**DIRECTORATE OF DISTANCE & CONTINUING EDUCATION**

**MANONMANIAM SUNDARANAR UNIVERSITY**

**TIRUNELVELI- 627 012**

**BBA Course Material**

# JEBA11 - MANAGERIAL ECONOMICS


Prepared by

**Dr. M.Bhoopal**

**Assistant Professor**

**Department of Management Studies**

**Manonmaniam Sundaranar University**

**Tirunelveli - 627012**

# SYLLABUS

## Managerial Economics

| UNIT | CONTENT |
|---|---|
| I | Nature and Scope of Managerial Economics – Definition of Economics – Important Concepts of Economics – Relationship between Micro, Macro and Managerial Economics – Nature and Scope – Objective of Firm. |
| II | Demand Analysis – Theory of Consumer Behavior – Marginal Utility Analysis – Indifference Curve Analysis – Meaning of Demand – Law of Demand – Types of Demand – Determinants of Demand – Elasticity of Demand – Demand Forecasting. |
| III | Production and Cost Analysis – Production – Factors of Production – Production Function – Concept – Law of Variable Proportion – Law of return to scale and economics of scale – Cost Analysis – Different Cost Concepts – Cost output relationship Short Run and Long Run – Revenue curves of Firms – Supply Analysis. |
| IV | Pricing methods and strategies – Objectives – Factors – General consideration of pricing – Methods of Pricing – Dual Pricing – Priced in Crimination. |
| V | Market classification – Perfect Competition – Monopoly – Monopolistic Competition – Duopoly – Oligopoly. |
| Recommended Text | |
| 1 | Journal of Economic Literature – American Economic Association |
| 2 | Arthasastra Indian Journal of Economics & Research |
| 3 | Mithani D.M. (2016) – Managerial Economics – Himalaya Publishing House – Mumbai |
| 4 | Indian Economic Journal /Sage Publications |
| 5 | Metha P.L (2016) – Managerial Economics – Sultan Chand & Sons – New Delhi |

| CONTENTS | | |
|---|---|---|
| **UNITS** | **PARTICULARS** | **PAGE NO.** |
| I | 1.1 Introduction | 4 |
|---|---|---|
| | 1.2 Definitions of Managerial Economics | 5 |
| | 1.3 Nature of Managerial Economics | 7 |
| | 1.4 Scope of Managerial Economics | 8 |
| | 1.5 Importance of Managerial Economics | 11 |
| | 1.6 Characteristics of Managerial Economics | 11 |
| | 1.7 Important concepts of Economics | 13 |
| | 1.8 Relationship between Macro, Micro and Managerial Economics | 15 |
| | 1.9 Nature of the Firm | 17 |
| II | 2.1 Introduction | 22 |
| | 2.2 Demand Analysis | 23 |
| | 2.3 Theory of Consumer Behaviour | 25 |
| | 2.4 Marginal Utility Analysis | 30 |
| | 2.5 Law of Demand | 41 |
| | 2.6 Types of Demand | 45 |
| | 2.7 Determinants of Demand | 49 |
| | 2.8 Elasticity of Demand | 53 |
| | 2.9 Demand Forecasting | 62 |
| III | 3.1 Introduction | 69 |
| | 3.2 Factors of Production | 70 |
| | 3.3 Production Function | 73 |
| | 3.4 Law of Diminishing Returns (Law of Variable Proportions) | 77 |
| | 3.5 Economies of Scale | 83 |
| | 3.6 Cost Concepts | 85 |
| | 3.7 Cost Function | 87 |
| | 3.8 Cost Output Relationship | 88 |
| | 3.9 Revenue | 97 |
| | 3.10 Supply Analysis | 106 |
| IV | 4.1 Introduction | 120 |
| | 4.2 Objectives of Pricing Policy | 133 |
| | 4.3 Factors Involved In Pricing Policy | 135 |
| | 4.4 Methods of Pricing | 136 |
| | 4.5 Dual Pricing | 139 |
| | 4.6 Price Discrimination | 141 |
| V | 5.1 Introduction | 150 |
| | 5.2 Perfect Competition | 155 |
| | 5.3 Monopoly | 168 |
| | 5.4 Monopolistic Competition | 174 |
| | 5.5 Duopoly | 178 |
| | 5.6 Oligopoly | 182 |

# UNIT – I

**Structure:**

**1.1 Introduction**

**1.2 Definitions of Managerial Economics**

**1.3 Nature of Managerial Economics**

**1.4 Scope of Managerial Economics**

**1.5 Importance of Managerial Economics**

**1.6 Characteristics of Managerial Economics**

**1.7 Important concepts of Economics**

**1.8 Relationship between Macro, Micro and Managerial Economics**

**1.9 Nature of the Firm**

## 1.1 Introduction

Managerial Economics has emerged as a separate branch of economics. The emergence of managerial economics can be attributed to at least three factors: (i) growing complexity of the business environment and decision-making process; (ii) increasing application of economic logic, concepts, theories and tools of economic analysis in the process of business decision-making; and (iii) rapid increase in demand for professionally trained managerial manpower with good knowledge of economics. The growing complexity of the business world can be attributed to rapid growth of large scale industries, increasing number of business firms, quick innovation and introduction of new products, globalization and growth of multinational corporations, merger and acquisition of business firms, and large scale diversification of business activities. These factors have contributed a great deal to the inter-firm, inter-industry and inter-country business rivalry and competition, enhancing uncertainty and risk in the business world.

Business decision-making in this kind of complex business environment has become a very complex affair. There was a time when family training, personal experience and business acumen were sufficient to make good business decisions and run an organization successfully. In today's business world, however, personal experience, knowledge and family training are no longer sufficient to meet the managerial challenges of the modern business world, though one can find a number of reputed businessmen with no management training.

Economists of different generations have defined economics in different ways according to their perception and subject matter of economics. For example, according to Adam Smith (1976), the "father of economics", economics is "an inquiry into the nature and causes of the wealth of nations". According to Alfred Marshall, (1922), an eminent economist of the neo-classical era, "Economics is the study of mankind in the ordinary business of life; it examines that part of individual and social actions which is most closely connected with the attainment and with the use of the material requisites of well-being."

Economics can, thus be defined as a social science that studies economic behaviour of the people, the individuals, households, firms, and the government. Economic behaviour is essentially economizing behaviour. Economizing behaviour is the effort of the people to derive maximum gain from the use of their limited resources—land, labour, capital, time and knowledge, etc., which have alternative uses. Technically, the term 'economizing' means deriving maximum gains from a given cost and alternatively minimizing cost for a given gain. This is economizing behaviour—a natural behaviour.

**Meaning of Managerial Economics**

Managerial economics can be defined as the study of economic theories, logic, concepts and tools of economic analysis applied in the process of business decision-making. In general practice, economic theories and techniques of economic analysis are applied to diagnose the business problems and to evaluate alternative options and opportunities open to the firm for finding an optimum solution to the problems.

Managerial economics is an integration of economic science with decision making process of business management. The integration of economic science with management has become inevitable because application of economic theories and analytical tools make significant contribution to managerial decision-making.

## 1.2 Definitions of Managerial Economics

According to Spencer and Siegelman: "The integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management".

According to McGutgan and Moyer: "Managerial economics is the application of economic theory and methodology to decision-making problems faced by both public and private institutions".

In the words of TJ. Webster, “Managerial economics is the synthesis of microeconomic theory and quantitative methods to find optimal solutions to managerial decision-making problems.”

In the words of Hirschey and Pappas, “Managerial economics applies economic theory and methods to business and administrative decision making”

According to Mansfield, “Managerial economics provides a link between economic theory and decision sciences in the analysis of managerial decision making.”

Brigham and Poppas believe that managerial economics is “the application of economic theory and methodology to business administration practice.”

Hague on the other hand, considers managerial economics as “a fundamental academic subject which seeks to understand and to analyse the problems of business decision-making.”

According to Prof. Evan J Douglas, Managerial economics is concerned with the application of business principles and methodologies to the decision making process within the firm or organization under the conditions of uncertainty. It seeks to establish rules and principles to facilitate the attainment of the desired economic aim of management. These economic aims relate to costs, revenue and profits and are important within both business and non-business institutions.

Milton H. Spencer and Lonis Siegel man define Managerial Economics as “the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management.”

In the words of Michael Baye, “Managerial Economics is the study of how to direct scares resources in a way that mostly effectively achieves a managerial goal”.

In the words of Me Nair and Meriam, “Managerial Economics consists of the use of economic modes of thought to analyze business situations.”

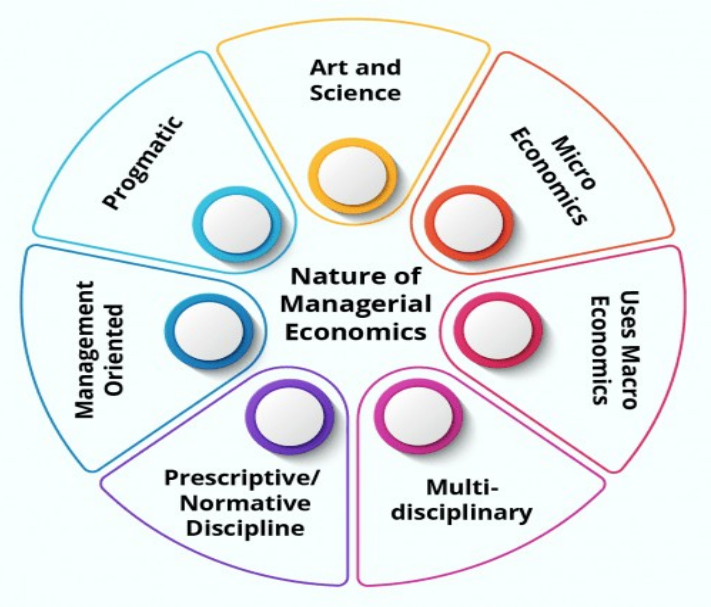
D.C. Hague describes Managerial Economics as “a fundamental academic subject which seeks to understand and analyze the problems of business decision making.”

In the opinion of W.W. Haynes “Managerial Economics is the study of the allocation of resources available to a firm of other unit of management among the activities of that unit.”

## 1.3 Nature of Managerial Economics

**Figure 1.1**

**Nature of Managerial Economics**




**i) Art and Science**

To make judgments or solve issues, management theory necessitates a great deal of critical and logical thinking as well as analytical abilities. Many economists use it as a research tool, claiming that it entails using various economic principles, tactics, and approaches to address business challenges.

**ii) Micro Economics**

Managers in management economics usually deal with challenges that are specific to a particular business rather than the economy as a whole. As a result, it is regarded as an essential component of microeconomics.

**iii) Uses Macro Economics**

A company operates in the outside world, that is, it serves the consumer, who is a vital element of the economy. Managers must examine numerous macroeconomic elements such as market dynamics, economic developments, government policies, and so on, as well as their impact on the organization, for this reason.

**iv) Multidisciplinary**

It employs a variety of tools and ideas from several disciplines, including accounting, finance, statistics, mathematics, manufacturing, operational research, human resources, and marketing.

**v) Prescriptive/Normative Discipline**

It strives to achieve the goal and fixes particular challenges or problems by adding corrective procedures.

**vi) Management Oriented**

This is a tool that managers may use to cope successfully with challenges and uncertainties in the workplace. This also enables the establishment of priorities, the formulation of policies, and the implementation of effective decision-making.

**vii) Pragmatic**

Realistic and sensible solutions to day-to-day business difficulties are available.

## 1.4 Scope of Managerial Economics

The scope of business economics is usually restricted to the understanding of the business behaviour and problems of a firm at a micro level in the context of the prevailing business environment.

The scope of managerial economics includes following subjects:

i) Theory of demand
ii) Theory of production
iii) Theory of exchange or price theory
iv) Theory of profit
v) Theory of capital and investment
vi) Environmental issues, which are enumerated as follows:

**i) Theory of Demand**

According to Spencer and Siegelman, "A business firm is an economic organisation which transforms productivity sources into goods that are to be sold in a market".

**(a) Demand analysis**

Analysis of demand is undertaken to forecast demand, which is a fundamental component in managerial decision-making. Demand forecasting is of 8 Managerial Economics importance because an estimate of future sales is a primer for preparing production schedule and employing productive resources. Demand analysis helps the

management in identifying factors that influence the demand for the products of a firm. Thus, demand analysis and forecasting is of prime importance to business planning.

**(b) Demand theory**

Demand theory relates to the study of consumer behaviour. It addresses questions such as what incites a consumer to buy a particular product, at what price does he/she purchase the product, why do consumers cease consuming a commodity and so on. It also seeks to determine the effect of the income, habit and taste of consumers on the demand of a commodity and analyses other factors that influence this demand.

**ii) Theory of Production**

Production and cost analysis is central for the unhampered functioning of the production process and for project planning. Production is an economic activity that makes goods available for consumption. Production is also defined as a sum of all economic activities besides consumption. It is the process of creating goods or services by utilising various available resources. Achieving a certain profit requires the production of a certain amount of goods. To obtain such production levels, some costs have to be incurred. At this point, the management is faced with the task of determining an optimal level of production where the average cost of production would be minimum. Production function shows the relationship between the quantity of a good/service produced (output) and the factors or resources (inputs) used. The inputs employed for producing these goods and services are called factors of production.

**iii) Theory of Exchange or Price Theory**

Theory of Exchange is popularly known as Price Theory. Price determination under different types of market conditions comes under the wingspan of this theory. It helps in determining the level to which an advertisement can be used to boost market sales of a firm. Price theory is pivotal in determining the price policy of a firm. Pricing is an important area in managerial economics. The accuracy of pricing decisions is vital in shaping the success of an enterprise. Price policy impresses upon the demand of products. It involves the determination of prices under different market conditions, pricing methods, pricing policies, differential pricing, product line pricing and price forecasting.

**iv) Theory of Profit**

Every business and industrial enterprise aims at maximising profit. Profit is the difference between total revenue and total economic cost. Profitability of an organisation is greatly influenced by the following factors:

- ✓ Demand of the product

- ✓ Prices of the factors of production
- ✓ Nature and degree of competition in the market
- ✓ Price behaviour under changing conditions

Hence, profit planning and profit management are important requisites for improving profit earning efficiency of the firm. Profit management involves the use of most efficient technique for predicting the future. The probability of risks should be minimised as far as possible.

**v) Theory of Capital and Investment**

Theory of Capital and Investment evinces the following important issues:

- ✓ Selection of a viable investment project
- ✓ Efficient allocation of capital 10 Managerial Economics
- ✓ Assessment of the efficiency of capital
- ✓ Minimising the possibility of under capitalisation or overcapitalisation. Capital is the building block of a business. Like other factors of production, it is also scarce and expensive. It should be allocated in most efficient manner.

**vi) Environmental Issues**

Managerial economics also encompasses some aspects of macroeconomics. These relate to social and political environment in which a business and industrial firm has to operate. This is governed by the following factors:

- ✓ The type of economic system of the country
- ✓ Business cycles
- ✓ Industrial policy of the country
- ✓ Trade and fiscal policy of the country
- ✓ Taxation policy of the country
- ✓ Price and labour policy
- ✓ General trends in economy concerning the production, employment, income, prices, saving and investment etc.
- ✓ General trends in the working of financial institutions in the country
- ✓ General trends in foreign trade of the country
- ✓ Social factors like value system of the society
- ✓ General attitude and significance of social organisations like trade unions, producers' unions and consumers' cooperative societies etc.
- ✓ Social structure and class character of various social groups
- ✓ Political system of the country

The management of a firm cannot exercise control over these factors. Therefore, it should fashion the plans, policies and programmes of the firm according to these factors in order to offset their adverse effects on the firm.

