curve. Price elasticity on the first demand curve in Panel (A) is unity, for  $\Delta q/\Delta p = 1$ .



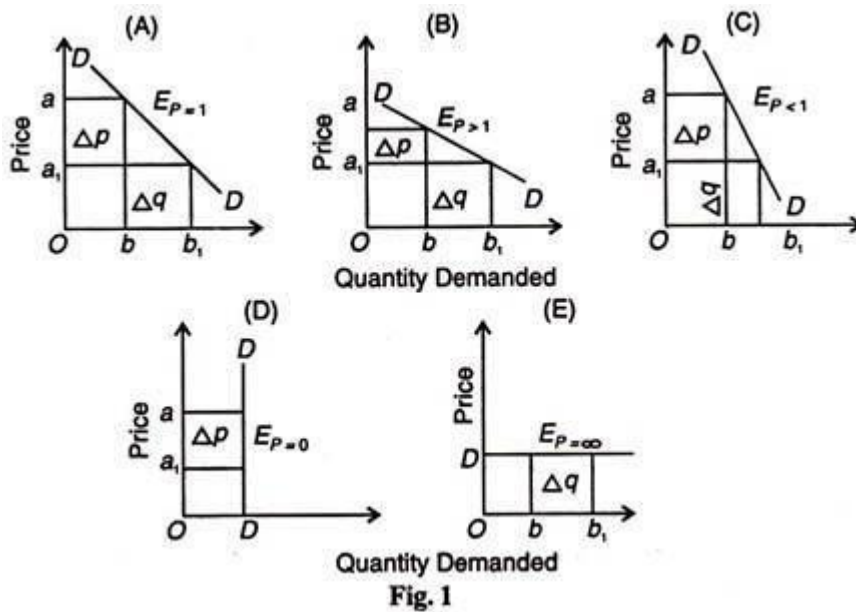


Fig. 1

When the change in demand is more than proportionate to the change in price, price elasticity of demand is greater than unity. If the change in demand is 40% when price changes by 20% then  $E_P = 40\%/20\% = 2$ , in Panel (B), i.e.  $\Delta q / \Delta p > 1$ . It is also known as relatively elastic demand.

If, however, the change in demand is less than proportionate to the change in price, price elasticity of demand is less than unity. When a 20% change in price causes 10% change in demand, then  $E_P = 10\%/20\% = 1/2 < 1$ , in Panel (C), i.e.  $\Delta q / \Delta p < 1$ . It is also known as relatively inelastic demand.

Zero elasticity of demand is one when whatever the change in price, there is absolutely no change in demand. Price elasticity of demand is perfectly inelastic in this case. A 20% rise or fall in price leads to no change in the amount demanded,  $E_P = 0/20\% = 0$ , in Panel (D), i.e.  $0/\Delta p = 0$ . It is perfectly inelastic demand.

Lastly, price elasticity of demand is infinity when as infinitesimal small change in price leads to an infinitely large change in the amount demanded. Visibly, no change in price causes an infinite change in demand,  $E = \infty/0 = \infty$ , in Panel (E), at OD price, the quantity demanded continues to increase from  $O_b$  to  $O_{b_1} \dots \dots n^p$ . It is perfectly elastic demand.

### Type # 2. Cross Elasticity of Demand:

The cross elasticity of demand is the relation between percentage change in the quantity demanded of a good to the percentage change in the price of a related good. The cross elasticity of demand between good X and Y

$$E_{ba} = \frac{\text{Percentage change in quantity of } X}{\text{Percentage change in price of } Y}$$

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

Where,  $Q_x$  = Quantity of good X,  $P_y$  = Price of good Y and  $\Delta$  = change.

#### ADVERTISEMENTS:

Given the price of X, this formula measures the change in the quantity demanded of X as a result of change in the price of Y.

The cross elasticity of demand for good X may be positive, negative or zero which depends on the nature of relation between the goods X and Y. This relation may be as substitutes, complementary or unrelated goods.

#### 1. Substitute Goods:

If X and Y are substitute goods, a fall in the price of good Y will reduce the quantity demanded of good X. Similarly, an increase in the price of good Y will raise the demand for good X. Their cross elasticity is positive because, given the price of X, a change in the price of Y will lead to a change in the quantity demanded of X in the same direction as in the price of Y.

The cross elasticity of substitute goods is explained in Table 5.

**Table 5 : Cross Elasticity of Substitutes**

Commodity	Before Change		After Change	
	Price in Rs. Per K.G.	Quantity (K.G)	Price in Rs. Per (K.G)	Quantity (K.G)
X (Tea)	20	400	20	500
Y (Coffee)	30	500	40	300

$$E_{xy} = \frac{\Delta Q_x}{\Delta P_y} \times \frac{P_y}{Q_x} = \frac{500 - 400}{40 - 30} \times \frac{30}{400}$$

$$= \frac{100}{10} \times \frac{30}{400} = (+) \frac{3}{4} \text{ or } (+) 0.75.$$

It is clear from the above that the coefficient of cross elasticity of substitute goods such as tea (X) and coffee (Y) is positive (+0.75) when with the rise in price of coffee, the price of tea being constant, the demand for tea also increases.

This is shown in Fig. 6 where the quantity of good X (tea) is taken on X-axis and the quantity of good Y is plotted on Y-axis. When the price of Y increases from OY to OY<sub>1</sub>, the quantity demanded of X rises from OX to OX<sub>1</sub>. The slope of the demand curve downwards to the right shows positive elasticity of both the goods.

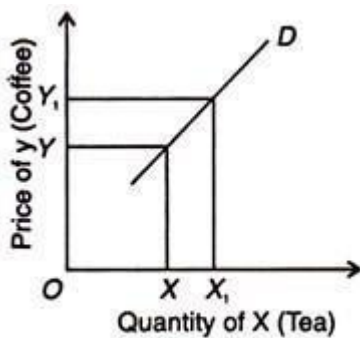


Fig. 6

## 2. Complementary Goods:

If two goods are complementary (jointly demanded), rise in the price of one leads to a fall in the demand for the other. Rise in the prices of cars will bring a fall in their demand together with the demand for petrol. Similarly, a fall in the prices of cars will raise the demand for petrol. Since price and demand vary in the opposite direction, the cross elasticity of demand is negative.

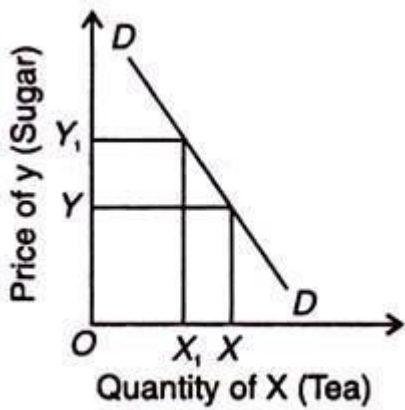
The cross elasticity of complementary goods is explained in Table 6.

**Table 6 : Cross Elasticity of Complementary**

Goods	Before the Price Change		After the Price Change	
	Price in Rs. Per K.G	Quantity (K.G.)	Price in Rs. Per K.G	Quantity (K.G.)
X (Tea)	150	40	150	30
Y (Sugar)	15	100	20	80

$$E_{xy} = \frac{\Delta Q_x}{\Delta P_y} \times \frac{P_y}{Q_x} = \frac{30-40}{20-15} \times \frac{15}{40}$$

$$= \frac{-10}{5} \times \frac{15}{40} = \frac{-15}{20} = \frac{-3}{4} = (-) 0.75.$$



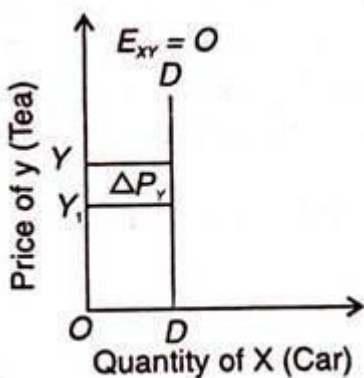
**Fig. 7**

In this case, the cross elasticity coefficient of complementary goods such as tea and sugar or car and petrol is negative.

This is explained in Fig.7 where with the rise in the price of Y (Sugar) from OY to OY<sub>1</sub> the demand for X (tea) falls from OX to OX<sub>1</sub>. The slope of the demand curve downwards to the right indicates negative cross elasticity.

### 3. Unrelated Goods:

If the two goods are unrelated, a fall in the price of good Y has no effect whatsoever on the demand for good X. In such a case, the cross elasticity of demand is zero. For example, a fall in the price of tea has no effect on the quantity demanded of car. The cross elasticity of demand for unrelated goods is shown in Fig. 8. Even an increase in the price of good Y from OY to OY<sub>1</sub>, the demand for good X remains the same as OD. Hence, the cross elasticity of demand for unrelated goods is zero.



**Fig. 8**

### Some Conclusions:

We may draw certain inferences from this analysis of the cross elasticity of demand:

(a) The cross elasticity between two goods, whether substitutes or complementary, is only a oneway traffic. The cross elasticity between butter and jam may not be the same as the cross elasticity of jam to butter. A 10% fall in the price of butter may cause a fall in the demand for jam by 5%.

But a 10% fall in the price of jam may lower the demand for butter by 2%. It shows that in the first case the coefficient is 0.5 and in the second case 0.2. The superior the substitute whose price changes, the higher is the cross elasticity of demand.

This rule also applies in the case of complementary goods. If the price of car falls by 5%, the demand for petrol may go up by 15%, giving a high coefficient of 3. But a fall in the price of petrol by 5% may lead to a rise in the demand for cars by 1%, giving a low coefficient of 0.2.

(b) Cross elasticities for both substitutes and complementary vary between zero and infinity. Generally, cross elasticity for substitutes is positive, but in exceptional circumstances it may also be negative.

(c) Commodities which are close substitutes have high cross elasticity and commodities with low cross elasticities are poor substitutes for each other. This distinction helps to define an industry. If some goods have high cross elasticity, it means that they are close substitutes.

Firms producing them can be regarded as one industry. A good having a low cross elasticity in relation to other goods may be regarded a monopoly product and its manufacturing firm becomes an industry by determining the boundary of an industry. Thus cross elasticities are simply guidelines.

### Application of Cross Elasticity in management:

The cross elasticity of demand has much practical importance in the solution of various business problems.

#### **1. In Production:**

A firm wants to know the cross elasticity of demand for its goods while considering the effect of change in the price of its competitor's goods on the demand for its own goods. It is important for a firm to have a knowledge of it while making its production plan.

## 2. In Demand Forecasting and Pricing:

Its knowledge helps the firm in estimating the potential impact of the pricing decisions of its competitors and associates on its sales so that it prepares its pricing strategies.

## 3. In International Trade and Balance of Payments:

The utility of this concept is significant in the area of international trade and balance of payments. The government wants to know how the change in domestic prices affects the demand for imports.

Domestically produced goods being close substitutes if the cross elasticity of demand for imports is high and if the prices of domestic goods increase due to inflation, the demand for imports will increase substantially which will deteriorate the balance of payments position.

### Type # 3. Income Elasticity of Demand:

The concept of income elasticity of demand ( $E_y$ ) expresses the responsiveness of a consumer's demand (or expenditure or consumption) for any good to the change in his income. It may be defined as the ratio of percentage change in the quantity demanded of a commodity to the percentage change in income. Thus

$$E_y = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$
$$= \frac{\Delta Q / Q}{\Delta Y / Y} = \frac{\Delta Q}{Q} \times \frac{Y}{\Delta Y} = \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}$$

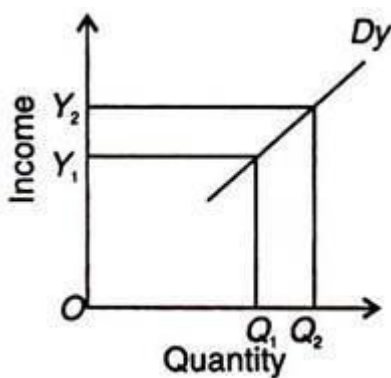
Where  $\Delta$  is change,  $Q$  quantity demanded and  $Y$  is income.