## 1.5 Importance of Managerial Economics

- ✓ Managerial economics is pragmatic. It is concerned with analytical tools that are useful for decision-making in business.
- ✓ Managerial economics essentially implies the application of economic principles and methodologies to the decision-making process within the firm under the conditions of uncertainty.
- ✓ Managerial economics is a selection from the tool box of economic principles, methods and analysis applied to business management and decision-making.
- ✓ It follows that economic theories are very useful in business analysis and practice for decision-making and forward planning by management.
- ✓ It makes problem-solving easy in business.
- ✓ It improves the quality and preciseness of decisions.
- ✓ It helps in arriving at quick and appropriate decisions.
- ✓ It is applicable to several areas of business and management in practice, such as production management, inventory management, marketing management, finance management, human resource and knowledge management.

## 1.6 Characteristics of Managerial Economics

The main characteristics of Managerial Economics are as follows:

- ✓ Managerial Economics involves an application of economic theory especially, microeconomic analysis to practical problem solving in real business life. It is essentially applied microeconomics.
- ✓ A managerial economist determines how the competition and market structure affect the product's sales level and price.
- ✓ In a perfectly competitive market, the managerial economist realizes companies accept market pricing based on supply and demand.
- ✓ If the firm is part of an oligopoly, i.e., the company and just a handful of others control the majority of the market; an economist uses principles from Nash's equilibrium which states that the firm must engage in pricing strategy to undercut its competitors.

- ✓ It is concerned with firm's behaviour in optimal allocation of resources. It provides tools to help in identifying the best course among the alternatives and competing activities in any productive sector whether private or public.
- ✓ Managerial economics incorporates elements of both micro and macroeconomics dealing with management problems in arriving at optimal decisions.
- ✓ It uses analytical tools of mathematical economics and econometrics with two main approaches to economic methodology involving 'descriptive' as well as 'prescriptive' models.
- ✓ Descriptive models are data based in describing and exploring economic relationships of reality in simplified abstract sense. Prescriptive models are the optimizing models to guide the decision makers about the most efficient way of realizing the set goal.
- ✓ It may serve as a Managerial Insight. Managers have to acquire the insight of both micro-economics and macroeconomics as the former analyses the behaviour of individual economic entities such as consumer and producers, while the later exposes issues pertaining to their behaviour in the economy as a whole.
- ✓ Managerial Economics is the base for constructing an optimizing model for profit maximisation goal of the firm. In a prescriptive model, the set of alternative strategies towards attainment of the objective function in operation terms within specified constraints may be derived with the help of descriptive models in background.
- ✓ It differs from traditional economics in one important respect that it is directly concerned in dealing with real people in real business situations.
- ✓ Managerial economics becomes more meaningful when coordinated with other discipline of management with a broader knowledge, techniques/ methods, dogmas and theories involved using sharp common sense in practical decision making.
- ✓ Managerial economics has a pivotal place in allied business disciplines concerned into the arena of decision making.
- ✓ Managerial economics as an applied economic science deals/helps in analyzing the firm's markets, industry trends and macro forces which are directly relevant to the concerned business activity.
- ✓ Managerial economics helps the manager to understand the intricacies of the business problems which make the problem solving easier and quicker, arrive at correct and appropriate decisions, improve the quality of such decisions, and so on.
- ✓ Most managerial decisions are made under conditions of varying degrees of uncertainty about the future. To reduce this element of uncertainty, it is essential to

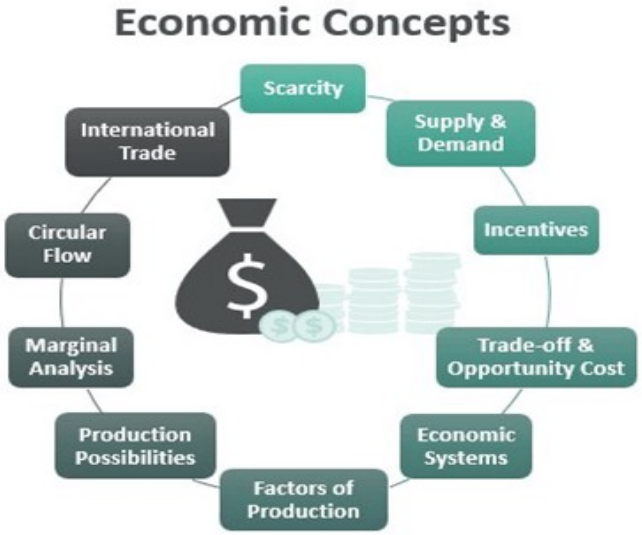
have homework of research/investigation on the problem solving before the action is undertaken.

- ✓ Managerial economics deals with practical business-problems relating to production, pricing and sale. These problems are theoretically analyzed by traditional economics.

## 1.7 Important Concepts of Economics

**Figure 1.2**

**Important concepts of Economics**




**i) Scarcity**

Scarcity is one of the key economic concepts. In economics 1, it refers to the limited availability of resources for human consumption. The world population needs are unlimited, whereas the resources to meet the needs are limited. The limited feature of resources makes it more valuable and expensive. Effective resource allocation techniques and integration of alternatives confront the scarcity issues. Examples of scarce resources are oil and gold. Its scarcity will limit the human want for it.

**ii) Supply Demand**

Another important economic concept is supply-demand. Supply refers to the number of goods and services available for consumers. The law of supply states that as price increases, also supply increases and vice versa. Hence the supply curve is upward sloping.

Demand indicates the number of goods and services consumers is willing and able to purchase. According to the law of demand, as price increases, demand decreases and vice versa. Therefore, it points to a downward sloping demand curve. If demand is greater than supply, the price of goods and services tends to increase in a market, but the price decreases

if supply is greater than demand. The equilibrium price happens when the supply meets with demand.

If the price of a chocolate brand increases, its demand decreases and vice versa. When the price of cocoa rises in the global market, chocolate price increases, and producers increase the supply to obtain the advantage.

**iii) Incentives**

Incentive refers to the factor that influences the consumer in the decision-making process. Two types of incentives are intrinsic and extrinsic incentives. Intrinsic incentives originated in the consumer without any outside pressure, whereas extrinsic incentives developed due to external rewards. For example, the decrease in the price of a discretionary item is an incentive to purchase that item.

**iv) Trade-off and Opportunity Cost**

A trade-off occurs when a decision leads to choosing one thing over another. The loss incurred by not selecting the other option is called opportunity cost when one option is selected. For example, a trade-off occurs when Mr. A takes a day off at university to go to a cinema. The opportunity cost is what Mr. A loses by not attending university for a day like participation point.

**v) Economic Systems**

An economic system comprises various entities forming a social structure that enables a production system, allocation of resources, and exchange of products and services within a community. Capitalism, communism, socialism, and market economy are types of economic systems.

**vi) Factors of Production**

Another important economic concept is factors of production. It refers to inputs applied to the production process to create output: the goods and services produced in an economy. The essential factors of production forming the building blocks of an economy include land, labor, capital, and entrepreneurship. For example, consider a manufacturing entity, where factors of products are land representing the natural resources used, labor represents the work done by workers, capital represents the building, machinery, equipment, and tools involved in the production, and finally, the entrepreneur aligns other factors of production to create the output.

**vii) Production Possibilities**

In economics, production possibility frontier is a curve in which each point represents the combination of two goods that can be produced using the given finite resources. For

example, a farmer can produce 20,000 apples and 30,000 apricots in his fixed land so that the trees are placed to have adequate space to develop a healthy root system and receive enough sunlight. However, if he intends to produce 50,000 apricots, he will make only 10,000 apples on his farm.

**viii) Marginal Analysis**

The marginal analysis compares the additional cost incurred and the corresponding additional benefit obtained from an activity. Usually, companies planning to expand their business by adding another production line or increasing volumes perform this analysis. For example, if a company has enough capacity to increase production but improves the warehouse facility, a marginal analysis indicates that expanding the warehouse capacity will not affect the marginal benefit. In other words, the ability to produce more products outweighs the increase in cost.

**ix) Circular Flow**

The circular flow model in economics primarily portrays how money flows through different units in an economy. It connects the sources and sinks of factors of production, consumer & producer expenditures, and goods & services. For example, resources move from household to firm, and goods and services flow from firms to households.

**x) International Trade**

International trade occurs when a trade happens between countries. Goods and services are traded across countries contributing significantly to GDP. The two main types of international trade are import and export. Import is the purchase of goods or services from another country. In this form, payment has to be made to the other country. Thus, it involves the outflow of money. The sale of goods and services to another country is called exports. In this form, payment is received from another country. Thus, it involves an inflow of money. Examples of international trade include trade between companies in China and USA, and goods exported from China to the USA include electrical and electronic equipment.

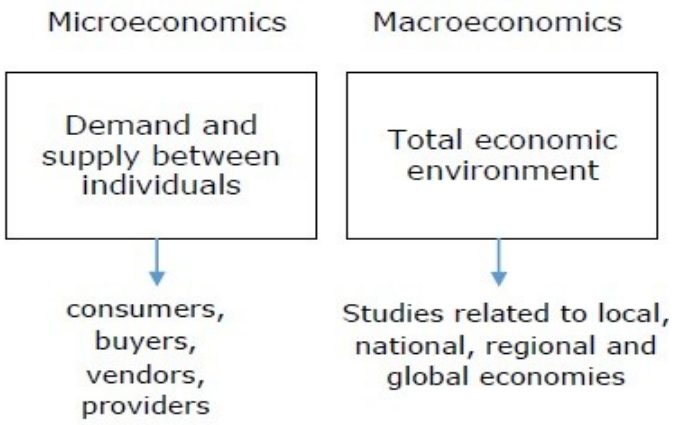
## 1.8 Relationship between Macro, Micro and Managerial Economics

Microeconomics studies the actions of individual consumers and firms; managerial economics is an applied specialty of this branch. Macroeconomics deals with the performance, structure, and behavior of an economy as a whole. Managerial economics applies microeconomic theories and techniques to management decisions. It is more limited in scope as compared to microeconomics. Macroeconomists study aggregate indicators such as GDP, unemployment rates to understand the functions of the whole economy.

Microeconomics and managerial economics both encourage the use of quantitative methods to analyze economic data. Businesses have finite human and financial resources; managerial economic principles can aid management decisions in allocating these resources efficiently. Macroeconomics models and their estimates are used by the government to assist in the development of economic policy.

**Figure 1.3**

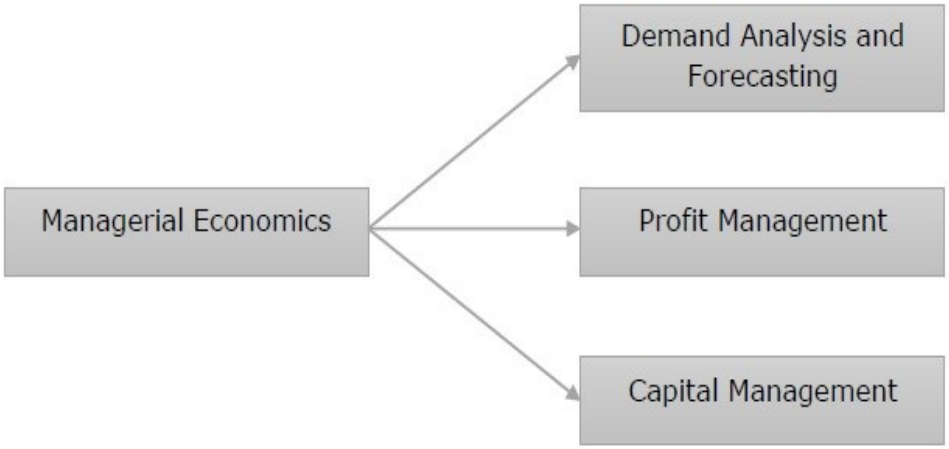
**Micro and Macro Economics**




Macroeconomics deals with the study of entire economy. It considers all the factors such as government policies, business cycles, national income, etc. Microeconomics includes the analysis of small individual units of economy such as individual firms, individual industry, or a single individual consumer.

**Figure 1.4**

**Managerial Economics**




**i) Demand Analysis and Forecasting**

Demand analysis and forecasting involves huge amount of decision-making! Demand estimation is an integral part of decision making, an assessment of future sales helps in

strengthening the market position and maximizing profit. In managerial economics, demand analysis and forecasting holds a very important place.

**ii) Profit Management**

Success of a firm depends on its primary measure and that is profit. Firms are operated to earn long term profit which is generally the reward for risk taking. Appropriate planning and measuring profit is the most important and challenging area of managerial economics.

**iii) Capital Management**

Capital management involves planning and controlling of expenses. There are many problems related to capital investments which involve considerable amount of time and labor. Cost of capital and rate of return are important factors of capital management. In simple terms, firms are companies. They are legally recognized bodies that provide goods and/or services to their consumers, government bodies, and other businesses.

## 1.9 Nature of the Firm

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

The major objectives of the firm are:

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

Firms are established to earn profit, to keep the shareholders happy. To increase their market share, they try to maximize their sales. In the present business world firms try to produce goods and services without harming the environment. Firms are not always able to operate at a profit. They may be facing the operating loss also. Economists believe that firms maximize their long run rather than their short run profit. So managers have to make enough profit to satisfy the demands of their shareholders and to maximize their wealth through the company.

**Check Your Progress**

**Choose the Correct Answer:**

1. **Managerial economics is concerned with**

   a) Applying economic theory to business decision making

   b) Studying political systems

   c) Studying social behavior only

   d) Studying accounting rules

   **Answer: a) Applying economic theory to business decision making**

2. **Managerial economics mainly deals with**

   a) Business problems and decision making

   b) Government policies only

   c) Agricultural production

   d) Social welfare programs

   **Answer: a) Business problems and decision making**

3. **Economics is defined as the study of**

   a) Wealth only

   b) Scarcity and choice

   c) Natural resources only

   d) Industrial production

   **Answer: b) Scarcity and choice**

4. **Which of the following is an important concept in economics?**

   a) Opportunity cost

   b) Demand and supply

   c) Marginal analysis

d) All of the above

**Answer: d) All of the above**

5. **Microeconomics mainly studies**

   a) Individual units such as firms and consumers

   b) National income

   c) Inflation

   d) International trade

   **Answer: a) Individual units such as firms and consumers**

6. **Macroeconomics deals with**

   a) Individual demand

   b) Economy as a whole

   c) Consumer behavior only

   d) Firm's production decisions

   **Answer: b) Economy as a whole**

7. **Managerial economics is closely related to**

   a) Microeconomics

   b) Macroeconomics

   c) Business management

   d) All of the above

   **Answer: d) All of the above**

8. **The main objective of a firm is generally considered to be**

   a) Profit maximization

   b) Employee satisfaction only

   c) Social service only

d) Political development

**Answer: a) Profit maximization**

9. **Marginal analysis in economics refers to**

a) Studying additional costs and benefits

b) Studying total income

c) Studying employee behavior

d) Studying government policies

**Answer: a) Studying additional costs and benefits**

10. **Managerial economics helps managers to**

a) Make effective business decisions

b) Reduce employee wages

c) Avoid planning

d) Eliminate competition

**Answer: a) Make effective business decisions**

**Small Questions – LOCF Mapping Table**

| S.No | Small Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | What is Managerial Economics? | CO1 | Remember | PO1 |
| 2 | Define Economics. | CO1 | Remember | PO1 |
| 3 | What is opportunity cost? | CO2 | Understand | PO2 |
| 4 | What is the relationship between microeconomics and managerial economics? | CO2 | Understand | PO2 |
| 5 | What are the objectives of a firm? | CO3 | Understand | PO3 |

**Big Questions – LOCF Mapping Table**

| S.No | Big Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | Define Managerial Economics and explain its nature and scope. | CO1 | Understand | PO1 |
| 2 | Explain the definition and important concepts of economics. | CO1 | Understand | PO2 |
| 3 | Discuss the relationship between microeconomics, macroeconomics and managerial economics. | CO2 | Analyze | PO3 |
| 4 | Explain the nature and scope of managerial economics in business decision making. | CO2 | Analyze | PO4 |
| 5 | Discuss the objectives of a firm in managerial economics. | CO3 | Evaluate | PO5 |

# UNIT – II

## Structure:


**2.1 Introduction**

**2.2 Demand Analysis**

**2.3 Theory of Consumer Behaviour**

**2.4 Marginal Utility Analysis**

**2.5 Law of Demand**

**2.6 Types of Demand**

**2.7 Determinants of Demand**

**2.8 Elasticity of Demand**

**2.9 Demand Forecasting**


## 2.1 Introduction

Demand refers to how much (quantity) of a product or service is desired by buyers. The quantity demanded is the amount of a product people are willing to buy at a certain price; the relationship between price and quantity demanded is known as the demand relationship. Supply represents how much the market can offer. The law of supply and demand is the theory explaining the interaction between the supply of a resource and the demand for that resource. The law of supply and demand defines the effect the availability of a particular product and the desire (or demand) for that product has on price. Generally, a low supply and a high demand increases price, and in contrast, the greater the supply and the lower the demand, the lower the price tends to fall.