The coefficient  $E_y$  may be positive, negative or zero depending upon the nature of a commodity. If an increase in income leads to an increased demand for a commodity, the income elasticity coefficient ( $E_y$ ) is positive. A commodity whose income elasticity is positive is a normal good because more of it is purchased as the consumer's income increases.

On the other hand, if an increase in income leads to a fall in the demand for a commodity, its income elasticity coefficient ( $E_y$ ) is negative. Such a commodity is called inferior good because less of it is purchased as income increases. If the quantity of a commodity purchased remains unchanged regardless of the change in income, the income elasticity of demand is zero ( $E_y = 0$ ).

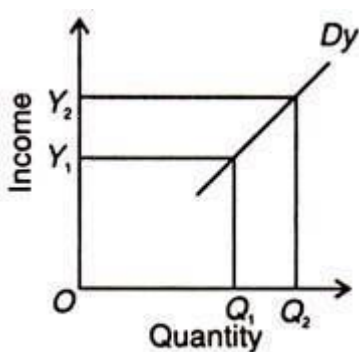
Normal goods are of three types necessities, luxuries and comforts. In the case of luxuries, the coefficient of income elasticity is positive but high,  $E_y > 1$ . Income elasticity of demand is high when the demand for a commodity rises more than proportionate to the increase in income.

Assuming prices of all other goods as constant, if the income of the consumer increases by 5% and as a result his purchases of the commodity increase by 10%, then  $E_y = 10/5 = 2(>1)$ . Taking income on the vertical axis and the quantity demanded on the horizontal axis, the increase in demand  $Q_1Q_2$  is more than the rise in income  $Y_1 Y_2$ , as shown in Figure 9. The curve  $D_y$  shows a positive and elastic income demand.



**Fig. 9**

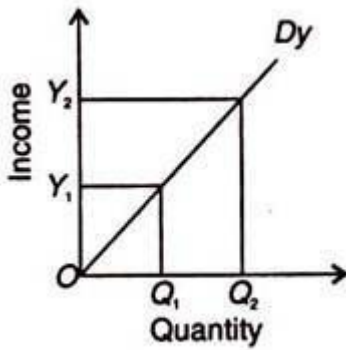
In the case of necessities, the coefficient of income elasticity is positive but low,  $E_y < 1$ . Income elasticity of demand is low when the demand for a commodity rises less than proportionate to the rise in the income. If the proportion of income spent on a commodity increases by 2% when the consumer's income goes up by 5%,  $E_y = 2/5(<1)$  Figure 10 shows a positive but inelastic income demand curve  $D_y$  because the increase in demand  $Q_1 Q_2$  is less than proportionate to the rise in income  $Y_1 Y_2$ .



**Fig. 10**

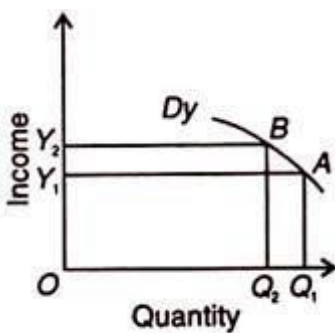
In the case of comforts, the coefficient of income elasticity is unity ( $E_y = 1$ ) when the demand for a commodity rises in the same proportion as the increase in income. For example, a 5% increase in

income leads to 5% rise in demand,  $E_y = 5/5 = 1$ . The curve  $D_y$  in Figure 11 shows unitary income elasticity of demand. The increase in quantity demanded  $Q_1$   $Q_2$  exactly equals the increase in income  $Y_1$   $Y_2$ .



**Fig. 11**

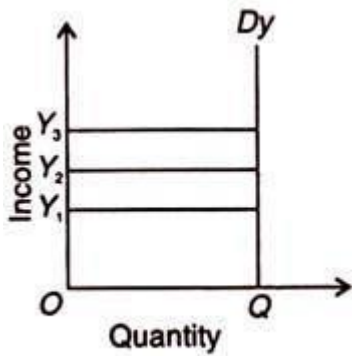
The coefficient of income elasticity of demand in the case of inferior goods is negative. In the case of an inferior goods, the consumer will reduce his purchases of it, when his income increases. If a 5% increase in income leads to 2% reduction in demand,  $E_y = -2/5 (<0)$ . Figure 12 shows the  $D_y$  curve for an inferior goods which bends upwards from A to B when the quantity demanded decreases by  $Q_1$   $Q_2$  with the rise in income by  $Y_1$   $Y_2$ .



**Fig. 12**

If with increase in income, the quantity demanded remains unchanged, the coefficient of income elasticity,  $E_y = 0$ . If, say, with 5% increase in income, there is no change in the quantity demanded, then  $E_y = 0/5 = 0$ . Figure 13 shows a vertical income demand curve  $D_y$  with zero elasticity.



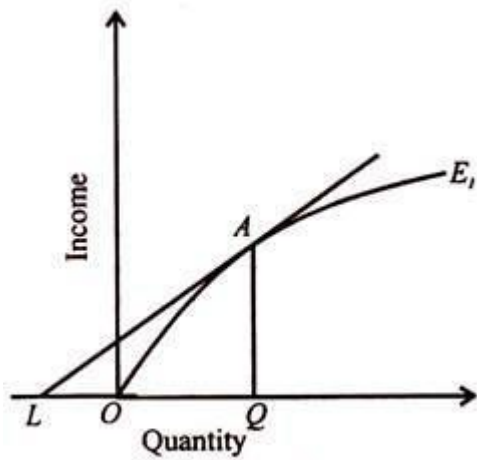


**Fig. 13**

**Measuring Income Elasticity of Demand: The Engel Curve:**

Each  $D_y$  curve expresses the income-quantity relationship. Such a curve is known as an Engel curve which shows the quantities of a commodity which a consumer would buy at various levels of income.

In Figure 9, we have explained income elasticity of demand with the help of linear Engel curves. Income elasticity in terms of non-linear Engel curves can be measured with the point formula. In general, the Engel curves look like the curves  $E_1$ ,  $E_2$  and  $E_3$ , as shown in Figures 14, 15 and 16.



**Fig. 14**

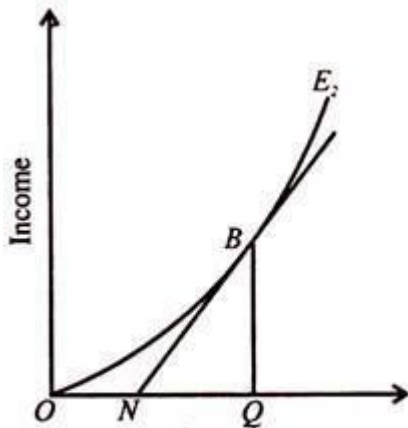


Fig. 15

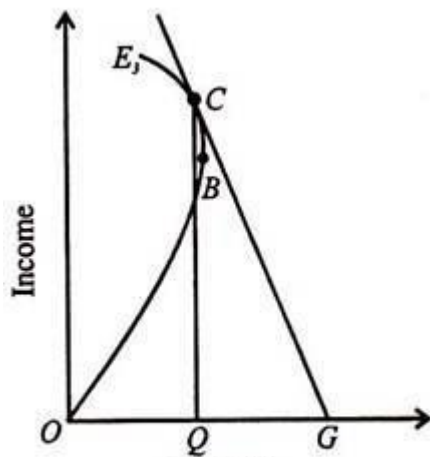


Fig. 16

(1) Consider Figure. 14 where LA is tangent to the Engel curve  $E_1$  at point A. The coefficient of income elasticity of demand at point A is

$$E_y = \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q} = \frac{LQ}{QA} \cdot \frac{QA}{OQ} = \frac{LQ}{OQ} > 1$$

This shows that the curve  $E_1$  is income elastic over much of its range. When the Engel curve is positively sloped and  $E_y > 1$ , it is the case of a luxury goods.

(2) Take Figure 15 where NB is tangent to the Engel curve  $ED_2$  at point B. The coefficient of income elasticity at point B is

$$E_y = \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q} = \frac{NQ}{QB} \cdot \frac{QB}{OQ} = \frac{NQ}{OQ} < 1.$$

This shows that the income elasticity of  $E_2$  curve over much of its range is larger than zero but smaller than 1. When the Engel curve is positively sloped and  $E_y < 1$ , the commodity is a necessity and is income inelastic.

(3) In Figure 16, the Engel curve  $E_3$  is backward-sloping after point B. In the backward-sloping range, draw a tangent GC at point C. The coefficient of income elasticity at point C is

$$E_y = \frac{-GQ}{GC} \cdot \frac{GC}{OQ} = -\frac{GQ}{OQ} < 0$$

This shows that over the range the Engel curve  $E_3$  is negatively sloped.  $E_y$  is negative and the commodity is an inferior good. But before it bends backward, the Engel curve  $E_3$  illustrates the case of a necessary good having income inelasticity over much of its range.

#### Determinants of Income Elasticity of Demand:

There are certain factors which determine the income elasticity of demand.

##### 1. The Nature of Commodity:

Commodities are generally grouped into necessities, comforts and luxuries. We have seen above that in the case of necessities,  $E_y < 1$ , in the case of comforts,  $E_y = 1$ , and in the case of luxuries,  $E_y > 1$ .

##### 2. Income Level:

This grouping of commodities depends upon the income level of a country. A car may be a necessity in a high-income country and a luxury in a poor low-income country.

##### 3. Time Period:

Income elasticity of demand depends on the time period. Over the long-run, the consumption patterns of the people may change with changes in income with the result that a luxury today may become a necessity after the lapse of a few years.

##### 4. Demonstration Effect:

The demonstration effect also plays an important role in changing the tastes, preferences and choices of the people and hence the income elasticity of demand for different types of goods.

## **5. Frequency:**

The frequency of increase in income also determines income elasticity of demand for goods. If the frequency is greater, income elasticity will be high because there will be a general tendency to buy comforts and luxuries.

### **Use of Income Elasticity in Business Decisions:**

The income elasticity of a product has great significance in long-term planning and in the solution of strategic problems, particularly during trade cycles.

#### **1. Planning of the Firm's Growth:**

The knowledge of income elasticity of demand is very important for both the firms and the government. Firms whose demand function is income elastic, the scope of their growth is generally wide in an expanding economy but they are very insecure during recession. So such firms must consider their all economic activities and their potential growth rate in future.

On the contrary, firms whose products are less income elastic, they will neither obtain more profit with the expansion of the economy nor will they incur specific loss during recession in the economy. Such firms consider it necessary to bring variety in different products or in a different industry.

For example, agricultural products are less income elastic while industrial products are income elastic. Moreover, since the coefficient of income elasticity of inferior goods is negative, the sale of such products will decline with economic growth.

#### **2. In Formulation of Farm Policy:**

Farmers' products are less income elastic because they cannot generally bring variety in their products like income elastic products. Hence, in the coming years the danger of such agricultural problems is likely to remain particularly in developing countries. Therefore, the Government of India has considered it necessary to continue and increase various agricultural subsidies.

#### **3. In Forecasting Demands:**

The concept of income elasticity can be used in forecasting future demand provided the firm knows the growth rate of income and income elasticity of demand for the good. It is often believed that the

demand for goods and services increases with the rise in GNP that depends on the marginal propensity to consume.

But it may be proved true in the context of aggregate national demand while it is not necessary to be true for a particular good. For this, the income of the related income class should be used. It is also useful for avoiding the problem of over-production or under-production.

#### **4. In Formulating Marketing Strategies:**

The income elasticity of demand of potential buyer class for products affects the number, nature and location of sales centres, nature and level of advertising and the policies related to other sales promotion activities.

For instance, the sales centres of ice-creams will be located in the prosperous town areas where the people have sufficient income and their incomes are likely to increase sufficiently in future. Here, the expected rise in demand in the context of increased income has been discussed. But this rise will be compensated in more or less quantity by the expected fall in demand with the increase in price.

### **Demand Estimation and Forecasting**

#### **Introduction**

Estimating the future demand for products, either existing or new is a significant aspect of demand analysis. A manager needs to have information about likely future demand of its product to enable the firm to produce the required quantities of a product at the right time and arrange well in advance for the various inputs (like labor, raw material, machines etc.) as well as to pursue optimal pricing strategies. Demand estimation and forecasting means predicting future demand for the product under given conditions and helped the manager in making decisions with regard to production, sales, investment, expansion, employment of manpower etc., both in the short run as well as in the long run. In this unit attempt has been made to discuss the concept of demand.

#### **Demand Estimation and Demand Forecasting**

In Demand estimating manager attempts to quantify the links or relationship between the level of demand and the variables which are determinants to it and is generally used in designing pricing strategy of the firm. In demand estimation manager analyse the impact of future change in price on the quantity demanded. Firm can charge a price that the market will ready to wear to sell its product. Over

estimation of demand may lead to an excessive price and lost sales whereas under estimates may lead to setting of low price resulting in reduced profits. In demand estimation data is collected for short period usually a year or less and analysed in relation to various variables to know the impact of each variables mainly the price on the demand behaviour of the customers. It is for a short period.

In Demand forecasting managers forecast the most likely future demand of a product so that he can make necessary arrangement for the various factor of production i.e labor, raw material, machines, money etc. Demand forecasting tells the expected level of demand at some future date on the basis of past and present information. It helped in production planning, new product development, capacity enhancement or new schemes etc. Demand forecasting is generally used for short term estimation as well as long term forecasting.

Thus, demand estimation and forecasting means when, how, where, by whom and how much will be the demand for a product or service in near future. The process of demand estimation/forecasting can be broken into two parts i.e. analysis of the past conditions and analysis of current conditions with reference to a probable future trend. It helps in estimating the most likely demand of a good or service under given business conditions.

### **Features of Demand Forecasting**

The main features of the demand forecasting are;

1. Demand Forecasting is a process to investigate and measure the forces that determine sales for existing and new products.
2. It is an estimation of most likely future demand for a product under given business conditions.
3. It is basically an educated and well thought out guesswork in terms of specific quantities
4. Demand Forecasting is done in an uncertain business environment.
5. Demand Forecasting is done for a specific period of time (i.e. the sufficient time required to take a decision and put it into action).
6. It is based on historical and present information and data.
7. It tells us only the approximate expected future demand for a product based on certain assumptions and cannot be 100% precise.

### **Why Demand Forecasting**

As business is done in an uncertain and risky business environment and managers have to take decisions under uncertain and risky conditions. Demand forecasting help the managers in forecasting the most likely future sale of their products, accordingly manager plan their production, arrange various inputs like labor, material, capital and techniques etc. prepare future budgets and formulate various marketing and supply chain strategies or policies to achieve the budgeted targets. This will help up to certain extent in managing the future risks caused due to varied business conditions as well as in optimum utilization of available business resources.

In short run demand forecasting helps in determining the optimum level of output at various periods to avoid under or over production. It helps in better inventory management, of buying inputs and control its inventory level which cuts down overall cost of production. A balanced pricing policy can be formulated to suit short run and seasonal variations in demand. It helps the company to set realistic sales targets for each individual salesman and for the firm as a whole. It helps in advance financial planning required for achieving the budgeted production and sales and to raise the required funds well in advance at reasonable cost. It also helps the firm in evolving a suitable labor policy and to determine the exact number of workers to be employed in the short run.

In long run, the demand for a product of a firm is forecasted generally for a period of 4 to 6 or 10 years and it helped in taking capital expenditure decisions relating business expansion, capacity enhancement or setting up a new production unit, modification and up gradation of technology as it involves large scale production as well as long gestation period. Accordingly firms can plan long run financial requirements, capital structure and investment programs by floating shares, bond and debentures in the open domestic as well as foreign capital markets at reasonable costs.

Trained and skilled labour and business managers may be needed in long run thus demand forecasting also helps in preparing long term man power planning for imparting training to the existing staff and recruit skilled and efficient labour force and executives for its long run growth.

Demand forecasting can play a significant role in controlling over total costs and revenues of a company and determining the value and volume of business, estimating future profits of the firm and regulating business effectively to meet the challenges of the market. The speed at which the company can grow, stability in firm's performance and interdependence of different industries can be adjudged with the help of demand forecasting.

### **Demand Forecasting Process**

To have efficient, accurate and reliable demand forecasting a manager must take the following steps;

#### 1. Specifying the objective of Demand Forecasting

While forecasting demand one may have different objectives like quantity and composition of demand, price to be quoted, production planning, inventory planning or capital budgeting, short or long term demand, firm's market share etc. Thus, the objective for which demand is to be estimated must be clearly defined at first stage.

#### 2. Determining the nature of goods

The next step in demand forecasting is identification of type of goods as different type of goods such as consumer goods, capital goods, industrial goods, durable and nondurable goods; perishable or seasonal goods have different type of demand pattern. This will help in applying right approach to demand estimation process.

#### 3. Determining the time perspective

Depending upon the nature of goods and firm's objective, the demand can be forecasted for short term as well as for long term. In short term many of the determinants of demand may remain constant or not to be change significantly but in long run these determinants may change significantly. Thus, while forecasting demand one has to define the time span for the forecast. The time period is normally divided into short run up to 3 to 6 months, medium term up to 2 or 3 years and long term beyond 3 or 5 years.

#### 4. Determining the level of forecasting;

Demand forecasting may be undertaken at micro or firm level, industry level, macro level or international level. It may be done for product line forecasting, general or specific purpose or for established or new products. There are different factors that influence the demand at different level of forecasting. Thus one must specify the level of forecasting beforehand.

### **Demand Distinction:**

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

### **Types of Demand:**



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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Some of these important exceptions are as under.**

### **1. Giffen Goods:**

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

raised the demand for potato. This is against the law of demand. This is also known as Giffen paradox.

## **2. Conspicuous Consumption / Veblen Effect:**

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

## **3. Conspicuous Necessities:**

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

## **4. Ignorance:**

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

## **5. Emergencies:**

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

## **6. Future Changes In Prices:**

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

## **7. Change In Fashion:**

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

## **8. Demonstration Effect:**

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

## **9. Snob Effect:**

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

## **10. Speculative Goods/ Outdated Goods/ Seasonal Goods:**

Speculative goods such as shares do not follow the law of demand. Whenever the prices rise, the traders expect the prices to rise further so they buy more. Goods that go out of use due to advancement in the underlying technology are called outdated goods. The demand for such goods does not rise even with fall in prices

## **11. Seasonal Goods:**

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

## 12. Goods In Short Supply:

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

### UNIT – II

#### Question bank

#### PART – B (5) MARKS 1.

Meaning of demand analysis?

2. Determinants of demand?

3. What is the law of demand?

4. Assumption of law of demand?

5. Features of demand forecasting.

6. What are the determinants of income elasticity of demand?

#### PART – C (10) MARKS

1. Types of demand and characteristics of law of demand.

2. Explain elasticity of demand and types of Elasticity of demand.

3. Cross elasticity of demand and types of Cross elasticity.

4. Income elasticity of demand and types of Income elasticity.

-----

## UNIT – III

### CONCEPT OF COST

Business firms, by and large, work for profit and it is the profit which determines the success of the business, though the firm may have many subsidiary objectives. When profit becomes the primary objective, it is obvious that costs balance revenue in an optimal way. The term ‘Cost of Production’ means the expenses incurred in the production of the commodity. This refers to the total amount of money spent on the production of the commodity. The term cost of production may be used in three different senses. It may mean

- (i) Money cost
- (ii) Real cost
- (iii) Opportunity cost.

A firm is a unit of production, producing goods and services. For producing them, it hires factors of production like, Land (L), Labour (L), Capital (K) and Organization (O). A producer makes the following payments: rent for land (r), wages for labour (w), rate of interest (ri), for capital. For organization, he receives profit. The cost of production is the total of all these factors payments. Total production or output (X)

$$X=f(L, L, K, O)$$

### KINDS OF COST

The cost classified into,

- **Accounting Costs**

When a producer makes cash payments to meet the total costs, and also pays taxes and charges, etc.

- **Money Cost**

Money costs refer to the aggregate money expenditure incurred by the producer for producing a given quantity of output. A producer pays rent, wages, and rate of interest and earns normal profits, all in the form of money.

- **Real Costs**

The real cost principle is based on the precepts viz., utility and disutility, pain and pleasure, satisfaction and dissatisfaction, etc. For producing a good, money costs are involved. More than that exertions or efforts are required. Exertions and efforts are painful. This painful experience is called real cost.

- **Opportunity Cost**

Opportunity Cost refers to the cost foregone by a person, when he prefers the first best use to the next use a commodity or factor. It is based on two premises,

- Scarcity of factors and products
- Different alternative uses for a factor or good.

Goods and factors of production are always scarce. A consumer or a producer with limited income or limited spending power, assesses the alternative uses which his income can be put into: For example, a resource, or money can be put into,

- The first best use
- The alternative best use.

When select the best use, he has to forego the alternative uses. What he has forego is the opportunity of using a resource for next best use. This is known as opportunity cost.

- **Economic cost**

Economic cost is the total of Explicit Cost and Implicit Cost.

- **Explicit costs**

Explicit cost is the direct money payments made by the firm to produce a commodity as rewards for use of productive resources, taxes and insurances etc.

- **Implicit Cost**

Implicit Cost is the imputed cost for the use of entrepreneur's own factors of production. Implicit costs are also known as imputed costs or hidden costs. Examples of such enterprises are silk weavers, petty-shop owners, etc. These costs do not take the form of cash.

- **Private Cost**

For a firm in private sector, both the explicit and implicit incurred by it, are known as private costs. Private costs operator runs a mess in a government hostel. He gets rations at subsidized prices. The amount of subsidy is the social cost. When he deducts the subsidy from the total costs incurred by him, the remaining portion of the total costs is called private cost

- **Social Costs**

The concept of social cost is drawn from the concepts of pain and pleasure, utility and disutility at the social level. For example, when coca cola starts its unit an area, the pleasure is the production of coca cola and the social pain is the depletion of ground water resources. Social costs can be defined as the externalities, the dis utilities, the pollution, the ecological imbalance, which a society undergoes, because of increased industrialization, and urbanization,

- **Time periods and costs**

For cost function analysis we decide the time period into short run and long run. Such division is based on the nature of the factors of production themselves.

- **Fixed Costs**

Fixed costs are those costs which remain constant, whether output produced is less or more. Even when output is Zero, fixed costs are incurred. Up to certain level of output, fixed costs remain constant. Fixed Costs include,

- Costs on managerial and administrative staff
- Expenditure on depreciation and obsolescence
- and
- Factory maintenance costs.

These are also called Overheads Costs. Fixed costs are short run costs.

- **Variable Costs**

The variable costs are those costs which vary with a change in the total output. They are the functions of output changes. When output increases, variable costs increase and when output decreases they decrease. Variable costs include,

- Costs of raw material
- Costs of direct labor
- The running expenses in maintaining fixed capital and other assets.

- **Total Costs**

Total Costs (TC) include Total Fixed Costs and Total Variable Costs (TVC) incurred by a producer for producing a given quantity of output. As output increases total costs also increase.

## **COST CONCEPTS**



## **Accounting and Economic Costs**

When a firm starts producing goods, it has to pay the price for the factors employed for the production. These factors include wages to workers employed, prices for the raw materials, fuel and power used, rent for the building he hires, and interest on the money borrowed for doing business, etc.

Accounting Costs are these costs which are included in the cost of production. Hence, accounting costs take care of all payments and charges that the firm makes to suppliers of different productive factors.