**Concept of Demand**

Demand is the desire or want for something. The economics meaning of demand is the effective demand, i.e., the amount the buyers are willing to purchase at a given price and over a given period of time. Demand is the desire to own anything, the ability to pay for it, and the willingness to pay. The term demand signifies the ability or the willingness to buy a particular commodity at a given point of time.

Economists record demand on a demand schedule and plot it on a graph as a demand curve that is usually downward sloping. The downward slope reflects the relationship between price and quantity demanded: as price decreases, quantity demanded increases. In principle, each consumer has a demand curve for any product that he or she would consider

buying, and the consumer's demand curve is equal to the marginal utility curve. When the demand curves of all consumers are added up, the result is the market demand curve for that product. If there are no externalities, the market demand curve is also equal to the social utility curve.

**Meaning of Demand**

The demand refers to the amount of which will be bought per unit of time at a particular price. Demand is the amount of a particular economic good or service that a consumer or group of consumers will want to purchase at a given price.

Demand = Desire + Ability to pay + Willingness to pay.

The demand curve is usually downward sloping, since consumers will want to buy more as price decreases. Demand for a good or service is determined by many different factors other than price, such as the price of substitute goods and complementary goods. In extreme cases, demand may be completely unrelated to price, or nearly infinite at a given price. Along with supply, demand is one of the two key determinants of the market price.

**Definitions of Demand**

According to Prof. Hidbon, Demand means the various quantities of goods that would be purchased per time period at different prices in a given market. Thus demand for a commodity is its quantity which consumer is able and willing to buy at various prices during a given period of time. Simply, demand is the behavior of potential buyers in a market.

In the opinion of Stonier and Hague, "Demand in economics means demand backed up by enough money to pay for the goods demanded". In other words, demand means the desire backed by the willingness to buy a commodity and purchasing power to pay. Hence desire alone is not enough. There must have necessary purchasing power, ie, cash to purchase it. For example, everyone desires to posses Benz car but only few have the ability to buy it. So everybody cannot be said to have a demand for the car. Thus the demand has three essentials-Desire, Purchasing power and Willingness to purchase.

According to Benham, "the demand for anything at a given price is the amount of it, which will be bought per unit of time at that price".

## 2.2 Demand Analysis

The success of a business largely depends on sales. Sales depend on market demand behaviour. Market demand analysis is a core topic in managerial economics, for it seeks to search out and measures the determinants of demand, thus, forces governing sales of a product.

Market demand analysis serves the following managerial purposes:

- ✓ It is an important technique for sales forecasting with a sound base and greater accuracy.
- ✓ It provides a guideline for demand manipulation through advertising and sales promotion programmes.
- ✓ It shows direction to product planning and product improvement.
- ✓ It is useful in determining the sales quotas and appraisal of performance of the personnel in sales department.
- ✓ It is an anchor for the pricing policy.
- ✓ It indicates the size of the market for given product and the market share of the concerned firm.
- ✓ It, thus, reflects the scope of business expansion and competitive position of the firm in market trend.

For these reasons, demand analysis is essential for successful production planning and business expansion in managerial decision-making.

**Individual Demand and Market Demand**

Consumer demand for a product may be viewed at two levels: (i) Individual demand, and (ii) Market demand.

Individual demand refers to the demand for a commodity from the individual point of view. The quantity of a product consumer would buy at a given price over a given period of time is his individual demand for that particular product. Individual demand is considered from one person's point of view or from that of a family or household's point of view. Individual demand is a single consuming entity's demand.

Market demand for a product, on the other hand, refers to the total demand of all the buyers, taken together. Market demand is an aggregate of the quantities of a product demanded by all the individual buyers at a given price over a given period of time.

Market demand function is the sum total of individual demand function. It is derived by aggregating all individual buyer's demand function in the market.

Market demand is more important from the business point of view. Sales depend on the market demand. Business policy and planning are based on the market demand. Prices are determined on the basis of market demand for the product. In a competitive market, interaction between total or market demand and market supply determine the equilibrium price. Under monopoly also, the seller has to determine the price of his product with due

consideration to the position of market demand. He simply cannot determine any high price, disregarding the market demand for the product.

Usually, under market mechanism, resources would be automatically channelled in producing those goods which have a greater intensity of market demand and consequently, higher prices and more profitability. Market demand, thus, serves as a guidepost to producers in adjusting their supplies in a market economy.

## 2.3 Theory of Consumer Behaviour

In the theory of consumer behaviour, the foremost important element is how a rational consumer makes choices from the numerous commodities which are available to him. Consumer theory is concerned with how a rational consumer would make consumption decisions. What makes this problem worthy of separate study, apart from the general analysis of demand and supply theory, is its particular structure that allows us to derive economically meaningful results. The structure arises because the consumer's choice sets are assumed to be defined by the consumer's income or wealth.

There are two significant approaches of determining consumer behaviour:

i) Marshallian Approach
ii) Indifference Curve Approach

**i) Marshallian Approach**

Alfred Marshall made a significant contribution to the study of consumer behaviour. Marshall attempted to derive consumer's equilibrium in a one commodity framework. He considers that the consumer allocates his income on one good and the balance money income is composite good. To establish his theory, he made the following assumptions:

- ✓ Utility is cardinally measurable.
- ✓ Marginal utility of money remains constant.
- ✓ Demand for any single commodity is satiable i.e. Law of Diminishing Marginal Utility (DMU) holds true.
- ✓ Two different commodities can never be perfect substitute of each other.
- ✓ Utility functions are independent for different commodities.
- ✓ Consumer is a price taker in the market.
- ✓ Consumer must be rational in nature.

Marshall considered that the buyer consumes only one commodity X, whose price is P1. He consumes X1 amount of X out of his money income M. By consuming X1 units of X

consumer gets U(X1), units of utility which he sacrifices monetary utility of λP1X1 (where λ=dU/dM i.e. marginal utility of money).

**N(X1) = U(X1) – λP1X1**

In the Marshallian approach, the consumer tries to maximize the utility that he derives keeping in view the money income he has in hand available to be spent on that good.

**Limitations:**

In spite of some good attempts, Marshallian theory is not free from criticism. These are:

- ✓ The assumption of constant MU of money is impractical.
- ✓ There are exceptions to the Law of Diminishing Marginal Utility. DMU may not always hold good.
- ✓ The assumption of independent utilities ignores substitute and complement goods, which is unrealistic in nature.
- ✓ This theory is only applicable for a one-commodity framework, whereas there exist numerous commodities.
- ✓ Cardinal measurement of utility is unrealistic.

Marshall considered that the buyer consumes only one commodity X, whose price is P1. He consumes X1 amount of X out of his money income M. By consuming X1 units of X consumer gets U(X1), units of utility which he sacrifices monetary utility of λP1X1 (where λ=dU/dM i.e. marginal utility of money).

**ii) Indifference Curve Approach**

Utility approach suffers from several drawbacks. For this reason, a consumer's demand curve derived with the help of utility approach also suffers from similar drawbacks. The technique of indifference curves tries to avoid these drawbacks and provide a technically superior analysis of demand. It believes that human satisfaction being a psychological phenomenon cannot be measured quantitatively in monetary terms as was attempted in Marshall's approach. In indifference curve approach, the preferences are ordered than to measure them in terms of money. This approach, is, therefore an ordinal concept based on ordering of preferences compared with Marshall's approach of cardinality. This approach to consumer behaviour is best understood in three distinct steps:

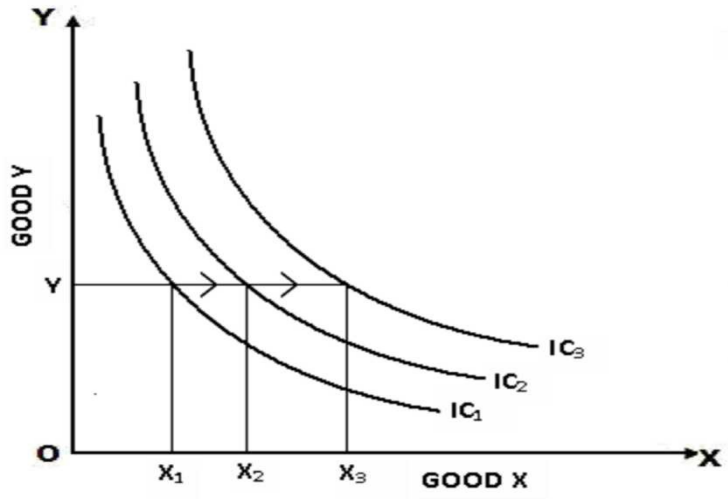
- ✓ Consumer Preferences (Indifference curve)
- ✓ Budget Constraints (Budget Line)
- ✓ Consumer Choices (Equilibrium)

**Indifference curve**

An indifference curve is a curve which represents all those combinations of goods which give same satisfaction to the consumer. Since all the combinations on an indifference curve give equal satisfaction to the consumer, the consumer is indifferent among them. In other words, since all the combinations provide same level of satisfaction the consumer prefers them equally and does not mind which combination he gets.

**Figure 2.1**

**Indifference Curve Map**




Assuming that there are two goods X and Y having their respective utility schedules for a consumer, an indifference schedule represents all those combinations of two goods from which the consumer expects to derive same total satisfaction.

**Assumptions Underlying Indifference Curve Approach**

- ✓ The consumer is rational and possesses full information about all the relevant aspects of economic environment in which he lives.
- ✓ The consumer is capable of ranking all conceivable combinations of goods according to the satisfaction he derives. Thus, if he is given various combinations say A, B, C, D, E he can rank them as first preference, second preference and so on.
- ✓ If a consumer happens to prefer A to B, he cannot tell quantitatively how much he prefers A to B.
- ✓ If the consumer prefers combination A to B, and B to C, then he must prefer combination A to C. In other words, he has consistent consumption pattern behaviour.
- ✓ If combination A has more commodities than combination B, then A must be preferred to B.

**Properties of Indifference Curves**

The following are the main characteristics or properties of indifference curves:

**i) Indifference curves slope downward to the right**

This property implies that when the amount of one good in combination is increased, the amount of the other good is reduced. This is essential if the level of satisfaction is to remain the same on an indifference curve.

**ii) Indifference curves are always convex to the origin**

It has been observed that as more and more of one commodity (X) is substituted for another (Y), the consumer is willing to part with less and less of the commodity being substituted (i.e. Y). This is called diminishing marginal rate of substitution.

**iii) Indifference curves can never intersect each other**

No two indifference curves will intersect each other although it is not necessary that they are parallel to each other. In case of intersection the relationship becomes logically absurd because it would show that higher and lower levels are equal which is not possible.

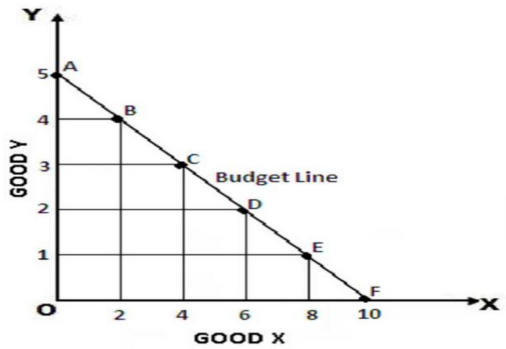
**iv) A higher indifference curve represents a higher level of satisfaction than the lower indifference curve**

This is because combinations lying on a higher indifference curve contain more of either one or both goods and more goods are preferred to less.

**Budget Line**

A budget line or price line represents the various combinations of two goods which can be purchased with a given money income and assumed prices of goods. For example, a consumer has weekly income of A60. He purchases only two goods, X and Y. The price of good X is A6 and the price of good Y is A12. Given the assumed income and the price, of the two goods, the consumer can purchase various combination of goods or market combination of goods weekly.

**Figure 2.2**
**Budget Line**



In Fig 2.2, X axis and Y axis represents good X and good Y respectively. AF is the budget line showing various combinations of both goods that a consumer can afford in given income.

In indifference curves approach to demand analysis, Budget Line (BL) plays an integral role in the determination of consumer's equilibrium. It is a straight line joining two points on Y-axis and X-axis and has a negative slope. Its starting point on Y-axis represents the amount of Y that can be bought with given income and at given price of Y. Its end point on X-axis represents the maximum amount of X which consumer can buy with given income and price of X.

The use of BL in determining a consumer's equilibrium is illustrated in Fig. 2.21 where it is labelled AB. It begins from point A on Y-axis and meets X-axis at point B. All the points along AB curve represent different combinations of X and Y which the market permits the consumer to have with his given income and prices of two goods.

**Figure 2.3**

**Consumer's Equilibrium**

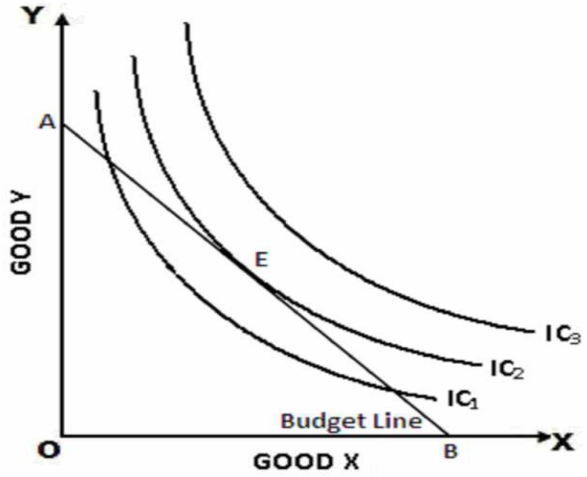



Figure 2.3 shows consumer's equilibrium at point E where, Budget line AB is tangent to the indifference curve IC2.

Which of the alternatives allowed by the market will be chosen by the consumer? Our assumption of economic rationality of the consumer states that out of the available alternatives, the consumer will try to choose that combination of X and Y which brings him to the highest indifference curve which the market permits him to reach. In this context, we should note that the BL is a straight line and slopes downwards from left to right, and the indifference curves are convex to the origin. Therefore, if we take any particular indifference curve, we come across three possibilities. The BL.

- ✓ does not touch it at all
- ✓ intersects it twice
- ✓ is tangent to it
- ✓ it should also be noted that a BL can be tangent to one and only one indifference curve

Given the assumptions, highest possible indifference curve that can be reached would be one, to which BL is tangent. The point of tangency represents consumer's equilibrium.