Usually, a businessman invests some capital in his firm. If he would have invested the amount in some other firm, then he could have earned a certain interest/dividend. Further, he invests time for his business and also contributes his entrepreneurial and managerial ability to the business.

If not involved in the business, he could have offered his services to other firms for an amount of money. Accounting costs DO NOT involve these costs. They form a part of the Economic Costs.

Hence, Economic costs include:

- The normal return on the money that the businessman invests in his own business
- The salary not paid to the entrepreneur but could have been earned if the services would have been sold elsewhere.
- A reward for all factors owned by the businessman and used in his own business.

Therefore, the accounting costs involve cash payments that the firm makes. Economic costs, on the other hand, include the accounting costs and also take into account the amount of money the businessman could have earned with his resources if he would not have started the business.

Another name for accounting costs is Explicit Costs. Whereas, the alternate name for the costs of factors that the businessman owns is Implicit Costs. A businessman earns profits when his revenues exceed both explicit and implicit costs.



### Outlay and Opportunity Costs

Outlay costs include the actual expenditure of funds on factors like material, rent, wages, etc. On the other hand, opportunity costs are the costs of missed opportunities. In other words, it compares the policy chosen and policy rejected.

Outlay cost concepts are actual expenditures and the books of accounts record them. Opportunity costs are about sacrificed opportunities and the books of accounts do not record them.

These costs are very useful. For example, if a cloth mill spins its own yarn, the opportunity cost of yarn to the weaving department is the price at which the yarn sells. This is used for measuring the profitability of the weaving operations.

### Direct or Traceable Costs and Indirect or Non-Traceable Costs

Direct costs – costs which are easily identifiable and traceable to a particular product, operation or plant. For example, manufacturing costs are direct costs since they can be related to either a product line or territory or customer class, etc. Ensure that you know the purpose of the cost calculation before determining if a cost is direct or indirect.

Indirect costs – costs which are not easily identifiable or traceable to specific goods, services, operations, etc. These costs bear some functional relationship to production and may vary with the output. For example, costs related to electric power and the common costs incurred for the general operation of the business benefitting all products.

### Fixed and Variable Costs

Fixed costs or Constant costs are not a function of the output. That is, they do not vary with the output up to a certain extent. They require a fixed expenditure of funds regardless of the output.

For example, rent, property taxes, interest on loans, etc. However, note that fixed costs can vary with the size of the plant and are usually a function of capacity. Therefore, we can conclude that fixed costs do not vary with the output volume within a capacity level.

Businesses cannot avoid fixed costs and are applicable as long as the business is operating. Alternate names for fixed costs are inescapable or uncontrollable costs.

It is important to note here, that some fixed costs continue even after the suspension of business. For example, costs associated with storing of machines that the business cannot sell in the market, etc.

Variable costs are cost concepts which are a function of the output in the production period. Variable costs vary directly with the output. Some examples of variable costs are the cost of raw materials, wages, etc. Sometimes, they vary proportionally with the output too. However, these variations depend on the utilization of fixed facilities and resources during the production process.

### Cost-Output Relationship

A proper understanding of the nature and behavior of costs is a must for regulation and control of cost of production. The cost of production depends on money forces and an understanding of the functional relationship of cost to various forces will help us to take various decisions. Output is an important factor, which influences the cost.

The **cost-output relationship** plays an important role in determining the optimum level of production. Knowledge of the **cost-output relation** helps the manager in cost control, profit prediction, pricing,

promotion etc. The relation between cost and its determinants is technically described as the cost function.

$$C = f(S, O, P, T \dots)$$

Where;

- C= Cost (Unit or total cost)
- S= Size of plant/scale of production
- O= Output level

- P= Prices of inputs
- T= Technology

Considering the period the cost function can be classified as (1) short-run cost function and (2) longrun cost function. In economics theory, the short-run is defined as that period during which the physical capacity of the firm is fixed and the output can be increased only by using the existing capacity allows to bring changes in output by physical capacity of the firm.

### 1. Cost-Output Relationship in the Short-Run

The cost concepts made use of in the cost behavior are Total cost, Average cost, and Marginal cost.

Total cost is the actual money spent to produce a particular quantity of output. Total Cost is the summation of Fixed Costs and Variable Costs.

$$TC=TFC+TVC$$

Up to a certain level of production Total Fixed Cost i.e., the cost of plant, building, equipment etc, remains fixed. But the Total Variable Cost i.e., the cost of labor, raw materials etc., vary with the variation in output. Average cost is the total cost per unit. It can be found out as follows.

$$AC=TC/Q$$

The total of Average Fixed Cost ( $TFC/Q$ ) keep coming down as the production is increased and Average Variable Cost ( $TVC/Q$ ) will remain constant at any level of output.

Marginal Cost is the addition to the total cost due to the production of an additional unit of product. It can be arrived at by dividing the change in total cost by the change in total output.

In the short-run there will not be any change in Total Fixed Cost. Hence change in total cost implies change in Total Variable Cost only.

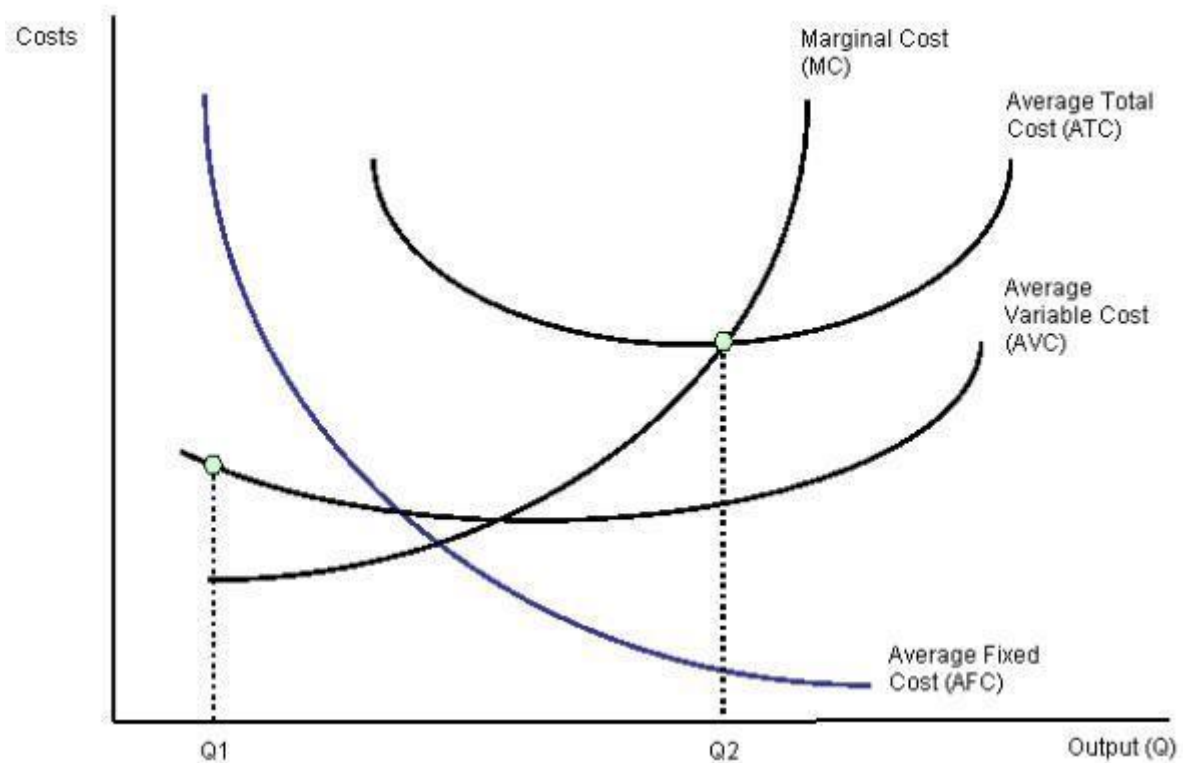
Units of Output Q	Total fixed cost TFC	Total variable cost TVC	Total cost (TFC + TVC) TC	Average variable cost (TVC / Q) AVC	Average fixed cost (TFC / Q) AFC	Average cost (TC/Q) AC	Marginal cost MC
0	–	–	60	–	–	–	–
1	60	20	80	20	60	80	20
2	60	36	96	18	30	48	16
3	60	48	108	16	20	36	12
4	60	64	124	16	15	31	16
5	60	90	150	18	12	30	26
6	60	132	192	22	10	32	42

The above table represents the cost-output relationship. The table is prepared on the basis of the law of diminishing marginal returns. The fixed cost Rs. 60 May include rent of factory building, interest on capital, salaries of permanently employed staff, insurance etc. The table shows that fixed cost is same at all levels of output but the average fixed cost, i.e., the fixed cost per unit, falls continuously as the output increases. The expenditure on the variable factors (TVC) is at different rate. If more and more units are produced with a given physical capacity the AVC will fall initially, as per the table

declining up to 3<sup>rd</sup> unit, and being constant up to 4<sup>th</sup> unit and then rising. It implies that variable factors produce more efficiently near a firm's optimum capacity than at any other levels of output and later rises. But the rise in AC is felt only after the start rising. In the table 'AVC' starts rising from the 5<sup>th</sup> unit onwards whereas the 'AC' starts rising from the 6<sup>th</sup> unit only so long as 'AVC' declines 'AC' also will decline. 'AFC' continues to fall with an increase in Output. When the rise in 'AVC' is more than the decline in 'AFC', the total cost again begin to rise. Thus there will be a stage where the 'AVC', the total cost again begin to rise thus there will be a stage where the 'AVC' may have started rising, yet the 'AC' is still declining because the rise in 'AVC' is less than the drop in 'AFC'.

Thus the table shows an increasing returns or diminishing cost in the first stage and diminishing returns or diminishing cost in the second stage and followed by diminishing returns or increasing cost in the third stage.

The **short-run cost-output relationship** can be shown graphically as follows.



In the above graph the "AFC" curve continues to fall as output rises an account of its spread over more and more units Output. But AVC curve (i.e. variable cost per unit) first falls and than rises due to the operation of the law of variable proportions. The behavior of "ATC" curve depends upon the behavior of 'AVC' curve and 'AFC' curve. In the initial stage of production both 'AVC' and 'AFC' decline and hence 'ATC' also decline. But after a certain point 'AVC' starts rising. If the rise in variable cost is less than the decline in fixed cost, ATC will still continue to decline otherwise AC begins to rise. Thus the lower end of 'ATC' curve thus turns up and gives it a U-shape. That is why 'ATC' curve are

U-shaped. The lowest point in 'ATC' curve indicates the least-cost combination of inputs. Where the total average cost is the minimum and where the "MC' curve intersects 'AC' curve, It is not be the maximum output level rather it is the point where per unit cost of production will be at its lowest.