## 2.4 Marginal Utility Analysis

**Meaning of Utility**

Human wants are unlimited and they are of different intensity. The means at the disposal of a man are not only scarce but they have alternative uses. As a result of scarcity of resources, the consumer cannot satisfy all his wants. He has to choose as to which want is to be satisfied first and which afterward if the resources permit. The consumer is confronted with making a choice.

For example, a man is thirsty. He goes to the market and satisfies his thirst by purchasing coca cola instead of tea. We are here to examine the economic forces which make him purchase a particular commodity. The answer is simple. The consumer buys a commodity because it gives him satisfaction. In technical term, a consumer purchases a commodity because it has utility for him.

Utility of a good is its expected capacity to satisfy a human want. To a consumer, the utility of a good is the satisfaction which he expects from its consumption. It is the extent to which it is expected to satisfy his want(s).

The fact that utility of a good is the satisfaction which the consumer expects from its consumption implies that it is a subjective thing. It depends upon the mental assessment of the consumer and is determined by several factors which influence the consumer's judgment. These factors include, for example, the intensity of the want(s) to be satisfied. Utility of a good varies with the intensity of the want to be satisfied by its consumption. This fact leads to a few important inferences.

- ✓ Utility of a good differs from consumer to consumer. This is because a given want can be felt in different intensities by different consumers.
- ✓ The utility of a good keeps changing even for the same consumer on account of changes in the intensity of the want(s) to be satisfied by its use. This change may be

the result of a shift in the circumstances faced by the consumer, or it may take place in the process of the satisfaction of the want itself.

- ✓ The utility of a good is not to be equated with its usefulness. Satisfaction of a want need not add to the welfare of the consumer. For example, smoking, drug taking or consumption of similar other things is believed to be harmful for the health of the consumer. But the consumer believes that they have utility for him because he can use these to satisfy his wants.

In economics, we are not concerned with the 'normative' aspect of utility. It does not matter whether its consumption adds to their well-being or not. So long as the consumers expect to derive some 'satisfaction' from a good (that is, so long the good has a 'utility' for them), they will be ready to buy it at some price and create a demand for it in the market.

**Definitions**

According to **Jevos,** who first introduced the concept of utility, "Utility is the basis on which the demand of an individual for a commodity depends upon".

In the words of **Prof. Waugh, "**Utility is the power of commodity to satisfy human wants."

**Characteristic of Utility**

- ✓ Utility has no Ethical or Moral Importance but has the utility, for example alcohol, cigarette, knife, etc.
- ✓ Utility is psychological and differ from consumer to consumer.
- ✓ Utility is relative/ individual and differ in different situations in relation to place and time like woolen cloths and air conditioner.
- ✓ Utility is not necessary to be useful as a cigarette has utility to the smoker but injurious to health.
- ✓ Utility is always subjective and cannot be measured objectively as a consumer's feeling cannot be expressed in numerical terms.
- ✓ The intensity of a consumer's want defined utility as we want more of a commodity if we have less and vice-versa.
- ✓ Utility is differ from pleasure and satisfaction. For example, the medicine or an injection is necessary for the patient, but it will not offer any pleasure to the consumer.

**Measurement of Utility**

The need for measuring utility arises so that it can be used in the analysis of demand behaviour of individual consumers, and therefore, of the market as a whole. The basis of the

reasoning is that a consumer compares utility of a good with the price he has to pay for it. He keeps buying its additional units so long as the utility from them is at least equal to the price to be paid for them. In economic theory, utility can be measured in two ways:

i) Cardinal Approach
ii) Ordinal Approach

**i) Cardinal Utility Approach**

Cardinal utility approach assumes that utility can be measured in cardinal numbers such as 1, 3, 10, 15, etc. The utility expressed in imaginary cardinal numbers tells us a great deal about the preference of the consumer for a good. In cardinal measurement, utility is expressed in absolute standard units, such as there being 20 units of utility from the first loaf of bread and 15 units from the second.

Pareto, an Italian Economist, severely criticized the concept of cardinal utility. He stated that utility is neither quantifiable nor addible. It can, however be compared. He suggested that the concept of utility should be replaced by the scale of preference.

**ii) Ordinal Utility Approach**

Ordinal utility approach is purely subjective and is immeasurable. Ordinal measurement of utility is the one in which utility cannot be expressed in absolute units. Utility from two or more sources is only 'ranked' or 'ordered' in relation to each other. Utility from one source may be 'equal to', 'more than' or 'less than' utility from another source. But it is not possible to state the difference in absolute or numerical units.

The fact is that utility is a subjective thing and varies from person to person and from one situation to another. For this reason, it is neither possible to measure it in absolute terms, nor compare utility of a good for two individuals. This implies that cardinal measurement of utility is only a theoretical phenomenon, and has less validity in practice. Utility is best measured in ordinal terms.

However, in a number of cases, analysis of demand decisions requires the use of a cardinal measurement of utility. For this reason, economists adopted a standard unit of measuring utility and called it 'util' (also frequently used in plural as 'utils'). But 'utils' itself happens to a subjective, discretionary and imprecise measure and, therefore, does not determine the demand behaviour of consumers.

To overcome this limitation, Marshall advocated that utility of a good to the consumer should be measured in units of money which the consumer is willing to pay for buying the commodity. For example, if a consumer is willing to pay, at the most, five rupees for the first bottle of a cold drink and only four rupees for the second one, then according to this

approach, the utility of the first bottle to the consumer equals five rupees and that of the second equals four rupees. This approach was widely accepted and seemed to be useful in analyzing demand decisions of the consumers because, in practice, the consumers pay for their purchases in monetary terms.

**Concepts of Total, Average and Marginal Utility**

When a consumer consumes a good, the utility derived from it varies with its quantity, and generates three concepts; namely

- ✓ Total Utility (TU)
- ✓ Average Utility (AU)
- ✓ Marginal Utility (MU)

If a consumer buys n units of a good X then, for him, Total utility (TU) from it is the summation of utilities derived from all the n units. By dividing this total utility (TU) by the number of units of X, that is n, the resultant is Average utility (AU) of these units of X to the consumer. The additional satisfaction a consumer gains from consuming one more unit of 'X' is Marginal utility (MU) of that unit of X.

Symbolically, if $U_i$ stands for the utility of $i^{th}$ unit of good X, then

- ✓ $TUn = \Sigma U_i$, i = 1, 2, 3, ..... n
- ✓ $AUn = TU_n/n$
- ✓ $MU_n = TU_n - TU_n\text{-}1$

In the case of a 'perfectly divisible' good, MU equals the first derivative of TU with respect to X, i.e.

**Marginal utility of nth unit of consumption, MUn = dTU/dX**

It is clear that utility of good X to the consumer is directly related to the intensity of the want to be satisfied through its consumption which is explained as follows:

- ✓ For a given consumer, the three measures of utility depend upon the intensity of the want, which he expects to satisfy.
- ✓ When a consumer consumes a good to satisfy his want, its intensity also undergoes a change. Therefore, the three measures of utility are also affected by the stock of X with the consumer.
- ✓ The intensity of a want being satisfied tends to change over time. The capacity of different goods to satisfy wants also differs. These factors also cause a shift in the three measures of utility.
- ✓ Generally speaking, wants are not felt with equal intensity by all consumers. Therefore, the measures of utility tend to vary from consumer to consumer.

**Table 2.1**

**Total, Average and Marginal Utility of Slices of Bread**

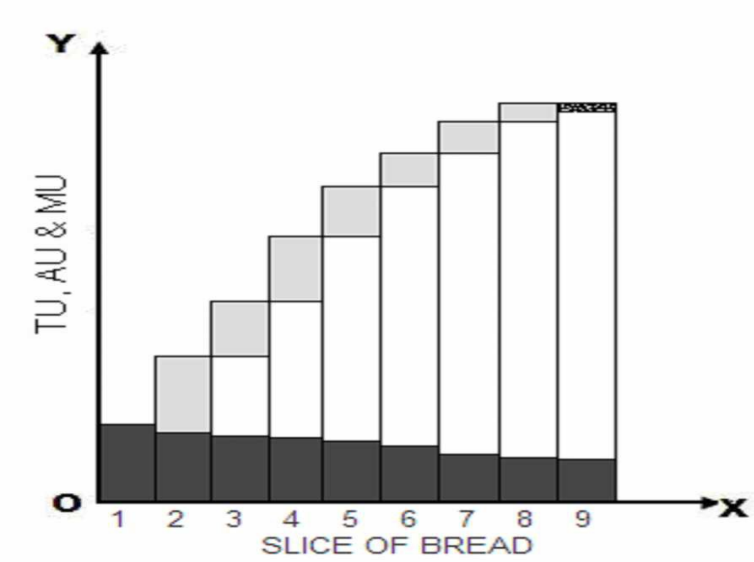
| Slices of Bread | Total Utility | Average Utility | Marginal Utility |
|---|---|---|---|
| 1st | 40 | 40 | 40 |
| 2nd | 78 | 39 | 38 |
| 3rd | 113 | 37.7 | 35 |
| 4th | 144 | 36 | 31 |
| 5th | 170 | 34 | 26 |
| 6th | 190 | 31.7 | 20 |
| 7th | 203 | 29 | 13 |
| 8th | 208 | 26 | 5 |
| 9th | 204 | 22.7 | -4 |

Table 2.1 illustrates interrelationship between three concepts of utility by considering a hypothetical example of a consumer who consumes slices of bread to satisfy his hunger. It should be specifically noted that the consumer is to consume bread without allowing any unreasonable time gap between the intakes of successive slices. This assumption is essential to ensures that the intensity of hunger of the consumer decreases as he consumes additional slices. By implication, the marginal utility of slices also falls, and depending upon the number of slices consumed, it can even become zero or negative. In Table 2.3, units of MU are shown in column 4. It becomes negative when the consumer consumes 9th slice. Figures of TU are shown in column 2. At each stage, TU is the cumulative total of the MU in column 4. Thus, for example, for four slices, TU equals 144, that is, (40 + 38 + 35 + 31). Average utility is shown in column 3. Its entries are obtained by dividing the figures in column 2 with their corresponding figures in column 1.

It should be noted that, for the first slice, all the three measures of utility are equal to each other. Moreover, since MU falls with successive slices of bread, therefore, TU increases at a decreasing rate. It reaches its maximum when MU falls to zero and actually declines when MU becomes negative. In our example, TU reaches its maximum with 8th slice and decreases with the consumption of 9th slice because its MU becomes negative (-4). It should also be noted that when MU is falling, AU also falls but at a slower rate. This fact can be verified by comparing figures in column 3 with those in column 4.**T**

**Figure 2.4**

**Total Utility, Average Utility and Marginal Utility of Slices of Bread**




In Figure 2.4, information contained in Table 2. 1 is expressed in the form of a bar diagram. Each step along X-axis represents one slice of bread. Total height of a bar represents total utility corresponding to the number of slices consumed. The upper portion of a bar shaded by dots represents the MU of the corresponding number of slice. Similarly, the portion of a bar shaded diagonally represents the AU of the slices consumed. It should be noted that MU of 9$^{th}$ slice is negative. As a result, the height of the bar also decreases. And so is the case with the shaded portion representing AU. In the figure, Total Utility is Height of the bar, Average Utility is dark-shaded area and Marginal Utility is light shaded area.

**Figure 2.5**

**Total Average and Marginal Utility**

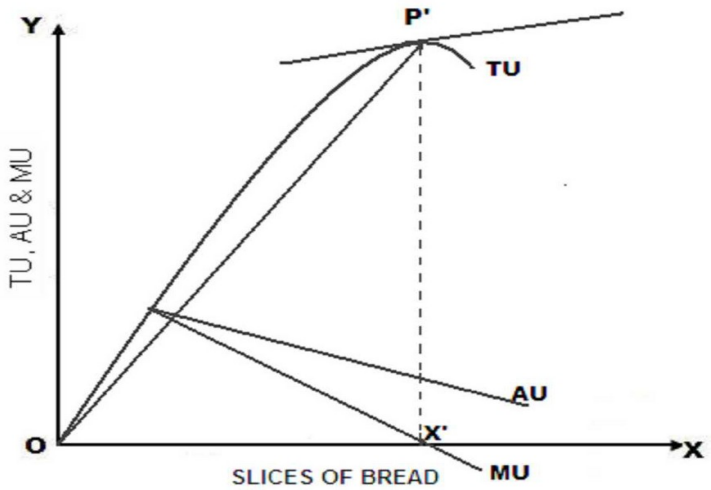


Figure 2.5 Total, Average and Marginal Utility A generalized way of showing the relationship between three measures of utility is to take good X and assume that it is perfectly divisible, that is, it can be divided into infinitesimally small units. In this case, TU, AU and MU of X can be expressed in the form of curves. The three curves of utility become smooth with a type of interrelationship shown in Figure 2.2. The figure shows that initially the total utility curve slopes upwards to the right. This indicates that the total utility will rise with consumption of additional units of the commodity. However, the increase in total utility is not constant, but falls steadily.

In other words, the total utility rises at a falling rate. This is shown by corresponding downward or negative slope of the marginal utility curve. When the total utility reaches its maximum value, marginal utility becomes zero. Before this point, though marginal utility falls, it always remains positive. The total utility stops rising at this stage. When consumption is expanded beyond this, the total utility starts to fall because marginal utility becomes negative.

It is conventionally assumed that MU diminishes with successive units of good X. This show:

- ✓ Marginal Utility Curve slope downwards.
- ✓ Average Utility Curve falls slower than Marginal Utility Curve. Therefore, AU curve has a flatter slope and lies above MU curve.
- ✓ Total Utility Curve rises at a diminishing rate. It reaches its maximum distance from X-axis when MU is zero. Thereafter, it also slopes downwards, when MU is negative.

Geometrically, TU curve itself provides complete information regarding total, average and marginal utility as follows. Given the quantity of good X (say, OX'), we consider the corresponding point (P') on TU curve. Then, the perpendicular distance P'X' measures total utility of the quantity OX'. The slope of the ray from the origin to P' (OP') measures its average utility. The slope of the tangent to total utility curve at point P' measures marginal utility. Recall that marginal utility is also the first derivative of total utility with respect to quantity of the good that is dTU / dX.

**Laws of Utility Analysis**

The utility analysis has the two main approaches:

i) Law of Diminishing Marginal Utility

ii) Law of Equi-Marginal Utility

Both the laws are comprehensively explained as under:

**i) Law of Diminishing Marginal Utility (DMU)**

The law of diminishing marginal utility states that as the stock of a commodity increases with the consumer, its marginal utility to the consumer decreases. It eventually falls to zero and become even negative. The law describes a familiar psychological tendency of the human beings.

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

The specific behaviour of marginal utility as described by the law of DMU follows from the conventional (and realistic) assumption that the intensity of a given want keeps decreasing if the process of its satisfaction is continued without interruption, that is, a single want can be fully satisfied provided the consumer consumes a large enough quantity of the relevant good/service. In other words, during the process of its satisfaction, nothing should happen to increase its intensity. For example, the consumer should not allow an unduly long interval between the consumption of any two units of the good; he should not get news of an unexpected change in his

income or the price of the good, etc. It should also be noted that the good to be consumed should be homogeneous. Its successive units should have the same technical specifications. Any change in them can cause a change in the intensity of the want being satisfied and thereby violate the law of DMU.

**Assumptions**

Some of the assumptions of Law of DMU are as follows:

- ✓ All the units of the given commodity are homogenous i.e. identical in size, shape, quality, quantity etc.
- ✓ The units of consumption are of reasonable size. The consumption is normal.
- ✓ The consumption is continuous. There is no unduly long time interval between the consumption of the successive units.
- ✓ The law assumes that only one type of commodity is used for consumption at a time.
- ✓ Though it is psychological concept, the law assumes that the utility can be measured cardinally i.e. it can be expressed numerically.
- ✓ The consumer is rational human being and he aims at maximum of satisfaction.

**Exceptions to the Law**

The law of DMU is violated only if one or more of the assumptions upon which it is based get violated. Since utility of a good is related to the mental perception of the consumer

regarding the intensity of the want to be satisfied and the capacity of the good to satisfy it, therefore, the law of DMU is violated if for some reason,

- ✓ the intensity of the want increases, or
- ✓ the consumer comes to think that the intensity of his want has increased.

It is for this reason that marginal utility of a good tends to increase if there is an unduly long interval between the consumption of two units of a good. Marginal utility of a good may also increase, if the want of the consumer is intensified by consuming a very small quantity of it (such as, a very little quantity of water given to a very thirsty person).

Some of the exceptions to the law of DMU are as follows:

a) Hobbies: In case of certain hobbies like stamp collection or old coins, every additional unit gives more pleasure. MU goes on increasing with the acquisition of every additional unit.

b) Miser**:** In the case of miser, greed increases with the acquisition of every additional unit of money.

**ii) Law of Equi-Marginal Utility**

The law of diminishing marginal utility plays a crucial role in explaining the demand behaviour of a typical consumer and determination of his equilibrium when he is facing the following circumstances.

- ✓ The consumer is allowed to buy all or some out of specified goods, say A, B, C….N.
- ✓ Each good obeys the law of DMU, and its marginal utility schedule is known.
- ✓ Each good has a fixed price for the consumer. It does not vary with the quantity purchased by the consumer.
- ✓ The amount of expenditure to be incurred by the consumer is given. However, the consumer need not spend the same amount on each good, and their quantities can differ.

Consumer's equilibrium is the solution of this problem. It describes the respective quantities of goods A, B, C….N which the consumer buys. The law of equi-marginal utility describes the rule by which the consumer takes this decision.

We assume that the consumer decides to divide his total expenditure between different goods by taking into consideration not only their respective marginal utilities but also their per unit prices. A consumer is guided by marginal utility which he can derive by spending each additional rupee. It is on this basis that he decides to allocate his expenditure between alternative goods. If, for example, he finds that a rupee spent on Good A brings greater utility than if it is spent on good B, he chooses to spend it on the A rather than on B. Thus, the consumer tries to satisfy the following two conditions:

a) The marginal utility derived from a good is not less than the price paid for it. That is, for good A, MUa $\geq P_a$, where $MU_a$ is the marginal utility of good A and $P_a$ is price per unit of good A. That is the ratio $MU_a/P_a$ must be 1.

b) The ratio $MU_a/P_a = MU_b/P_b$ that is marginal utilities derived from the expenditure of last rupee on all goods are equal to each other. If for example, $MU_a/P_a > MU_b/P_b$, it means that the consumer can get greater marginal utility by shifting some of his expenditure from good B to good A. By doing so, he is able to get greater total utility by spending same amount of money. If however, the two ratios are equal, no addition to the consumer's total utility takes place by shifting his expenditure between goods.

Thus, the law of equi-marginal utility states that consumer distributes his expenditure between different goods in such a way that the marginal utility derived from the last rupee spent on each good is the same.

**Symbolically,**

$$\mathbf{MU_a/P_a = MU_b/P_b = MU_c/P_c = ..... = MU_n/P_n \text{ (Consumer Equilibrium)}}$$

Thus, the consumer, while dividing his expenditure between goods considers both their marginal utilities and prices. By equating the ratios of marginal utilities to prices of goods, the consumer succeeds in deriving maximum possible utility from his expenditure. This is the best position which he can attain.

It is clear that the consumer's equilibrium will change if there is a change in

- ✓ his total expenditure
- ✓ marginal utility schedule of any good
- ✓ price of any good

Table 2.2 provides a hypothetical application of the law of equi-marginal utility. It is assumed that our consumer is to spend 12 rupees and choose between four goods, A, B, C and D. Figures in the first row reveal that the first rupee spent on good A yields 40 units of utility for the consumer. If same rupee is spent on good B, the utility derived by the consumer is 38 units. And so on.

Recalling that the consumer will spend each additional rupee on that good which brings him maximum marginal utility (that is having highest MU/P), we note that he will spend his 1st rupee on good D which brings him 45 units of utility. Similarly, the 2nd rupee is spent on good C (which brings 44 units of utility) ; the 3rd rupee is again spent on D (with marginal utility of 42); the 4th and 5th rupees are spent on goods A and C (not necessarily in this order); the 6th rupee goes to good D; 7th and 8th rupees are spent on goods A and B (not necessarily in this order); while the remaining four rupees are spent one each on A, B, C and

D (not necessarily in this order). As a result, in all, he spends three rupees on A, two rupees on B, three rupees on C, and four rupees on D. The utility derived by him is 114 units from A, 74 units from B, 120 units from C, and 162 units from D, the total being 470 units. Any other division of his expenditure on these four goods would yield the consumer a smaller total utility. It should also be noted that when marginal utility from a rupee spent on two or more goods is the same, the consumer may spend it on either of them. Thus, in our example, we cannot say for certain whether the consumer will spend 4th rupee on A and 5th on C, or it will be the other way round. And if his total expenditure is only five rupees, the 5th rupee may be spent on either of the two goods with the same result.

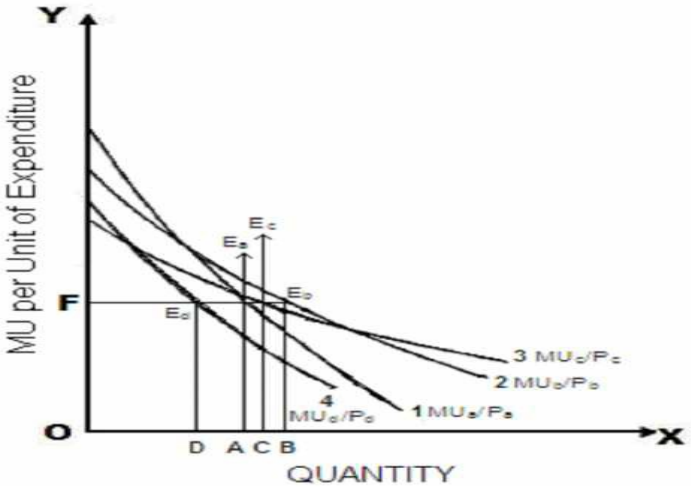
**Table 2.2**

**Application of the Law of Equi – Marginal Utility**

| Expenditure | MUa/Pa | MUb/Pb | MUc/Pc | MUd/Pd |
|---|---|---|---|---|
| 1 Rupee | 40 | 38 | 44 | 45 |
| 2 Rupee | 38 | 36 | 40 | 42 |
| 3 Rupee | 36 | 32 | 36 | 39 |
| 4 Rupee | 34 | 29 | 32 | 36 |
| 5 Rupee | 32 | 26 | 28 | 33 |
| 6 Rupee | 20 | 23 | 24 | 30 |
| 7 Rupee | 18 | 20 | 20 | 27 |
| 8 Rupee | 16 | 17 | 16 | 24 |
| 9 Rupee | 14 | 14 | 12 | 21 |

**Figure 2.6**

**Law of Equi – Marginal Utility**



The Law of Equi-marginal utility may also be explained with the help of a diagram. In Figure 2.6, X-axis represents expenditure in rupees on a good A, and Y-axis represents the corresponding marginal utility, per rupee spent, from that good. This gives a downward sloping curve (like MUa/Pa) for each good to which the consumer allocates a part of his expenditure. In Figure 2.6, we have four such curves. The consumer spends OA rupees on A, OB rupees on B, OC rupees on C, and OD rupees on D. The utility of the last rupee spent on each of the four goods is equal to OF.

## 2.5 Law of Demand

The law of demand describes the general tendency of consumers' behaviour in demanding a commodity in relation to the changes in its price. The law of demand expresses the nature of functional relationship between two variables of the demand relation, *viz.,* the price and the quantity demanded. It simply states that demand varies inversely to changes in price. The nature of this inverse relationship stressed by the law of demand which forms one of the best known and most significant laws in economics.

In other words, the demand for a commodity extends (*i.e.,* the demand rises) as the price falls and contracts (*i.e.,* demand falls) as the price rises. Or briefly stated, the law of demand stresses that, other things remaining unchanged, demand varies inversely with price.

The conventional law of demand, however, relates to the much simplified demand function:

$D = f(P)$

where, $D$ represents demand, $P$ the price and $f$, connotes a functional relationship. It, however, assumes that other determinants of demand are constant, and only price is the variable and influencing factor. The relation between price and quantity of demand is usually an inverse or negative relation, indicating a larger quantity demanded at a lower price and smaller quantity demanded at a higher price.

**Explanation of the Law of Demand**

From the view point of Managerial Economics, the law of demand should be referred to the market demand. The law of demand can be illustrated with the help of a market demand schedule, *i.e.*, as the price of a commodity decreases the corresponding quantity demanded for that commodity increases and *vice versa.*

**Table 2.3**

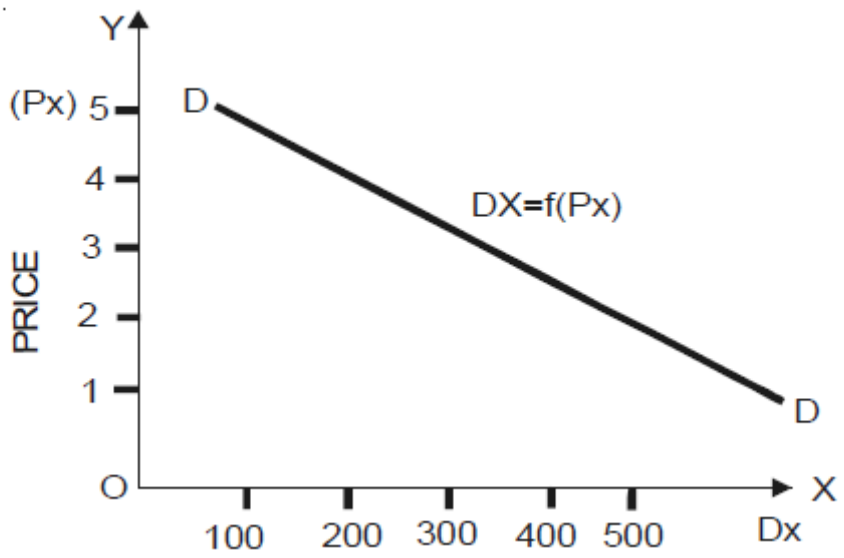
**A Market Demand Schedule (Imaginary Data)**

| Price of Commodity X (in Rs.) | Quantity Demanded (Units Per week) |
|---|---|
| 5 | 100 |
| 4 | 200 |
| 3 | 300 |
| 2 | 400 |
| 1 | 500 |

Table 2.3 represents a hypothetical demand schedule for commodity *X*. We can read from this table that with a fall in price at each stage demand tends to rise. There is an inverse relationship between price and the quantity demanded. Usually, economists draw a demand curve to give a pictorial presentation of the law demand. When the data of Table 2.3 are plotted graphically, a demand curve is drawn as shown in Figure 2.7.

**Figure 2.7**

**Demand for Commodity X (in units per week)**




In Figure 2.7, *DD* is a downward sloping demand curve indicating an inverse relationship between price and demand. Demand curve is a very convenient means of further economics analysis. From the given market demand curve one can easily locate the market demand for a product at a given price. Further, the demand curve geometrically represents the mathematical demand functions:

Dx = f (Px).

**Assumptions Underlying the Law of Demand**

The above stated law of demand is conditional. It is based on certain conditions as given. It is, therefore, always stated with the 'other things being equal.' It relates to the

change in price variable only, assuming other determinants of demand to be constant. The law of demand is, thus, based on the following ceteris paribus assumptions:

- ✓ **No change in consumer's income.** Throughout the operation of the law, the consumer's income should remain the same. If the level of a buyer's income changes, he may buy more even at a higher price, invalidating the law of demand.
- ✓ **No change in consumer's preferences.** The consumer's taste, habits and preferences should remain constant.
- ✓ **No change in the fashion.** If the commodity concerned goes out the fashion, a buyer may not buy more of it even at a substantial price of reduction.
- ✓ **No change in the price of related goods.** Prices of other goods like substitutes and supportive, *i.e.,* complementary or jointly demanded products remain unchanged. If the prices of other related goods change, the consumer's preferences would change which may invalidate the law of demand.
- ✓ **No expectation of future price changes or shortages.** The law requires that the given price change for the commodity is a normal one and has no speculative consideration. That is to say, the buyers do not expect any shortages in the supply of the commodity in the market and consequent future changes in the prices. The given price change is assumed to be final at a time.
- ✓ **No change in size, age composition and sex ratio of the population.** For the operation of the law in respect of total market demand, it is essential that the number of buyers and their preferences should remain constant. This necessitates that the size of population as well as the age structure and sex ratio of the population should remain the same throughout the operation of the law. Otherwise, if population changes, there will be additional buyers in the market, so the total market demand may not contract with a rise in price.
- ✓ **No change in the range of goods available to the consumers.** This implies that there is no innovation and arrival of new varieties of product in the market which may distort consumer's preferences.
- ✓ **No change in the distribution of income and wealth of the community.** There is no redistribution of incomes either, so that the levels of income of the consumers remain the same.
- ✓ **No change in government policy.** The level of taxation and fiscal policy of the government remains the same throughout the operation of the law. Otherwise, changes in income-tax, for instance, may cause changes in consumer's income or

commodity taxes (sales tax or excise duties) and may lead to distortion in consumer's preferences.

- ✓ **No change in weather conditions.** It is assumed that the climatic and weather conditions are unchanged in affecting the demand for certain goods like woolen clothes, umbrella, etc.

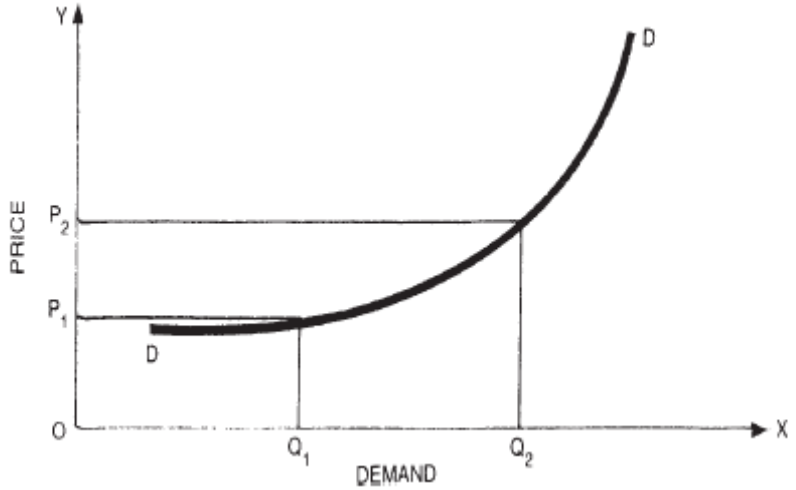
In short, the law of demand presumes that except for the price of the product, all other determinants of its demand are unchanged. Apparently, the validity of the law of demand or the inference about inverse relationship between price and demand depends on the existence of these conditions or assumption.