The relationship between 'AVC', 'AFC' and 'ATC' can be summarized up as follows:

1. If both 'AFC' and 'AVC' fall, 'ATC' will also fall.
2. When 'AFC' falls and 'AVC' rises
3. 'ATC' will fall where the drop in 'AFC' is more than the rise in 'AVC'.
4. 'ATC' remains constant is the drop in 'AFC' = rise in 'AVC'
5. 'ATC' will rise where the drop in 'AFC' is less than the rise in 'AVC'

## 2. Cost-output Relationship in the Long-Run

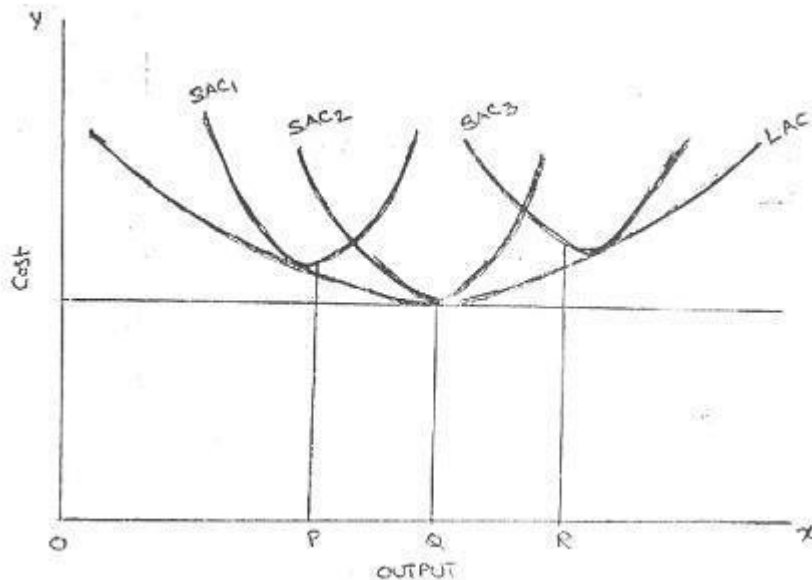
Long run is a period, during which all inputs are variable including the one, which are fixed in the short-run. In the long run a firm can change its output according to its demand. Over a long period, the size of the plant can be changed, unwanted buildings can be sold staff can be increased or reduced. The long run enables the firms to expand and scale of their operation by bringing or purchasing larger quantities of all the inputs. Thus in the long run all factors become variable.

The long-run cost-output relations therefore imply the relationship between the total cost and the total output. In the long-run cost-output relationship is influenced by the law of returns to scale.

In the long run a firm has a number of alternatives in regards to the scale of operations. For each scale of production or plant size, the firm has an appropriate short-run average cost curves. The short-run average cost (SAC) curve applies to only one plant whereas the long-run average cost (LAC) curve takes in to consideration many plants.

The long-run cost-output relationship is shown graphically with the help of "LCA' curve.





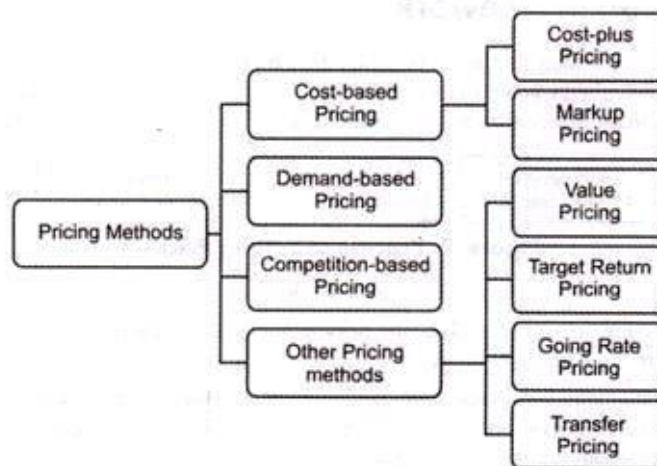
To draw on 'LAC' curve we have to start with a number of 'SAC' curves. In the above figure it is assumed that technologically there are only three sizes of plants — small, medium and large, 'SAC', for the small size, 'SAC2' for the medium size plant and 'SAC3' for the large size plant. If the firm wants to produce 'OP' units of output, it will choose the smallest plant. For an output beyond 'OQ' the firm wills optimum for medium size plant. It does not mean that the OQ production is not possible with small plant. Rather it implies that cost of production will be more with small plant compared to the medium plant.

For an output 'OR' the firm will choose the largest plant as the cost of production will be more with medium plant. Thus the firm has a series of 'SAC' curves. The 'LCA' curve drawn will be tangential to the entire family of 'SAC' curves i.e. the 'LAC' curve touches each 'SAC' curve at one point, and thus it is known as envelope curve. It is also known as planning curve as it serves as guide to the entrepreneur in his planning to expand the production in future. With the help of 'LAC' the firm determines the size of plant which yields the lowest average cost of producing a given volume of output it anticipates.

### **TYPES OF PRICING METHODS:**

An organization has various options for selecting a pricing method. Prices are based on three dimensions that are cost, demand, and competition.

The organization can use any of the dimensions or combination of dimensions to set the price of a product.



**Figure-4: Various Pricing Methods**

### **Cost-based Pricing:**

Cost-based pricing refers to a pricing method in which some percentage of desired profit margins is added to the cost of the product to obtain the final price. In other words, costbased pricing can be defined as a pricing method in which a certain percentage of the total cost of production is added to the cost of the product to determine its selling price.

Cost-based pricing can be of two types, namely, cost- plus pricing and markup pricing. These two types of cost-based pricing are as follows:

#### **• Cost-plus Pricing:**

Refers to the simplest method of determining the price of a product. In cost-plus pricing method, a fixed percentage, also called mark-up percentage, of the total cost (as a profit) is added to the total cost to set the price. For example, XYZ organization bears the total cost of Rs. 100 per unit for producing a product. It adds Rs. 50 per unit to the price of product as' profit. In such a case, the final price of a product of the organization would be Rs. 150.

Cost-plus pricing is also known as average cost pricing. This is the most commonly used method in manufacturing organizations.

**In economics, the general formula given for setting price in case of cost-plus pricing is as follows:**

$$P = AVC + AVC (M)$$

AVC= Average Variable CostM

= Mark-up percentage

$AVC (m) = \text{Gross profit margin}$

Mark-up percentage (M) is fixed in which AFC and net profit margin (NPM) are covered.

$AVC (m) = AFC + NPM$

- For determining average variable cost, the first step is to fix prices. This is done by estimating the volume of the output for a given period of time. The planned output or normal level of production is taken into account to estimate the output.

The second step is to calculate Total Variable Cost (TVC) of the output. TVC includes direct costs, such as cost incurred in labor, electricity, and transportation. Once TVC is calculated, AVC is obtained by dividing TVC by output, Q. [ $AVC = TVC/Q$ ]. The price is then fixed by adding the mark-up of some percentage of AVC to the profit [ $P = AVC + AVC (m)$ ].

- **Markup Pricing:**

Refers to a pricing method in which the fixed amount or the percentage of cost of the product is added to product's price to get the selling price of the product. Markup pricing is more common in retailing in which a retailer sells the product to earn profit. For example, if a retailer has taken a product from the wholesaler for Rs. 100, then he/she might add up a markup of Rs. 20 to gain profit.

**Demand-based Pricing:**

Demand-based pricing refers to a pricing method in which the price of a product is finalized according to its demand. If the demand of a product is more, an organization prefers to set high prices for products to gain profit; whereas, if the demand of a product is less, the low prices are charged to attract the customers.

**Competition-based Pricing:**

Competition-based pricing refers to a method in which an organization considers the prices of competitors' products to set the prices of its own products. The organization may charge higher, lower, or equal prices as compared to the prices of its competitors.

### **Other Pricing Methods:**

**In addition to the pricing methods, there are other methods that are discussed as follows:**

- **Value Pricing:**

Implies a method in which an organization tries to win loyal customers by charging low prices for their high-quality products. The organization aims to become a low cost producer without sacrificing the quality. It can deliver high-quality products at low prices by improving its research and development process. Value pricing is also called value-optimized pricing.

- **Target Return Pricing:**

Helps in achieving the required rate of return on investment done for a product. In other words, the price of a product is fixed on the basis of expected profit.

- **Going Rate Pricing:**

Implies a method in which an organization sets the price of a product according to the prevailing price trends in the market. Thus, the pricing strategy adopted by the organization can be same or similar to other organizations. However, in this type of pricing, the prices set by the market leaders are followed by all the organizations in the industry.

- **Transfer Pricing:**

Involves selling of goods and services within the departments of the organization. It is done to manage the profit and loss ratios of different departments within the organization. One department of an organization can sell its products to other departments at low prices. Sometimes, transfer pricing is used to show higher profits in the organization by showing fake sales of products within departments.

- **Pricing a New Product:**

Pricing is a crucial managerial decision. Most companies do not encounter it in a major way on a day-to-day basis. But there is need to follow certain additional guidelines in the pricing of the new product. The marketing of a new, product poses a problem for any firm because new products have no past information.

### (A) Skimming Pricing:

Skimming pricing is known as charging high price in initial stages. This can be followed by a firm by charging skimming price for a new product in pioneering stage. When demand is either unknown or more inelastic at this stage, market is divided into segments on the basis of different degree of elasticity of demand of different consumers.

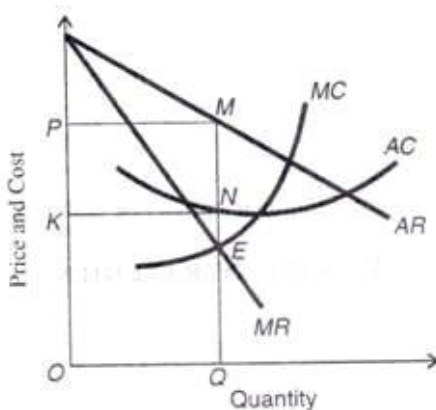


Fig. 1

### • Product-Line Pricing:

Product line pricing is an important practical problem for most modern industrial enterprises. Since almost every firm makes several related products, product line pricing is an important phase of price policy. Product line pricing refers to the determination of prices of the individual products which form units of an output package.

From the viewpoint of management a typical modern firm produces multiple models, styles or sizes of output each of which can be considered a separate product. Although product line pricing requires same economic concepts used for single product pricing, the analysis becomes complicated, however, by demand and production externalities which arise because of substitutability or complementary between the products on the demand or the production side.

The problem of product line pricing is to find the proper relationship among the prices of members of a product group. Product line pricing can include use-differentials (e.g., fluid milk vs. cheese milk), seasonal differentials (e.g., morning movie specials) and style cycle differentials.

These are all phases of product line pricing. Our analysis of product line pricing is divided into two parts, the first sets forth a general approach, to the problem, and the second applies this approach to some specific cases. **General Approach:**

We discuss, in this section, problems of exploring demand relationships and competitive differences and of making and using cost estimates for pricing related products.

#### **Alternative Policies of Price Relationship:**

A logical approach to product line pricing is to start with a picture of the alternative kinds of policy regarding the relationships among prices of members of a product line.

#### **Pricing over the Life Cycle of a Product:**

The cycle begins with the invention of the new product. The innovation of a new product and its degeneration to a common product is termed as the life cycle of a product. It is an important concept in marketing that provides insights into a product's competitive dynamics. The life cycle of a product portrays distinct stages in the sales history of a product.

Corresponding to these stages are distinct opportunities and problems with respect to market strategy and profit potential. By identifying the stage that a product is in, or may be headed toward, companies can formulate better marketing plans. Figure 5 depicts the life cycle of a product.

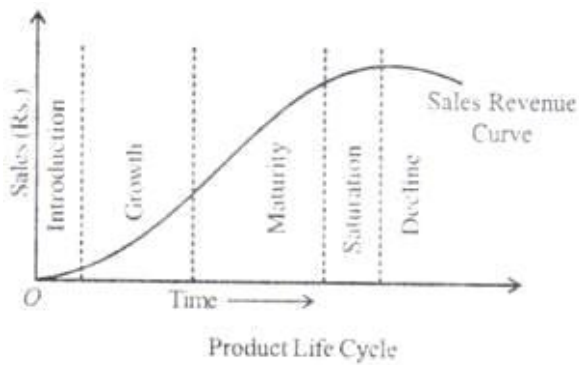


Fig. 5

Every product moves through a life cycle having five phases as shown in the figure and they are:

- **Introduction:**

This is the first stage in the life cycle of a product. This is an infant stage. The product is a new one. The product is put on the market, awareness and acceptance are minimal. There are high promotional costs. Therefore, the profit may be low. The firm can use two types of pricing policy, i.e., skimming price policy or centralizing price policy in this stage. Growth:

In this stage, a product gains acceptance on the part of consumers and businessmen. The product begins to make rapid sales gains because of the cumulative effects of introductory promotion, distribution work or mouth influence. The product satisfies the market. For the purpose of pricing, there is not much difference between growth and maturity stages.'