**Exceptions to the Law of Demand or Exceptional Demand Curve (Upward Sloping Demand Curve)**

It is almost a universal phenomenon of the law of demand that when the price falls, the demand extends and it contracts when the price rises. But sometimes, it may be observed, though, of course, very rarely, that with a fall in price, demand also falls and with a rise in price, demand also rises. This is a paradoxical situation or a situation which apparently is contrary to the law of demand. Cases in which this tendency is observed are referred to as exceptions to the general law of demand. The demand curve for such cases will be typically unusual. It will be upward sloping demand curve as shown in Figure 2.8. It is described as an exceptional demand curve.

**Figure 2.8**

**Exceptions Demand Curve: Upward Sloping Demand Curve**




Such upward sloping demand curves are unusual and quite contradictory to the law of demand as they represent the phenomenon that 'more will be demanded at a higher price and

vice versa.' The upward sloping demand curve thus, refers to the exceptions to the law of demand. There are a few such exceptional cases, which may be categorized as follows:

- ✓ **Giffen goods.** In the case of certain inferior goods called Giffen goods (named after Sir Robert Giffen), when the price falls, quite often less quantity will be purchased than before because of the negative income effect and people's increasing preference for a superior commodity with the rise in their real income. Probably, a few appropriate examples of inferior goods may be listed, such as staple foodstuffs like cheap potatoes, cheap bread, pucca rice, vegetable ghee, etc., as against superior commodities like good potatoes, cake, basmati rice and pure ghee.
- ✓ **Articles of snob appeal.** Sometimes, certain commodities are demanded just because they happen to be expensive or prestige goods, and have a 'snob appeal.' They satisfy the aristocratic desire to preserve exclusiveness for unique goods. These are generally ostentatious articles, and purchased by the fewer rich people or using them as 'status symbol.' It is observed that, when prices of such articles like, say diamonds, rise their demand also rises. Similarly, Rolls Royce cars are another outstanding illustration.
- ✓ **Speculation.** When people speculate about changes in the price of a commodity in the future, they may not act according to the law of demand at the present price say, when people are convinced that the price of a particular commodity will rise still further, they will not contract their demand with the given price rise: on the contrary, they may purchase more for the purpose of hoarding. In the stock exchange market, some people tend to buy more shares when their prices are rising, in the hope that the rising trend would continue, so they can make a good fortune in future.
- ✓ **Consumer's psychological bias or illusion.** When the consumer is wrongly biased against the quality of a commodity with the price change, he may contract this demand with a fall in price. Some sophisticated consumers do not buy when there is stock clearance sale at reduced prices, thinking that the goods may be of bad quality.

## 2.6 Types of Demand

There are three types of demand. They are

i) Price Demand
ii) Income Demand and
iii) Cross Demand

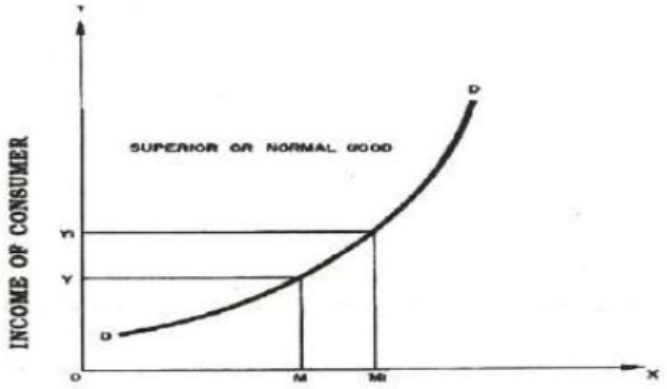
**i) Price Demand**

It refers to various quantities of the good which consumers will purchase at a given time and at certain hypothetical prices assuming that other conditions remain the same. We are generally concerned with price demand only. In the explanation of the law of demand given above, we dealt in detail with price demand only.

**ii) Income Demand**

**Figure 2.9**

**Quality Demand for Butter**

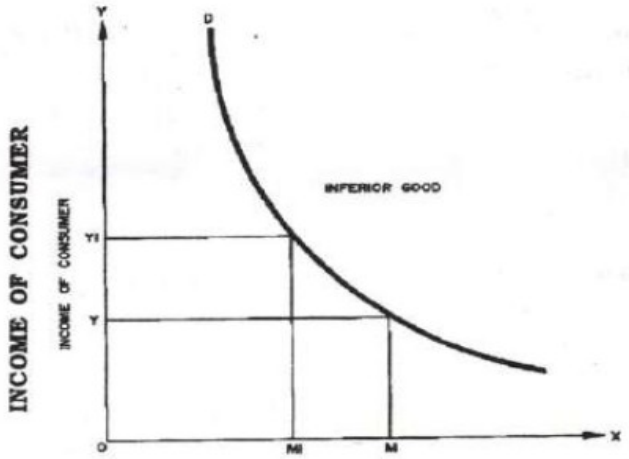



Income demand refers to various quantities of a good which consumers will purchase at different levels of income, other things being same. The other things which should remain the same include the price of the goods among others. The income demand schedule will show different incomes on the one side and the corresponding quantities of the good demanded on the other side. Usually, the larger the income of the consumer, the greater would be the quantity demanded of the good. This is particularly true in so far as superior goods, say, luxuries and comforts, are concerned. Figure 9 illustrates this. In the horizontal axis, the quantity demanded of the income of the consumer is represented.

When consumers' income is OY his demand is OM and when his income goes up to OYI, his demand increase to OMI. This is the case of a superior or normal good, say butter as in the present one.

**Figure 2.10**

**Quality Demand for Butter**

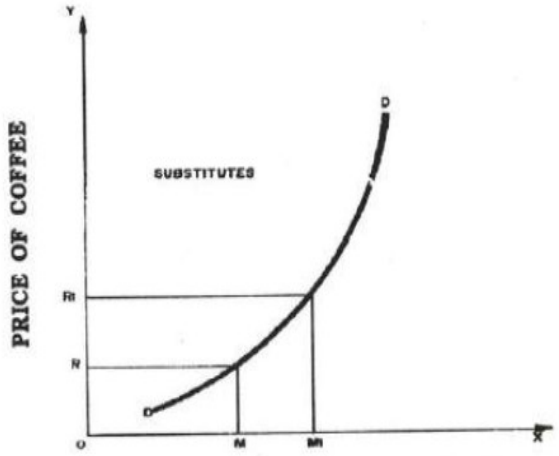



When a consumer acquires more income, his demand for basic necessaries, known as inferior goods, will come down. Whereas his demand for superior goods will go up. For example, when a person has more income, his demand for pulses, vegetables, butter, eggs, meat, etc. (known as superior goods) will rise and as a result his demand for wheat (known as inferior good) will decrease. The income demand for an inferior good, therefore, will have the shape of a negative slope as represented in Figure 10. The demand of the inferior good, wheat, comes down with an increase in income of the consumer. At OY income the demand is OM. But when income increases to OY1, the demand falls to OM1.

**iii) Cross Demand**

**Figure 2.11**

**Quality Demand for Tea**

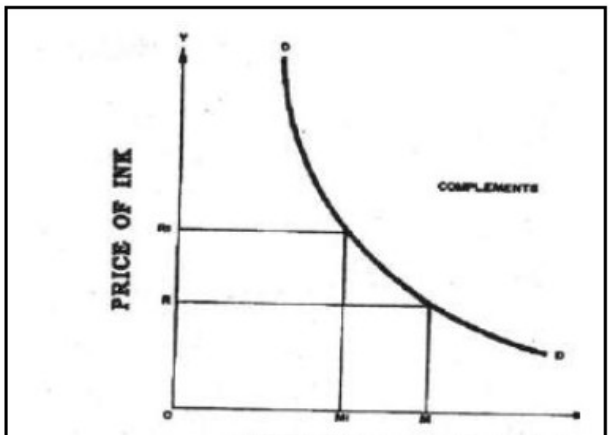



It refers to the various quantities of a good that consumers buy per unit of time at different prices of a related good, other things being equal. The other things which should

remain the same include consumer's income as well as the price of the good concerned among other things. The correlation between the demand of one good and the price of the related good may be either positive or negative, depending upon the manner in which the two goods are related to each other. The two goods may be substitutes (rivals for consumption) or complements. In the case of substitutes, since they satisfy the same want, it is true that the more the consumer purchases of one good, the less he would require of the other good. To give an example, tea and coffee being substitutes, when the price of coffee raises the consumers purchase less of coffee and instead they may buy more of tea. Thus a rise in the price of coffee increases the demand for tea. On the contrary a fall in the price of coffee may lessen the demand for tea because the consumers are now inclined to increase their consumption of coffee. The cross demand curve of tea in relation to the price of coffee will slope upwards to the right. It will have a positive slope as shown in Figure 11. When the price of coffee rises from OR to OR1, the demand for tea goes up from OM to OM1.

**Figure 2.12**

**Quality Demand for Pen**




Goods are many times jointly demanded to satisfy the same want and so the demand for one good will automatically lead to the demand for another good. They are known as complements, e.g. cups and saucers. car and petrol, pen and ink, bread and butter, etc. In the case of complements, the price of ink will have a negative or downward slope from left to right. It means that a fall in the price of ink will increase the demand for pens and the contrary is also true. When the price of ink falls from ORI to OR, the demand for pen increases from OM I to OM as illustrated in Figure 12.

## 2.7 Determinants of Demand

Demand for a commodity depends on a number of factors. Several factors may affect the individual demand for a product. Likewise, the market demand for a product is influenced by many factors. We shall identify some of the major determinants of demand as under:

**Factors Influencing Individual Demand**

An individual's demand for a commodity is generally determined by such factors as:

**i) Price of the Products**

Usually, price is a basic consideration in determining the demand for a commodity. Normally, a larger quantity is demanded at a lower price than at a higher price.

**ii) Income**

A buyer's income determines his/her purchasing capacity. Income is, therefore, an important determinant of demand. Obviously, with the increase in income one can buy more goods. Rich consumers usually demand more and more goods than poor customers. Demand for luxuries and expensive goods is related to income.

**iii) Tastes, Habits and Preferences**

Demand for many goods depends on the person's tastes, habits and preferences. Demand for several products like ice-cream, chocolates, beverages and so on depends on individual's tastes. Demand for tea, betel, cigarettes, tobacco, etc., is matter of habits.

People with different tastes and habits have different preferences for different goods. A strict vegetarian will have no demand for meat at any price, whereas a non vegetarian who has liking for chicken may demand it even at high price. Similar is the case with demand for cigarettes by non-smokers and smokers.

**iv) Relative Prices of Other Goods — Substitute and Complementary Products**

How much the consumer would like to buy of a given commodity, however, also depends on the relative prices of other related goods such as substitute or complementary goods to a commodity.

When a want can be satisfied by alternative similar goods, they are called substitutes. For example, peas and beans, groundnut oil and sunflower oil, tea and coffee etc., are substitutes of each other. The demand for a commodity depends on the relative price of its substitutes. If the substitutes are relatively costly, then there will be more demand for this commodity at a given price than in case of its substitutes are relatively cheaper.

Similarly, the demand for a commodity is also affected by its complementary product. In order to satisfy a given want, two or more goods are needed in combination, these goods

are referred to as complementary goods. For example, car and petrol, pen and ink, tea and sugar, shoes and socks, sarees and blouses, gun and bullets, etc., are complementary to each other. Complementary goods are always in joint demand. If a given commodity is a complementary product, its demand will be relatively high when its related commodity's price is lower than otherwise. Or, when the price of one commodity decreases, the demand for its complementary product will tend to increase and vice versa. For example, a fall in the price of cars will lead to an increase in the market demand for petrol.

**v) Consumer's Expectation**

A consumer's expectation about the future changes in the prices of a given commodity also may affect its demand. When he expects its prices to fall in future, he will tend to buy less at the present prevailing low price. Similarly, if he expects its price to rise in future, he will tend to buy more at present.

**vi) Advertisement Effect**

In modern times, the preferences of a consumer can be altered by advertisement and sales propaganda, albeit to a certain extent only. In fact, demand for many products like toothpaste, toilet soap, washing powder, processed foods, etc., is partially caused by the advertisement effect in a modern man's life.

**Factors Influencing Market Demand**

The market demand for a commodity originates and is affected by the form and change in the general demand pattern of the community of the people at large. The following factors affect the common demand pattern for a product in the market.

**i) Price of the Product**

At a low market price, market demand for the product tends to be high and vice versa.

**ii) Distribution of Income and Wealth in the Community**

If there is equal distribution of income and wealth, the market demand for many products of common consumption tends to be greater than in the case of unequal distribution.

**iii) Community's Common Habits and Scale of Preferences**

The market demand for a product is greatly influenced by the scale of preferences of the buyers in general. For example, when a large section of population shifts its preferences from vegetarian foods to non-vegetarian foods, the demand for the former will tend to decrease and that for the latter will increase.

**iv) General Standards of Living and Spending Habits of the People**

When people in general adopt a high standard of living and are ready to spend more, demand for many comforts and luxury items will tend to be higher than otherwise.

**v) Number of Buyers in the Market and the Growth of Population**

The size of market demand for a product obviously depends on the number of buyers in the market. A large number of buyers will usually constitute a large demand and vice versa. As such, growth of population over a period of time tends to imply a rising demand for essential goods and services in general.

**vi) Age Structure and Sex Ratio of the Population**

Age structure of population determines market demand for many products in a relative sense. If the population pyramid of a country is broad based with a large proportion of juvenile population, then the market demand for toys, school bags etc., *i.e.,* goods and services required by children will be much higher than the market demand for goods needed by the elderly people. Similarly, sex ratio has its impact on demand for many goods. An adverse sex ratio, *i.e.*, females exceeding males in number (or, males exceeding females as in Mumbai) would mean a greater demand for goods required by the female population than by the male population (or the reverse).

**vii) Future Expectations**

If buyers in general expect that prices of a commodity will rise in future, then present market demand would be more as most of them would like to hoard the commodity. The reverse happens if a fall in the future prices is expected.

**viii) Level of Taxation and Tax Structure**

A progressively high tax rate would generally mean a low demand for goods in general and vice versa. But, a highly taxed commodity will have a relatively lower demand than an untaxed commodity — if that happens to be a remote substitute.

**ix) 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, which as a result of innovations, definitely become obsolete. For example, the advent of electronic calculators has made adding machine obsolete.

**x) Fashions**

Market demand for many products is affected by changing fashions. For example, demand for commodities like jeans, salwar-kameej, etc., is based on current fashions.

**xi) Climate or Weather Conditions**

Demand for certain products is determined by climatic or weather conditions. For example, in summer, there is a greater demand for cold drinks, fans, coolers, etc. Similarly, demand for umbrellas and raincoats are seasonal.

**xii) Customs**

Demand for certain goods is determined by social customs, festivals, etc. For example, during Dipawali days, there is a greater demand for sweets and crackers, and during Christmas, cakes are more in demand.

**xiii) Advertisement and Sales Propaganda**

Market demand for many products in the present day is influenced by the sellers' efforts through advertisements and sales propaganda. Demand is manipulated through sales promotion. When these factors change, the general demand pattern will be affected, causing a change in the market demand as a whole. Of course, there is always a limit.

**Demand Function**

In demand analysis, one should recognise that at any point in time the quantity of a given product (good or service) that will be purchased by the consumers depends on a number of key variables or determinants. In technical jargon, it is stated in terms of demand function for the given product. A demand function in mathematical terms expresses the functional relationship between the demand for the product and its various determining variables.

In composing the demand function for a product, therefore, one should identify and enlist the most important factors (key variables) which affect its demand. To suggest a few, such as:

- ✓ The 'own price' of the product itself (P)
- ✓ The price of the substitute and complementary goods (Ps or Pc)
- ✓ The level of disposable income (Yd) with the buyers (i.e., income left after direct taxes)
- ✓ Change in the buyers' taste and preferences (T)
- ✓ The advertisement effect measured through the level of advertising expenditure (A)
- ✓ Changes in population number or the number of the buyers (N).