- **Maturity:**

At this stage, keen competition increases. Sales growth continues, but at a diminishing rate, because of the declining number of potential customers. Competitors go for markdown price. Additional expenses are involved in the product's modification and improvement, thus profit margin slips. This period is useful because it gives out signals for taking precaution in pricing policy.

- **Saturation:**

In this stage, the sales are at the peak and further increase is not possible. The demand for the product is stable. The rise and fall of sale depend upon supply and demand. There is little additional demand to be stimulated, it happens to be its replacement demand. Therefore, the product pricing in the saturation stage is full cost plus normal mark-up.

- **Decline:**

Sales begin to diminish absolutely as the customers begin to tire of a product. The competitors have entered the market with substitutes and imitations. Price becomes the competitive weapon. The product should be reformulated to suit the consumer's preferences, it is possible in the case of few commodities.

Throughout the cycle, changes take place in price and promotional elasticity of demand as also in the production and distribution costs of the product. Therefore, pricing policy must be adjusted over the various phases of the cycle.

### **Cost-Plus Price:**

The determination of cost-plus price is explained below in terms of Prof. Andrews's version. Prof. Andrews in his study, Manufacturing Business, 1949, explains how a manufacturing firm actually fixes the selling price of its product on the basis of the fullcost or average cost.

The usual formula for costing-margin

(or mark-up) is  $M = \frac{P - AVC}{AVC}$

....(1)

Where M is mark-up, P is price and AVC is the average variable cost and the numerator P-AVC is the profit margin.

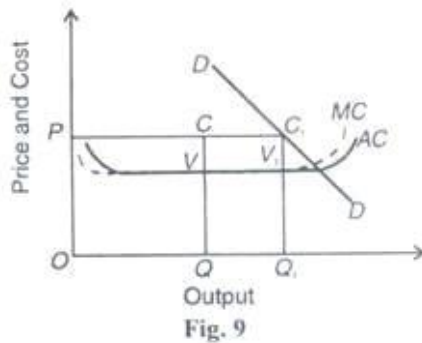
If the cost of a book is Rs 100 and its price is Rs 125,  $M = \frac{125 - 100}{100} = 0.25$  or 25% If we solve equation (1) for price, the result is



$$P = AVC (1 + M) \dots (2)$$

The firm would set the price,  $P = Rs$

$$100 (1 + 0.25) = Rs 125.$$



### Surge Pricing

Surge pricing is a dynamic pricing method where prices are temporarily increased as a reaction to increased demand and mostly limited supply. Therefore, this form of dynamic pricing responds to market factors and helps to flexibly increase your prices. Surge pricing takes place in all kinds of industries, such as hospitality, tourism, entertainment, and of course in retail.

### What is product line pricing?

Product line pricing involves the separation of goods and services into cost categories in order to create various perceived quality levels in the minds of consumers. You might also hear product line pricing referred to as price lining, but they refer to the same practice.

Before we get ahead of ourselves, it's probably best if we make sure we understand exactly what "product lines" are.

### Examples of product line pricing

Let's delve a little deeper into examples of product line pricing strategies done well. Pure SaaS businesses can benefit hugely from a well-tuned product line approach, but, as we'll see, it's a good strategy for all kinds of businesses. Dual Pricing is a transfer-pricing approach that separates customers based on their ability to pay. It uses two separate transfer pricing methods to price each inter-division transaction. The dual pricing strategy is used to create a range of

products that have different prices based on the target market. This allows companies to offer products at every price point so they can appeal to as many consumers as possible.

### **Importance of Dual Price System**

The dual price system works by charging higher prices to those customers with greater **income** or purchasing power, while simultaneously charging lower prices to less wealthy customers who are willing to pay the lower prices for products. The dual pricing strategy ensures that each group of customers sees value in what they purchase and that each customer is happy to buy the dual-priced product.

#### **Dual Pricing:**

Dual pricing is the practice of setting different prices in different markets for the same product or service. This tactic may be used by a business for a variety of reasons, but it is most often an aggressive move to take market share away from competitors. Dual pricing is similar to price discrimination.

- Dual pricing is most often an aggressive tactic used by a manufacturer to take market share away from a competitor.
- In some cases, dual pricing is necessary to offset the additional costs of doing business in a foreign market.
- Dual pricing is illegal only when it can be proved that a manufacturer set prices unrealistically low for the purpose of unfairly driving out competition.

### **Two Systems of Dual Price**

The two types of Dual Price Systems are differentiated pricing and discriminatory pricing. With differentiated pricing, the dual-priced product has different features for each group of customers, while with discriminatory dual pricing, there is only one product, but has dual prices.

#### **Differentiated Pricing**

This type of dual-price system charges different prices based on how similar or substitutable the products and services are. For example, a generic version of a product

and the original branded version would both be priced at a lower rate than the dual-priced original branded and luxury dual-priced versions.

## **Dual Price System in Your Business**

### **Step 1: Research Consumer Purchasing Power**

Consumer's purchasing power is the number of goods and services that they can buy with their money. The higher the consumer's purchasing power, the more expensive products they are willing to pay for. Use sources such as Dun & Bradstreet's Million Dollar Directory to estimate the percentage of potential customers in varying income brackets.

### **Step 2: Decide on Products' Worth**

A dual pricing system is only effective if each product has value in the eyes of its target market. Determine your company's break-even point by figuring out how much it costs to produce one unit, including labor and **overhead**, and then divide that figure by the price per unit you want to set.

### **Step 3: Identify Your Target Market**

Determine which customers you want to sell your dual-priced product to and target them with advertising and

Promotion strategies. Send samples of dual-priced goods or services to potential customers before offering them for sale so that they will be familiar with it when the dual-priced products completed.

### **Step 4: Price Your Product for High-Income Market**

Price your dual-priced product using a discriminatory pricing strategy, in which you sell the highest quality item at a price that can earn a profit. Set this price high enough so that only customers in an income bracket that is higher than your target market can afford it.

### **Step 5: Price Your Product for Lower-Income Market**

Price dual-priced products using a different pricing strategy, such as “price penetration.” In this type of dual pricing system, set the price low enough so that it will generate immediate sales and profits, while simultaneously generating **interest** in more expensive dual-priced goods.

### UNIT- III QUESTION BANK

#### Part – B (5- marks)

- What is mean by cost concept?
- Write in short notes
- Skimming pricing
- Pioneer pricing
- Surge pricing
- Dual pricing
- Transfer pricing
- What about the cost plus pricing?
- What is the importance of cost concept?
- What is mean by peak load pricing?

- PART-C(10 marks)

- Explain the PLC.
- Explain about the product line pricing.
- Explain the method of Pricing.

\*\*\*\*\*

\*

## UNIT IV

### ECONOMIC PROFIT

#### ECONOMIC PROFIT VS. ACCOUNTING AN OVERVIEW

Profit is one of the most widely watched financial metrics in evaluating the financial health of a company. It is the financial gain or revenue generated from any business or investment activity in excess of any expenses, taxes, and any other costs. However, economic profits and accounting profits are two types of profits. Economic profit refers to total revenue from sales minus opportunity costs from all inputs. Accounting profit, on the other hand, represents the total earnings of a company, which includes explicit costs.

- Profit is the financial metric that indicates an entity's financial gain or revenue from any business or investment activity.
- Economic profit is money earned after taking explicit and implicit costs into account.
- Accounting profit is the net income for a company or revenue minus expenses.
- You can determine economic profit by subtracting total costs from a company or investment's total revenue or return.
- Companies report their accounting profits to investors on their income statements and to the IRS for tax purposes.
- 

#### **Economic Profit**

Economic profit is a form of profit that is derived from producing goods and services while factoring in the alternative uses of a company's resources. It deducts explicit costs from revenue and includes the opportunity costs incurred during that period of time. Implicit costs, which are typically the costs of a company's resources, are also part of the equation.

You can calculate economic profit as long as you know the total amount of revenue earned and the total cost involved using the following formula:

$$\text{Economic Profit} = \text{Total Revenue} - (\text{Total Explicit Costs} + \text{Total Implicit Costs})$$

For example, the implicit costs could be the market price a company could sell a natural resource for versus using that resource. A paper company owns a forest of trees. They cut down trees and create paper products. Their implicit costs are the timber, which they could sell for market prices.

Here's another way to think about it. A company may choose Project A over Project B. The profit from Project A after deducting expenses and costs would be the accounting profit. The economic profit would include the opportunity cost of choosing Project A versus Project B. In other words; the economic profit would consider how much more or less profit would have been generated (by using the company's resources) had management chosen Project B.

Economic profit is based on theoretical principles while accounting profit uses accounting principles. As such, accounting profit is the true form of profitability while economic profit is derived from assumptions and estimates.

### **Accounting Profit**

Accounting profit is also known as a company's earned profit, net income, or bottom line. Unlike economic profit, accounting profit is reported on a company's income statement. It's the profit earned after various costs and expenses are subtracted from total revenue or total sales, as stipulated by generally accepted accounting principles (GAAP). Those costs include:

- Labor costs, such as wages and salaries
- Any inventory needed for production
- Raw materials
- Transportation and storage costs
- Production costs and overhead
- Sales and marketing costs

Accounting profit is the amount of money left over after deducting the explicit costs of running the business. Explicit costs are merely the specific amounts that a company pays for those costs in that period—for example, wages. Typically, accounting profit or net income is reported on a quarterly and annual basis and is used to measure the financial performance of a company.

### **Differences**

Economic profit is more of a theoretical calculation based on alternative actions that could have been taken. Accounting profit, on the other hand, calculates what actually occurred and the measurable results for the period.

Here's another way to think about it. Accounting profit is the profit after subtracting explicit costs (such as wages and rents). Economic profit includes explicit costs as well as implicit costs (what the company gives up to pursue a certain path). As such, accounting profit represents a company's true profitability while economic profit is indicative of its efficiency.

Companies are only required to report one form of profit to the Internal Revenue Service (IRS) for tax purposes: accounting profit. Economic profit is generally only meant for internal uses. For instance, businesses can use it to determine whether to enter or stay in a particular market. Economic profit also shows how efficiently companies are operating, including whether they're allocating their resources to the best of their ability.

<b>Major Differences Between Economic Profit and Accounting Profit</b>	
<b>Economic Profit</b>	<b>Accounting Profit</b>
Earnings after deducting explicit and implicit costs from total revenue	Earnings after deducting explicit costs of running a business
Derived from assumptions and estimates	Measurable and calculated as per GAAP
Not reported	Reported on corporate income statements and to the IRS

### **Advantages of Economic Profit**

- **Helps rank all opportunities**

Economic profit is an excellent way to compare various opportunities for a business and to select the best and the most profitable option. It helps rank each and every opportunity in order to make an informed decision.

- **Measures success**

Economic profit, along with accounting profit, is an excellent way to measure a company's success. If all potential opportunities were carefully assessed and an informed decision was made, economic profits an excellent way of showing how the company is doing better than it would've had it gone forward with any other option.

- **Measures efficiency**

While accounting profit measures the profitability of a business, economic profit is an excellent way to measure the business' efficiency, specifically its efficiency in resource allocation.

### **Disadvantages of Economic Profit**

- **Does not account for several important financial aspects**

While economic profit is an excellent way to measure a company's success, it is not an accurate and complete measure of a company's profitability. It does not include all important financial aspects and transactions that may occur during a given time frame.

- **Difficult to estimate**

The opportunity cost of a business activity not pursued is difficult to estimate accurately. Therefore, it is difficult to accurately estimate economic profit.

### **Profit: Concept, Policies, Measurement, Planning and Controlling**

#### **. The Concept of Profit in Business:**

The concept of profit entails several different meanings. Profit may mean the compensation received by firm for its managerial function. It is called normal profit which is a minimum sum essential to induce the firm to remain in business. Profit may be looked upon as a reward for true entrepreneurial function. It is the reward earned by the entrepreneur for bearing the risk. It is termed as supernormal profit analysis.

- **Profit Policies:**

It is generally held that the main motive of a firm is to make profits. The volume of profit made by it is regarded as a primary measure of its success. Economic theory



advocates profit maximization as the chief policy of a firm. Modern business enterprises do not accept this view and relegate the profit maximization theory to the back ground. This does not mean that modern firms do not aim at profits. They do aim at maximum profits but aim at other goals as well. All these constitute the profit policy.

- **Industry Leadership:**

Industry leadership may involve either the achievement of the maximum sales volume or the manufacture of the maximum product lines. For the attainment of leadership in the industry, there has to be a satisfactory level of profit consistent with capital invested, labor force employed and volume of output produced.

- **Restricting the Entry:**

If a firm follows a policy of restricting its profit, no competitors are likely to enter the market. Reasonable profits which guarantee its survival and growth are essential. According to Joel Dean, "Competitors can invade the market as soon as they discover its profitability and find ways to shift the patents and make necessary changes in design, technique, and production plant and market penetration."

- **Political Impact:**

High profits are considered to be suicidal for a firm. If the government comes to know that the firms are earning huge returns, it may resort to high taxation or to nationalization. High profits are often considered as an index of monopoly power and to prevent the government may introduce price control and profit regulation policies.

- **Consumer Goodwill:**

Consumer is the foundation of any business. For maintaining consumer goodwill, firms have to restrict the profit. By maintaining low profit, the firms may seek the goodwill of the consumers. Consumer goodwill is valued so much these days that firms often make organized efforts through advertisements.

- **Wage Consideration:**

Higher profits may be taken as an evidence of the ability to pay higher wages. If the labor associations come to know that the firms are declaring higher dividends to the shareholders, naturally they demand higher wages, bonus, etc. Under these

circumstances in the interest of harmonious relations with employees, firms keep the profit margin at a reasonable level.

## **The Measurement of Profit**

The problem of profit measurement has always been a difficult affair. In the present business world, the tendency is to discard the word 'profit' and use a neutral expression as "business income". In the

Accounting sense, profit is an ex-post concept. Accountants follow conventions and define their terms by enumeration. Conventional accounting is largely concerned with historical profits rather than anticipated profits. Economists disagree with conventional techniques and they define their terms functionally. For an economist, profit is an ex-ante concept. It is a surplus in excess of all opportunity costs or the difference between the cash value of an enterprise at the beginning and end of a period. From the management point of view, economic profits are a better reflection of profitability of business. The economist is basically interested in the theoretical analysis of profit.

- **Inclusiveness of Costs:**

To determine profits, economists include in costs, wages, rent and interest for all the services employed in the business, including both those actually paid for in the market and virtual wage or interest or rent for services rendered by the owner himself.

- **Depreciation:**

The treatment of depreciation has an important bearing on the measurement of profit. To the economist, depreciation is capital consumption cost. The cost of capital consumption is the replacement cost of the equipment. It has various meanings. In the accounting sense, it refers to the writing off the unamortised cost over the useful life of an asset. In the value sense, it may be defined as the lessening in the value of physical asset caused by deterioration.

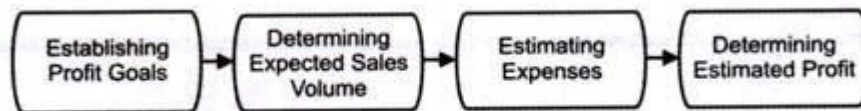
- **Profit Planning and Control:**

Profit planning is a disciplined method whereby the environments encroaching on an organization are analyzed, the available resources and internal competence identified, agreed objectives established and plans made to achieve them. Profit planning is largely routine and covers a definite time span.

Profit is considered as a significant element of a business activity. According to Peter Drucker, “profit is a condition of survival. It is the cost of the future, the cost of staying in a business.” Thus, profit should be planned and managed properly.

An organization should plan profits by taking into consideration its capabilities and resources. Profit planning lays foundation for the future income statement of the organization. The profit planning process begins with the forecasting of Les and estimating the desired level of profit taking in view the market conditions.

**Figure-6 shows the steps involved in the profit planning process:**



**Figure-6: Process of Profit Planning**

**1. Establishing profit goals:**

Implies that profit goals should be set in alignment with the strategic plans of the organization. Moreover, the profit goals of an organization should be realistic in nature based on the capabilities and resources of the organization.

**2. Determining expected sales volume:**

Constitutes the most important step of the profit planning process. An organization needs to forecast its sales volume so that it can achieve its profit goals. The sales volume can be anticipated by taking into account the market and industry trends and performing competitive analysis.

**3. Estimating expenses:**

Requires that an organization needs to estimate its expenses for the planned sales volume. Expenses can be determined from the past data. If an organization is new, then the data of similar organization in same industry can be taken. The expense forecasts should be adjusted to the economic conditions of the country.

#### **4. Determining profit:**

Helps in estimating the exact value of sales.

#### **It is calculated as:**

Estimated Profit = Projected Sales Income – Expected Expenses

After planning profit successfully, an organization needs to control profit. Profit control involves measuring the gap between the estimated level and actual level of profit achieved by an organization. If there is any deviation, the necessary actions are taken by the organization.

#### **Profit control involves two steps, which are as follows:**

##### **1. Comparing estimates with the goal:**

Involves comparing the estimated profit with the expected profit. If there is a large gap between the estimated profits and the expected profits, the measures should be taken.

##### **2. Using alternatives to achieve the desired profit:**

#### **Includes the following:**

- a. Making changes in planned sales volume by increasing sales promotion, improving product quality, providing better service, and providing after sales support to customers.
- b. Reducing planned expenses by minimizing losses, implementing better control systems, improving product quality, and increasing the productivity of human resource and machines.

#### **Profit Planning and forecasting**

- **Evaluate your business operations:**

Profit planning and forecasting enables a comparison between projected costs and spends, and the actual costs that your business is incurring. This can help your team decide on improving cost efficiency and closing up the gaps. It also enables better decision-making like which resources to invest in or cut costs from. Proper profit planning will ensure that

the business does not spend more than is necessary or end up not investing enough in resources that are required.

- **Forecast marketing strategies:**

Marketing is one of the highest areas of expense for small businesses because marketing efforts are directly related to getting leads for the business. The company's marketing efforts are categorized into various areas, and each of these need to be evaluated for the employees and resources required to fulfill them. If the marketing costs are not estimated properly it could affect profits, and the company will unnecessarily spend more on marketing. Profit planning helps avoid this scenario.

- **Anticipate financial planning:**

Planning funds to allocate across departments and procedures needs to begin well in advance. Profit planning anticipates the company's financial ability to make the maximum use of resources, with efficiency in costs and finally high profit-making potential.

- **Carve out hiring requirements:**

After the entire financial projection is made and the business plan structure is ready, the company needs to evaluate if they have enough staff to carry out all the operations.

## **BREAK EVEN ANALYSIS**

Break-even analysis studies the relationship between the volume and cost of production on the one hand, and the revenue and profits obtained from the sales on the other hand.

### **DEFINITION**

According to Martz, curry and frank, "A break-even analysis indicates at what level cost and revenue are in equilibrium". In break- even analysis, the role of break-even point is of particular importance. **Break-even point**

The breakeven is the point at which total revenue and total costs are equal. Net income is Zero. 'The break-even point is that point of activity. Where total revenues and total costs are equal. It is the point of Zero profit'

The firm produces and sells less than that suggested by the break-even point, it would incur losses. If it produces more than the level suggested by the breakeven point, it makes profits.

### **Break-even Chart**

A break-even analysis is an economic tool that is used to determine the cost structure of a company or the number of units that need to be sold to cover the cost. Break-even is a circumstance where a company neither makes a profit nor loss but recovers all the money spent. The break-even analysis is used to examine the relation between the fixed cost, variable cost, and revenue. Usually, an organization with a low fixed cost will have a low break-even point of sale.

### **Importance of Break-Even Analysis**

- **Manages the size of units to be sold:** With the help of break-even analysis, the company or the owner comes to know how many units need to be sold to cover the cost. The variable cost and the selling price of an individual product and the total cost are required to evaluate the break-even analysis.
- **Budgeting and setting targets:** Since the company or the owner knows at which point a company break-even can, it is easy for them to fix a goal and set a budget for the firm accordingly. This analysis can also be practiced in establishing a realistic target for a company.
- **Manage the margin of safety:** In a financial breakdown, the sales of a company tend to decrease. The break-even analysis helps the company to decide the least number of sales required to make profits. With the margin of safety reports, the management can execute a high business decision.
- **Monitors and controls cost:** Companies' profit margin can be affected by the fixed and variable cost. Therefore, with break-even analysis, the management can detect if any effects are changing the cost.
- **Helps to design pricing strategy:** The break-even point can be affected if there is any change in the pricing of a product. For example, if the selling price is raised, then the quantity of the product to be sold to break-even will be reduced. Similarly, if the selling price is reduced, then a company needs to sell extra to break-even.

### **Components of Break-Even Analysis**

- **Fixed costs:** These costs are also known as overhead costs. These costs materialize once the financial activity of a business starts. The fixed prices include taxes, salaries, rents, depreciation cost, labor cost, interests, energy cost, etc.

- **Variable costs:** These costs fluctuate and will decrease or increase according to the volume of the production. These costs include packaging cost, cost of raw material, fuel, and other materials related to production.

### Uses of Break-Even Analysis

- **New business:** For a new venture, a break-even analysis is essential. It guides the management with pricing strategy and is practical about the cost. This analysis also gives an idea if the new business is productive.
- **Manufacture new products:** If an existing company is going to launch a new product, then they still have to focus on a break-even analysis before starting and see if the product adds necessary expenditure to the company.
- **Change in business model:** The break-even analysis works even if there is a change in any business model like shifting from retail business to wholesale business. This analysis will help the company to determine if the selling price of a product needs to change.

### Break-Even Analysis Formula

○ Break-even point = Fixed cost / Price per cost – Variable cost

### Assumptions

The break-even analysis is based on the following assumptions,

- It assumes that cost can be classified into fixed and variable cost. It ignores semi-variable cost.
- All revenue is perfectly variable with the physical volume of production.
- The volume of sales and the volume of production are equal.
- The price of the product is assumed to be constant.
- It assumes constant rate of increase in variable cost thereby giving rise to a linear total cost curve.
- It assumes constant technology and no improvement in labour efficiency.
- Changes in input prices are ruled out.

### Limitations

- Break-even analysis is based on past data. It is based on the assumption that input price, wage etc. remain constant.
- the break-even analysis assumes that the product prices are given, infact, the product price change

- The break-even analysis is static as it assumes a constant relationship of output to costs and revenue.
- The relative share of different products in the total output is assumed to be constant.
- The break-even analysis assumes that profits depend on output alone. But profit depends on various factors like technological improvement, managerial effectiveness and only on the level of output.
- The break-even analysis is based on accounting data. Hence it suffers from many limitations like omission of imputed costs, non-scientifically determined depreciation etc.

## **UNIT – IV**

### **Question bank**

**PART B 5 marks** What is economic profit?

What is accounting profit?

Write the short note on profit planning and forecasting? Explain profit policy?

**PART C 10 marks**

Advantages and disadvantage of economic profit.

Explain profit: concept and profit policy

Explain the profit planning steps and profit planning control? Briefly note on Explain Break even analysis?



# MANAGERIAL ECONOMICS

## UNIT – 5

Market structure, in economics, refers to how different industries are classified and differentiated based on their degree and nature of competition for goods and services. It is based on the characteristics that influence the behavior and outcomes of companies working in a specific market.



### 1| Perfect Competition

In a perfect competition market structure, there are a large number of buyers and sellers. All the sellers of the market are small sellers in competition with each other. There is no one big seller with any significant influence on the market. So all the firms in such a market are price takers.