Using the symbolic notations, we may express the demand function, as follows:

$Dx = f(Px, Ps, Pc, Yd, T, A, N, u)$

Here, we assumed commodity X; hence, Dx represents the amount demanded for the commodity X and Px refers to the price of X. Further, u is incorporated to recognize 'other' unspecified/unknown determinants of the demand for commodity X.

The symbolic notations in stating the demand function are arbitrarily chosen and there is no hard and fast rule in their regard. Sometimes, even, $X1$, $X2$, $X3$…. $Xn$, etc., are used to

denote the determining variables. In symbolic terms, thus, the demand function can also be stated as under:

Qd = f (P,X1,X2…Xn)

Where, Qd = quantity demanded

P = price

X1, X2…Xn = other demand determinants

For easy comprehension, however, it is preferable to use alphabets easily connoting the particular factors, such as T is used for taste, Ps for price of substitute, A for advertising effect and so on.

In reality, the demand function is a complex phenomenon. Utmost care is thus needed in identification of the key determinants. Beside theoretical knowledge, long practical experience, correct perception and common sense play an important role in arriving at an appropriate demand function for a given product.

In economic theory, however, a very simple statement of demand function is adopted, assigning all other determining variables, except the own price of the product, to be constant. An over-simplified and the most commonly stated demand function is, thus:

Dx = f (Px)

which connotes that the demand for commodity X is the function of its price. The traditional demand theory deals with this demand function specifically.

It must be noted that by demand function, economists mean the entire functional relationship, i.e., the whole range of price-quantity relationship, and not just the amount demanded at a given price per unit of time. In other words, the statement, 'the amount demanded is a function of price' implies that for each possible price there is a different quantity demanded.

To put it differently, demand function for a commodity relates to the entire demand schedule, which shows the varying amounts purchased at alternative prices over a given time of period.

## 2.8 Elasticity of Demand

Elasticity of demand explains the relationship between a change in price and consequent change in amount demanded. "Marshall" introduced the concept of elasticity of demand. Elasticity of demand shows the extent of change in quantity demanded to a change in price.

In the words of "Marshall", "The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in the price and diminishes much or little for a given rise in Price"

Elastic demand: A small change in price may lead to a great change in quantity demanded. In this case, demand is elastic. In-elastic demand: If a big change in price is followed by a small change in demanded then the demand in "inelastic".

**Types of Elasticity of Demand**

There are three types of elasticity of demand:

i) Price elasticity of demand
ii) Income elasticity of demand
iii) Cross elasticity of demand

**i) Price Elasticity of Demand**

Marshall was the first economist to define price elasticity of demand. Price elasticity of demand measures changes in quantity demand to a change in Price. It is the ratio of percentage change in quantity demanded to a percentage change in price.

$$\text{Price elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity}}{\text{Proportionate change in the price of commodity}}$$

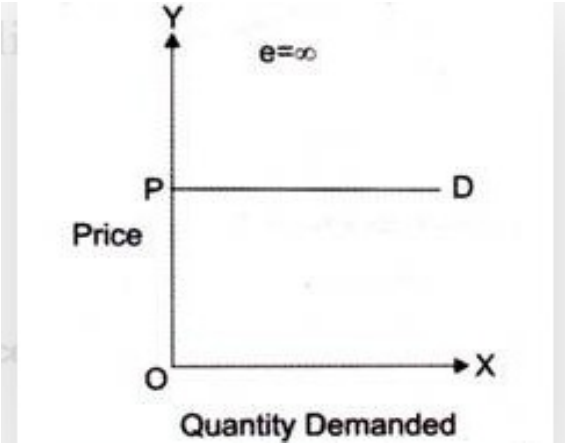
There are five cases of price elasticity of demand

**a) Perfectly Elastic Demand**

When small change in price leads to an infinitely large change is quantity demand, it is called perfectly or infinitely elastic demand. In this case E=∞

**Figure 2.13**

**Perfectly Elastic Demand**



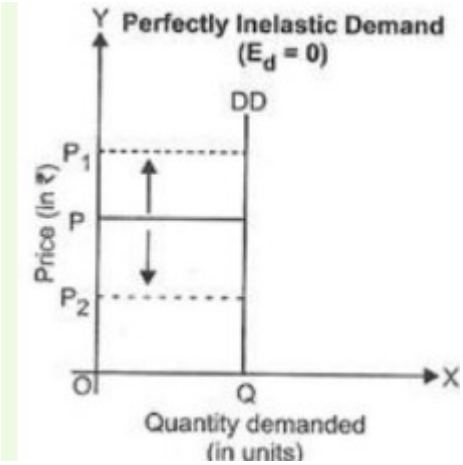
The demand curve DD1 is horizontal straight line. It shows the at "OP" price any amount is demand and if price increases, the consumer will not purchase the commodity.

**b) Perfectly Inelastic Demand**

Perfectly Inelastic Demand means that there is no change in the quantity of the product demanded when the price changes. This means that the supplier can charge whatever price they want and people will still be willing to buy that product.

**Figure 2.14**

**Perfectly Inelastic Demand**



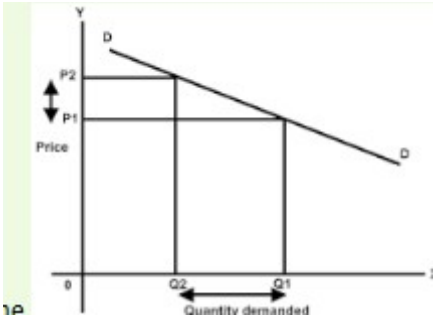

When price increases from 'OP' to 'OP', the quantity demanded remains the same. In other words the response of demand to a change in Price is nil. In this case 'E'=0.

**c) Relatively Elastic Demand**

Demand changes more than proportionately to a change in price. i.e. a small change in price loads to a very big change in the quantity demanded. In this case E > 1. This demand curve will be flatter.

**Figure 2.15**

**Perfectly Inelastic Demand**



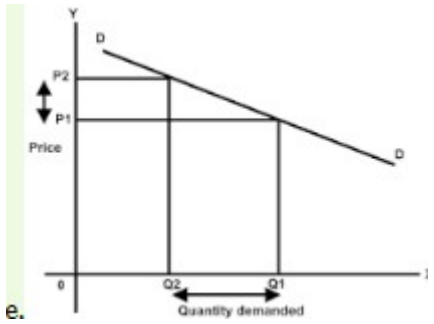

When price falls from 'OP' to 'OP', amount demanded increase from "OQ' to "OQ1' which is larger than the change in price.

**d) Relatively In-Elastic Demand**

Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here E < 1. Demanded carve will be steeper.

**Figure 2.16**

**Relatively In-Elastic Demand**




e.

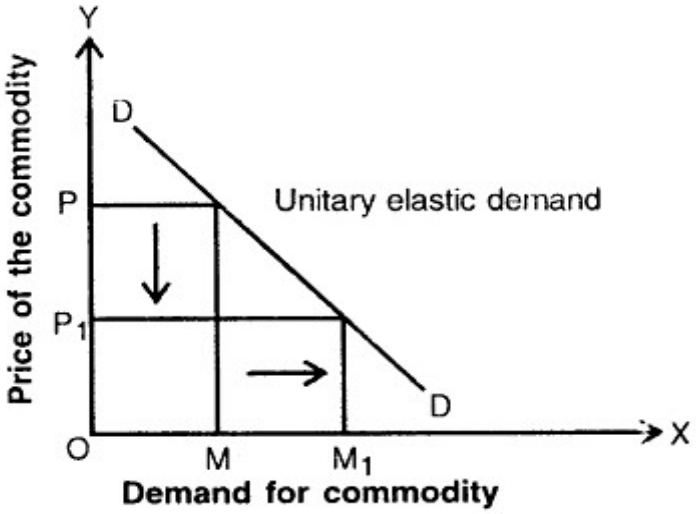
When price falls from "OP' to 'OP1 amount demanded increases from OQ to OQ1, which is smaller than the change in price.

**e) Unit elasticity of Demand**

The change in demand is exactly equal to the change in price. When both are equal E=1 and elasticity if said to be unitary.

**Figure 2.17**

**Unit elasticity of Demand**




When price falls from 'OP' to 'OP1' quantity demanded increases from 'OP' to 'OP1', quantity demanded increases from 'OQ' to 'OQ1'. Thus a change in price has resulted in an equal change in quantity demanded so price elasticity of demand is equal to unity.

**2. Income Elasticity of Demand**

Income elasticity of demand shows the change in quantity demanded as a result of a change in income. Income elasticity of demand may be slated in the form of a formula.

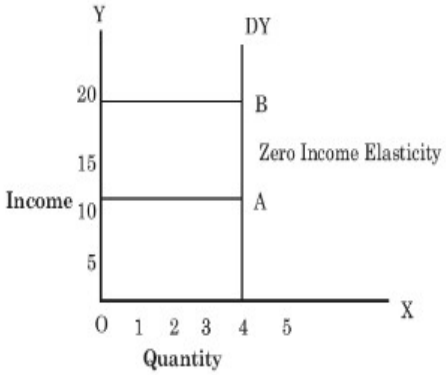
$$\text{Income Elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity}}{\text{Proportionate change in the income of the people}}$$

Income elasticity of demand can be classified in to five types.

**a) Zero Income Elasticity**

Quantity demanded remains the same, even though money income increases. Symbolically, it can be expressed as Ey=0. It can be depicted in the following way:

**Figure 2.18**
**Zero Income Elasticity**



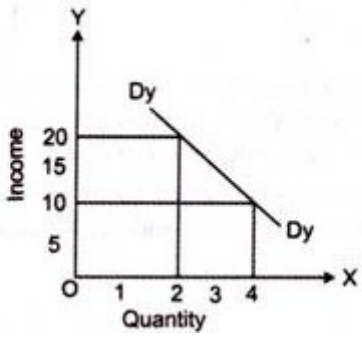

Zero income elasticity of demand

As income increases from OY to OY1, quantity demanded never changes.

**b) Negative Income Elasticity**

When income increases, quantity demanded falls. In this case, income elasticity of demand is negative. i.e., Ey < 0.

**Figure 2.19**
**Negative Income Elasticity**



When income increases from OY to OY1, demand falls from OQ to OQ1.

**c) Unit Income Elasticity**

When an increase in income brings about a proportionate increase in quantity demanded, and then income elasticity of demand is equal to one. Ey = 1

**Figure 2.20**

**Unit Income Elasticity**

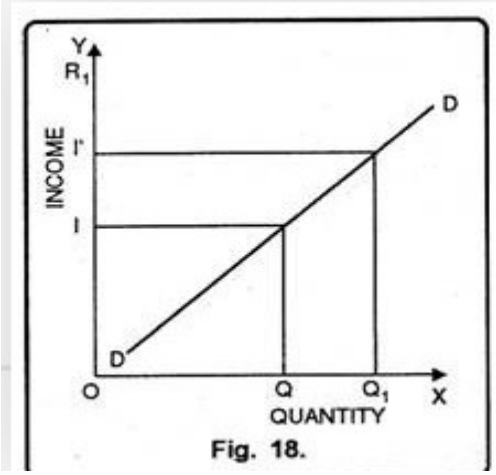



Fig. 18.

When income increases from OY to OY1, Quantity demanded also increases from OQ to OQ1.

**d) Income Elasticity Greater Than Unity:**

In this case, an increase in come brings about a more than proportionate increase in quantity demanded. Symbolically it can be written as Ey > 1.

**Figure 2.21**

**Income Elasticity Greater Than Unity**

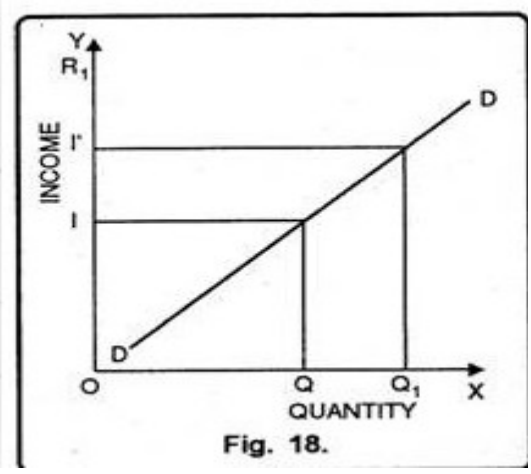



Fig. 18.

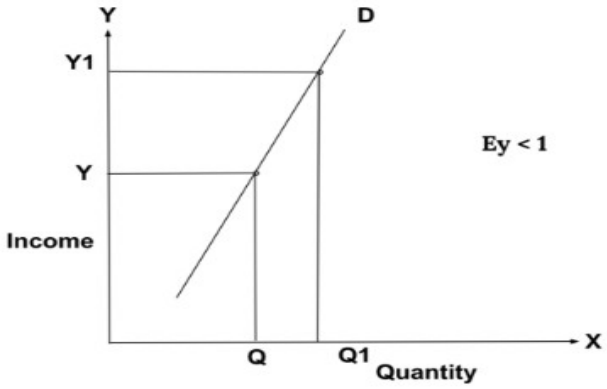
It shows high-income elasticity of demand. When income increases from OY to OY1, Quantity demanded increases from OQ to OQ1.

**e) Income Elasticity Leas than Unity**

When income increases quantity demanded also increases but less than proportionately. In this case E < 1.

**Figure 2.22**

**Income Elasticity Leas than Unity**




An increase in income from OY to OY, brings what an increase in quantity demanded from OQ to OQ1, But the increase in quantity demanded is smaller than the increase in income. Hence, income elasticity of demand is less than one.

**3. Cross Elasticity of Demand**

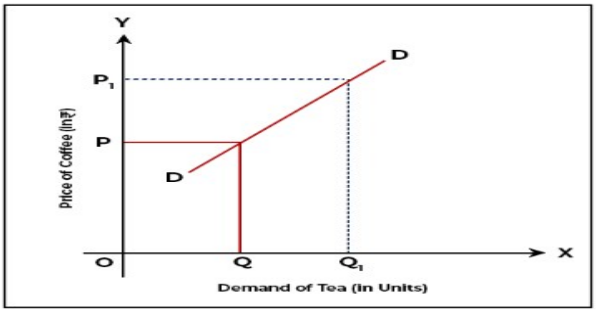
A change in the price of one commodity leads to a change in the quantity demanded of another commodity. This is called a cross elasticity of demand. The formula for cross elasticity of demand is:

$$\text{Cross elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity "X"}}{\text{Proportionate change in the price of commodity "Y"}}$$

**a) In case of Substitutes**, cross elasticity of demand is positive. Eg: Coffee and Tea When the price of coffee increases, Quantity demanded of tea increases. Both are substitutes.

**Figure 2.23**

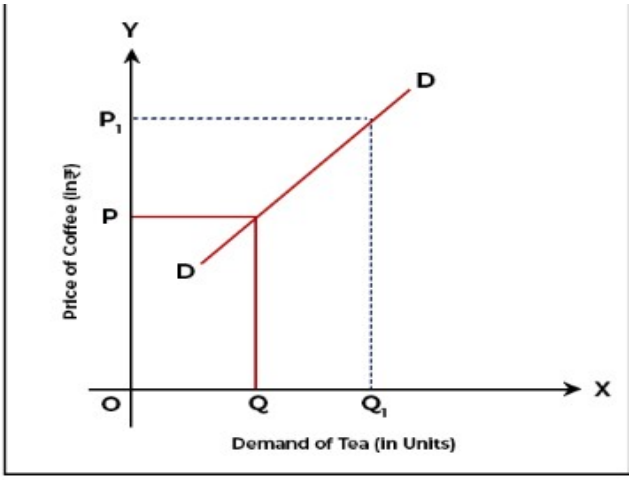
**In case of Substitutes**



**b) In case of Compliments**, cross elasticity is negative. If increase in the price of one commodity leads to a decrease in the quantity demanded of another and vice versa.