There are certain assumptions when discussing the perfect competition. This is the reason a perfect competition market is pretty much a theoretical concept.

#### There are two main types of perfect competition:

**Homogeneous Perfect Competition:** In this type of perfect competition, all the firms produce an identical or homogeneous product. Consumers view the products of different firms as perfect substitutes, meaning they are indistinguishable in terms of quality, features, and price. Because the products are identical, consumers have no preference for one firm's product over another.

Examples of industries that can exhibit homogeneous perfect competition include agricultural markets for basic crops like wheat or corn.

**Heterogeneous Perfect Competition (Monopolistic Competition):** In this type of perfect competition, firms produce products that are similar but not identical. Each firm differentiates its product through branding,

marketing, or minor variations in quality. This differentiation gives firms a degree of market power, meaning they can charge slightly different prices for their products. Consumers may have preferences for one firm's product over another based on brand loyalty or perceived differences in quality. Industries like restaurants, retail clothing, and consumer goods often exhibit heterogeneous perfect competition.

### **These assumptions are as follows**

The products on the market are homogeneous, i.e. they are completely identical

All firms only have the motive of profit maximization

There is free entry and exit from the market, i.e. there are no barriers And there is no concept of consumer preference.

### **Characteristics of Perfect Competition:**

**Many Small Firms:** There are numerous firms in the market, none of which is large enough to dominate the market or significantly impact the price. This means that each firm is a price taker, meaning it must accept the market price as given and has no influence over it.

**Homogeneous Products:** All firms in a perfectly competitive market produce identical or homogeneous products. There is no differentiation in the products, so consumers perceive them as perfect substitutes for one another.

**Perfect Information:** Buyers and sellers have access to complete and perfect information regarding product quality, prices, and market conditions. This ensures that there are no information asymmetries.

**Ease of Entry and Exit:** Firms can easily enter or exit the market. There are no significant barriers to entry, such as high startup costs or government regulations that would deter new firms from participating.

**Price Determination:** In perfect competition, the market price is determined by the interaction of supply and demand. No single firm can influence the price because individual firms are small relative to the entire market.

### **Importance of perfect competition:**

**Efficient Resource Allocation:** Perfect competition promotes efficient allocation of resources. In this market structure, prices are determined by supply and demand, leading to the equilibrium price where quantity supplied equals quantity demanded. This ensures that resources are used in a way that maximizes societal welfare.

**Consumer Welfare:** Perfect competition benefits consumers by providing a wide variety of goods and services at competitive prices. Firms in perfect competition are price takers, meaning they cannot influence the market price. As a result, consumers have access to products at prices that closely reflect production costs.

**Producer Efficiency:** In perfect competition, firms are price takers, and there are no barriers to entry or exit. This forces firms to be efficient in their production processes and cost management to remain competitive. Consequently, it encourages cost minimization and technological progress.

**Economic Growth:** Perfect competition can promote economic growth by incentivizing firms to innovate, cut costs, and increase productivity. This, in turn, can lead to higher economic output and standards of living.

**Fairness:** The model of perfect competition embodies notions of fairness because no single firm has the ability to manipulate prices or exploit consumers. All firms have an equal opportunity to compete in the market.

**Consumer Sovereignty:** Perfect competition emphasizes consumer choice and preferences. Since firms in perfect competition respond to consumer demand, consumers have the power to determine the types and quantities of goods and services produced.

**Market Transparency:** In perfect competition, prices are transparent and easily observable by all market participants. This transparency can help consumers make informed decisions and create a level playing field for all firms.

**Elimination of Monopoly Power:** Perfect competition discourages the development of monopolies or significant market power. The presence of many small firms in the market prevents any single entity from dominating and distorting the market.

**Equitable Income Distribution:** Perfect competition can lead to a more equitable distribution of income, as firms cannot charge exorbitant prices, and production is based on cost efficiency. This can reduce income inequality.

**Flexibility and Adaptability:** In a perfect competition scenario, markets can quickly adjust to changes in supply and demand. This adaptability can help in stabilizing the economy during fluctuations.

It is important to note that while perfect competition is a useful theoretical concept, real-world markets often deviate from this ideal due to factors like imperfect information, externalities, and market power. As a result, government intervention may be necessary to address these deviations and promote the welfare of society. Nonetheless, understanding the principles and benefits of perfect competition remains valuable for economists and policymakers in assessing market dynamics and outcomes.

## **2] Monopolistic Competition**

This is a more realistic scenario that actually occurs in the real world. In monopolistic competition, there are still a large number of buyers as well as sellers. But they all do not sell homogeneous products. The products are similar but all sellers sell slightly differentiated products. Now the consumers have the preference of choosing one product over another. The sellers can also charge a marginally higher price since they may enjoy some market power. So the sellers become the price setters to a certain extent.

For example, the market for cereals is a monopolistic competition. The products are all similar but slightly differentiated in terms of taste and flavors. Another such example is toothpaste.

Monopolistic competition is a market structure in economics that combines elements of both monopoly and perfect competition. In this type of market, there are many firms competing with one another, but each firm offers a slightly differentiated product. Monopolistic competition is characterized by a range of firms, each

having some degree of market power due to product differentiation, yet no single firm has full control over the market. Here is a detailed explanation of monopolistic competition:

### **Characteristics of Monopolistic Competition:**

**Many Sellers:** Monopolistic competition features numerous small to medium-sized firms operating in the market. The presence of multiple firms ensures a degree of competition.

**Product Differentiation:** Firms in monopolistic competition produce products that are similar but not identical. Product differentiation can be achieved through branding, design, quality, features, or marketing.

**Easy Entry and Exit:** Barriers to entry and exit are relatively low in monopolistic competition. New firms can enter the market without significant obstacles, and existing firms can leave if they find it unprofitable.

**Independent Decision-Making:** Each firm in a monopolistic competition market can independently set its prices and determine its level of output. This is in contrast to perfect competition, where firms are price takers.

**Non-Price Competition:** Firms in monopolistic competition often engage in non-price competition to differentiate their products and attract customers. This can include advertising, branding, and offering additional services.

**Short-Run and Long-Run Differences:** In the short run, firms in monopolistic competition can earn economic profit, incur losses, or break even, depending on the demand for their specific product and the price they set. However, in the long run, economic profits are driven to zero as new firms enter the market, making it more competitive.

### **Importance of Monopolistic Competition:**

**Consumer Variety:** Monopolistic competition provides consumers with a variety of products to choose from, each with unique characteristics, which can enhance consumer welfare and choice.

**Incentive for Innovation:** Firms have an incentive to innovate and improve their products because product differentiation is a key competitive strategy in this market structure.

**Market Dynamics:** Monopolistic competition creates dynamic markets with firms continually adjusting their products and marketing strategies to remain competitive.

### **Concerns and Issues with Monopolistic Competition:**

**Inefficiency:** Monopolistic competition can lead to allocative inefficiency because firms may set prices higher than their marginal cost, resulting in a dead weight loss.

**Consumer Confusion:** With many similar but differentiated products, consumers may find it challenging to compare products and make informed choices.

**Waste in Advertising:** Firms often invest heavily in advertising and marketing, which can be seen as a waste of resources.

**Price Wars:** Fierce competition in the market may sometimes lead to price wars, where firms continually lower prices to gain market share, potentially harming their profitability.

In summary, monopolistic competition is a market structure that combines elements of both competition and product differentiation. It provides consumers with a wide range of choices but can also lead to inefficiencies and other market dynamics. Product differentiation and non-price competition are central features of monopolistic competition, and it plays a significant role in various consumer-oriented industries.

### **3| Oligopoly**

"Oligopoly" is the term you are likely looking for, not "oligopoly." Oligopoly is a market structure characterized by a small number of large firms dominating an industry. These firms have significant market power, and their actions often have a substantial impact on market conditions and prices. Oligopolistic markets can exist in various industries, including the oil and petroleum sector, which is why you might have associated the term with oil.

In an oligopoly, there are only a few firms in the market. While there is no clarity about the number of firms, 3-5 dominant firms are considered the norm. So in the case of an oligopoly, the buyers are far greater than the sellers.

The firms in this case either compete with another to collaborate together, They use their market influence to set the prices and in turn maximize their profits. So the consumers become the price takers. In an oligopoly, there are various barriers to entry in the market, and new firms find it difficult to establish themselves.

#### **Characteristics of Oligopoly:**

**Few Large Firms:** Oligopoly markets are characterized by a small number of dominant firms. These firms can often be counted on one hand.

**Interdependence:** Oligopolistic firms are interdependent, meaning that the actions of one firm significantly affect the others. For example, if one firm changes its prices or output, it can trigger reactions from other firms in the industry.

**Barriers to Entry:** Oligopolistic markets often have significant barriers to entry, which makes it difficult for new firms to enter the industry and compete with the existing giants. These barriers can include economies of scale, high capital requirements, and control over key resources.

**Product Differentiation:** In some cases, firms within an oligopoly may produce similar products, but there may also be differentiation through branding, features, or quality.

**Price Leadership:** Oligopolists may engage in price leadership, where one dominant firm sets the price, and others follow suit. This can help maintain price stability in the market.

**Non-Price Competition:** Oligopolists often engage in non-price competition, such as advertising, product development, and customer service, to gain a competitive edge.

### **4| Monopoly**

In a monopoly type of market structure, there is only one seller, so a single firm will control the entire market. It can set any price it wishes since it has all the market power. Consumers do not have any alternative and must pay the price set by the seller.

Monopolies are extremely undesirable. Here the consumer lose all their power and market forces become irrelevant. However, a pure monopoly is very rare in reality

### **Characteristics of Monopoly:**

**Single Seller:** In a monopoly, there is only one firm that dominates the entire market. This firm is often referred to as the monopolist.

**Unique Product:** The monopolist typically produces a product or service that has no close substitutes. This unique product characteristic gives the monopolist a strong market position.

**High Barriers to Entry:** Barriers to entry are obstacles that prevent or deter potential competitors from entering the market. These barriers can include economies of scale, government regulations, patents, control over essential resources, or significant initial capital requirements.

**Market Power:** The monopolist has significant market power, meaning it can control the price and quantity of the product or service. The monopolist is a price maker, not a price taker.

### **Importance of Monopoly:**

**Market Efficiency:** Monopolies can achieve economies of scale and efficiency in production, which can lead to lower costs and lower prices for consumers in some cases. However, this is not always the case, and a monopolist may choose to maximize profits at the expense of consumer welfare.

**Innovation:** Monopolists may invest heavily in research and development to maintain their market position. Incentives for innovation can lead to the development of new and improved products and technologies.

**Revenue for Government:** In some cases, governments grant monopolies to specific companies or industries. These entities can be significant sources of government revenue through licensing fees or taxes.

**Natural Monopolies:** In some industries, natural monopolies can occur due to high fixed costs and economies of scale. For example, public utilities like water and electricity distribution may be more efficiently provided by a single company, which can lead to cost savings and lower prices for consumers.

### **Concerns and Issues with Monopoly:**

**Price and Output Control:** Monopolies have the power to set prices and limit output, which can lead to higher prices and reduced consumer choice.

**Lack of Competition:** The absence of competition can stifle innovation and hinder improvements in product quality and service. Consumers have fewer choices and less bargaining power.

**Consumer Welfare:** Monopolies can lead to reduced consumer surplus and, in some cases, higher prices. This can harm consumer welfare and lead to income inequality.

**Regulation:** Many governments regulate or oversee monopolies to prevent abuse of market power. Antitrust laws and regulatory bodies aim to ensure that monopolies do not engage in anticompetitive practices or exploit consumers.

In summary, monopolies can have both positive and negative effects on the economy and society. They are important for certain industries where natural monopolies may exist, but they also raise concerns about market power, pricing, and consumer welfare. Therefore, the regulation and oversight of monopolies play a critical role in balancing market efficiency and fairness.