**Figure 2.24**

**In case of Compliments**

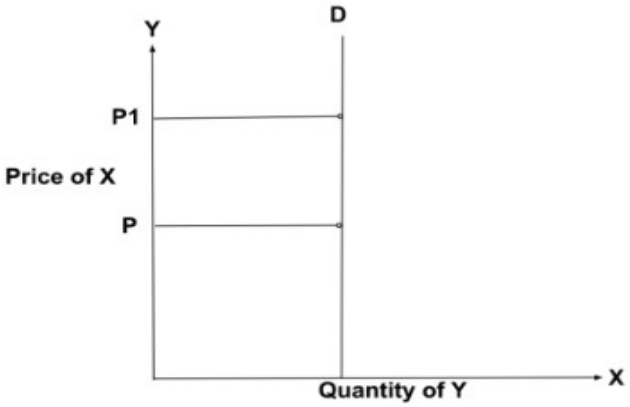



When price of car goes up from OP to OP!, the quantity demanded of petrol decreases from OQ to OQ!. The cross-demanded curve has negative slope.

**c) In Case Of Unrelated Commodities**, cross elasticity of demanded is zero. A change in the price of one commodity will not affect the quantity demanded of another.

**Figure 2.25**

**In Case Of Unrelated Commodities**




Quantity demanded of commodity "b" remains unchanged due to a change in the price of 'A', as both are unrelated goods.

**Importance of Elasticity of Demand**

- ✓ Elasticity is one of the important factors of defining the price of the commodity. If demand for a product is elastic, price is considerate and vice versa.

- ✓ Production function is highly dependent on elasticity of demand. Producers consider the production decision based on the elasticity of demand.
- ✓ Elasticity of demand is important for the factor of production. The elasticity of factors of productions lead to the bargain position of FOP.
- ✓ Elasticity of demand enables the government to decide on capital investment strategies regarding industries and other plants.
- ✓ This plays an important role in taxation and policies related to taxation. Government and policy makers consider the elasticity and behavior of goods for imposing tax on it. The nature of the commodity reflects the elasticity.

**Factors Influencing the Elasticity of Demand**

Elasticity of demand depends on many factors.

**1. Nature of Commodity**

Elasticity or in-elasticity of demand depends on the nature of the commodity i.e. whether a commodity is a necessity, comfort or luxury, normally; the demand for Necessaries like salt, rice etc is inelastic. On the other band, the demand for comforts and luxuries is elastic.

**2. Availability of Substitutes**

Elasticity of demand depends on availability or non-availability of substitutes. In case of commodities, which have substitutes, demand is elastic, but in case of commodities, which have no substitutes, demand is in elastic.

**3. Variety of Uses**

If a commodity can be used for several purposes, than it will have elastic demand. i.e. electricity. On the other hand, demanded is inelastic for commodities, which can be put to only one use.

**4. Postponement of Demand**

If the consumption of a commodity can be postponed, than it will have elastic demand. On the contrary, if the demand for a commodity cannot be postpones, than demand is in elastic. The demand for rice or medicine cannot be postponed, while the demand for Cycle or umbrella can be postponed.

**5. Amount of Money Spent**

Elasticity of demand depends on the amount of money spent on the commodity. If the consumer spends a smaller for example a consumer spends a little amount on salt and matchboxes. Even when price of salt or matchbox goes up, demanded will not fall. Therefore,

demand is in case of clothing a consumer spends a large proportion of his income and an increase in price will reduce his demand for clothing. So the demand is elastic.

**6. Time**

Elasticity of demand varies with time. Generally, demand is inelastic during short period and elastic during the long period. Demand is inelastic during short period because the consumers do not have enough time to know about the change is price. Even if they are aware of the price change, they may not immediately switch over to a new commodity, as they are accustomed to the old commodity.

**7. Range of Prices**

Range of prices exerts an important influence on elasticity of demand. At a very high price, demand is inelastic because a slight fall in price will not induce the people buy more. Similarly at a low price also demand is inelastic. This is because at a low price all those who want to buy the commodity would have bought it and a further fall in price will not increase the demand. Therefore, elasticity is low at very him and very low prices.

## 2.9 Demand Forecasting

The information about the future is essential for both new firms and those planning to expand the scale of their production. Demand forecasting refers to an estimate of future demand for the product. It is an 'objective assessment of the future course of demand". In recent times, forecasting plays an important role in business decision-making. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time. It is essential to distinguish between forecasts of demand and forecasts of sales. Sales forecast is important for estimating revenue cash requirements and expenses. Demand forecasts relate to production, inventory control, timing, reliability of forecast etc. However, there is not much difference between these two terms.

**Types of demand Forecasting**

Based on the time span and planning requirements of business firms, demand forecasting can be classified in to

i) Short-term demand forecasting and
ii) Long – term demand forecasting.

**i) Short-Term Demand Forecasting**

Short-term demand forecasting is limited to short periods, usually for one year. It relates to policies regarding sales, purchase, price and finances. It refers to existing

production capacity of the firm. Short-term forecasting is essential for formulating is essential for formulating a suitable price policy. If the business people expect of rise in the prices of raw materials of shortages, they may buy early. This price forecasting helps in sale policy formulation. Production may be undertaken based on expected sales and not on actual sales. Further, demand forecasting assists in financial forecasting also. Prior information about production and sales is essential to provide additional funds on reasonable terms.

**ii) Long – Term Forecasting**

In long-term forecasting, the businessmen should now about the long-term demand for the product. Planning of a new plant or expansion of an existing unit depends on longterm demand. Similarly a multi product firm must take into account the demand for different items. When forecast are mode covering long periods, the probability of error is high. It is vary difficult to forecast the production, the trend of prices and the nature of competition. Hence quality and competent forecasts are essential.

**Methods of Forecasting**

Several methods are employed for forecasting demand. All these methods can be grouped under survey method and statistical method. Survey methods and statistical methods are further subdivided in to different categories.

**i) Survey Method:** Under this method, information about the desires of the consumer and opinion of exports are collected by interviewing them. Survey method can be divided into four type's viz., Option survey method; expert opinion; Delphi method and consumers interview methods.

**a) Opinion Survey Method:** This method is also known as sales-force composite method (or) collective opinion method. Under this method, the company asks its salesman to submit estimate of future sales in their respective territories. Since the forecasts of the salesmen are biased due to their optimistic or pessimistic attitude ignorance about economic developments etc. these estimates are consolidated, reviewed and adjusted by the top executives. In case of wide differences, an average is struck to make the forecasts realistic. This method is more useful and appropriate because the salesmen are more knowledge. They can be important source of information. They are cooperative. The implementation within unbiased or their basic can be corrected.

**b) Expert Opinion Method:** Apart from salesmen and consumers, distributors or outside experts may also e used for forecasting. In the United States of America, the automobile companies get sales estimates directly from their dealers. Firms in advanced countries make

use of outside experts for estimating future demand. Various public and private agencies all periodic forecasts of short or long term business conditions.

**c) Delphi Method:** A variant of the survey method is Delphi method. It is a sophisticated method to arrive at a consensus. Under this method, a panel is selected to give suggestions to solve the problems in hand. Both internal and external experts can be the members of the panel. Panel members one kept apart from each other and express their views in an anonymous manner. There is also a coordinator who acts as an intermediary among the panelists. He prepares the questionnaire and sends it to the panelist. At the end of each round, he prepares a summary report. On the basis of the summary report the panel members have to give suggestions. This method has been used in the area of technological forecasting. It has proved more popular in forecasting. It has provided more popular in forecasting noneconomic rather than economic variables.

**d) Consumers Interview Method:** In this method the consumers are contacted personally to know about their plans and preference regarding the consumption of the product. A list of all potential buyers would be drawn and each buyer will be approached and asked how much he plans to buy the listed product in future. He would be asked the proportion in which he intends to buy. This method seems to be the most ideal method for forecasting demand.

**ii) Statistical Methods:** Statistical method is used for long run forecasting. In this method, statistical and mathematical techniques are used to forecast demand. This method relies on post data.

**a) Time Series Analysis or Trend Projection Methods:** A well-established firm would have accumulated data. These data are analyzed to determine the nature of existing trend. Then, this trend is projected in to the future and the results are used as the basis for forecast. This is called as time series analysis. This data can be presented either in a tabular form or a graph. In the time series post data of sales are used to forecast future.

**b) Barometric Technique:** Simple trend projections are not capable of forecasting turning paints. Under Barometric method, present events are used to predict the directions of change in future. This is done with the help of economics and statistical indicators. Those are (1) Construction Contracts awarded for building materials (2) Personal income (3) Agricultural Income. (4) Employment (5) Gross national income (6) Industrial Production (7) Bank Deposits etc.

**c) Regression and Correlation Method:** Regression and correlation are used for forecasting demand. Based on post data the future data trend is forecasted. If the functional relationship is analyzed with the independent variable it is simple correction. When there are several

independent variables it is multiple correlation. In correlation we analyze the nature of relation between the variables while in regression; the extent of relation between the variables is analyzed. The results are expressed in mathematical form. Therefore, it is called as econometric model building. The main advantage of this method is that it provides the values of the independent variables from within the model itself.

**Check Your Progress**

**Choose the Correct Answer:**

1. **Demand refers to**

   a) Desire for a product only

   b) Desire supported by willingness and ability to pay

   c) Need without money

   d) Production of goods

   **Answer: b) Desire supported by willingness and ability to pay**

2. **The law of demand states that**

   a) Price and demand move in the same direction

   b) Price and demand move in opposite directions

   c) Demand is constant

   d) Supply equals demand

   **Answer: b) Price and demand move in opposite directions**

3. **Which of the following is a determinant of demand?**

   a) Income of consumers

   b) Price of related goods

   c) Consumer preferences

   d) All of the above

   **Answer: d) All of the above**

4. **Marginal utility refers to**

   a) Total satisfaction from consumption

b) Additional satisfaction from consuming one more unit

c) Maximum utility

d) Average satisfaction

**Answer: b) Additional satisfaction from consuming one more unit**

5. **The law of diminishing marginal utility states that**

a) Utility increases continuously

b) Marginal utility decreases as consumption increases

c) Utility remains constant

d) Utility becomes zero immediately

**Answer: b) Marginal utility decreases as consumption increases**

6. **Indifference curve analysis was developed by**

a) Hicks and Allen

b) Marshall

c) Adam Smith

d) Keynes

**Answer: a) Hicks and Allen**

7. **An indifference curve shows**

a) Different combinations of two goods giving equal satisfaction

b) Price of goods

c) Consumer income

d) Production level

**Answer: a) Different combinations of two goods giving equal satisfaction**

8. **Elasticity of demand measures**

a) Change in supply

b) Responsiveness of demand to change in price

c) Production cost

d) Market competition

**Answer: b) Responsiveness of demand to change in price**

9. **Demand forecasting refers to**

a) Estimating future demand for a product

b) Reducing production

c) Increasing cost

d) Predicting supply

**Answer: a) Estimating future demand for a product**

10. **Which type of demand occurs when two goods are used together?**

a) Joint demand

b) Composite demand

c) Derived demand

d) Competitive demand

**Answer: a) Joint demand**

**Small Questions – LOCF Mapping Table**

| S.No | Small Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | What is demand? | CO1 | Remember | PO1 |
| 2 | State the law of demand. | CO1 | Understand | PO1 |
| 3 | What are the determinants of demand? | CO2 | Understand | PO2 |
| 4 | What is elasticity of demand? | CO2 | Remember | PO2 |
| 5 | What is demand forecasting? | CO3 | Understand | PO3 |

**Big Questions – LOCF Mapping Table**

| S.No | Big Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | Explain the theory of consumer behavior with reference to marginal utility analysis. | CO1 | Understand | PO1 |
| 2 | Discuss the indifference curve analysis and its assumptions. | CO2 | Analyze | PO2 |
| 3 | Explain the meaning and law of demand with suitable examples. | CO1 | Understand | PO2 |
| 4 | Discuss the determinants and types of demand. | CO2 | Analyze | PO3 |
| 5 | Explain the concept of elasticity of demand and demand forecasting. | CO3 | Evaluate | PO4 |

# UNIT – III

## Structure:


## 3.1 Introduction

## 3.2 Factors of Production

## 3.3 Production Function

## 3.4 Law of Diminishing Returns (Law of Variable Proportions)

## 3.5 Economies of Scale

## 3.6 Cost Concepts

## 37 Cost Function

## 3.8 Cost Output Relationship

## 3.9 Revenue

## 3.9 Supply Analysis


## 3.1 Introduction

Production implies provision of goods and services, often described as 'commodities.' In technical sense, production is the transformation of resources into commodities overtime and/or space. To put it simply, production is the act of converting or transforming input into output. The act of production is technically carried out by a firm. A firm is a business unit which undertakes the activity of transforming inputs into outputs of goods and services. In the production process, a firm combines various inputs in different quantities and proportions to produce different levels of outputs. Production is a flow concept. It is measured as a rate of output per unit of time.

**Meaning of Production**

Production is another important economic activity. It directly or indirectly satisfies the wants and needs of the people. Satisfaction of human wants is the objective of production. Production is the conversion of input into output. The factors of production and all other things which the producer buys to carry out production are called inputs. The final goods and services produced are known as output. In economics, the term production is not the same as in common language where it is usually taken to mean 'creation' of something. In economics, the term production carries a wider connotation. It stands for creation of 'value', which can be of two varieties, namely 'use value' and 'exchange value'. Thus, production is the activity which creates or adds utility and value.

According to Edwood Buffa, “Production is a process by which goods and services are created”.

## 3.2 Factors of Production

The resources needed to produce a given product are called factors of production. Production of goods and services needs various inputs which are known as ‘Factors of Production’, ‘Agents of Production’, ‘Productive Resources’ or sometimes even ‘Productive Services’. According to Marshall, the four major factors of production are:

i) Land
ii) Labour
iii) Capital
iv) Entrepreneurship

The level of production depends upon both the quantity of inputs and the efficiency with which they are employed in the process of production. It is also noteworthy that economic growth of a country, in a way, represents its productive capacity which, in turn, depends upon the technology and amounts of productive resources.

**i) Land**

Land is not created by mankind but it is a gift of nature available to us free of cost. So, it is called as natural factor of production. It is also called as original or primary factor of production. Normally, land means surface of earth. But in economics, land has a wider meaning.

Land includes earth’s surface and resources above and below the surface of the earth. It includes following natural resources :-

- ✓ On the surface (e.g. soil, agricultural land, etc.)
- ✓ Below the surface (e.g. mineral resources, rocks, ground water, etc.)
- ✓ Above the surface (e.g. climate, rain, etc.)

Land is the sum total of those productive resources which are provided ‘free of cost’ by nature to us that is to say those resources on which no human effort has been expended to make them actually usable in a productive process

The salient features of land are highlighted below.

- ✓ Land is a free gift of nature to mankind. It is not a man-made factor but is a natural factor.
- ✓ Land is primary factor of production.

- ✓ Supply of land is perfectly inelastic i.e. fixed in quantity. Neither it can be increased nor decreased.
- ✓ Land is a passive factor in the sense that it cannot produce anything of its own. It needs help of Labour, Capital, Entrepreneur, etc.
- ✓ There is no social cost of land since; it is a gift of nature to society. It is not created by society by putting any efforts and paying any price. So its supply price for society is zero. At the same time, the supply price for individual is not zero.
- ✓ Land is a perfectly immobile factor.
- ✓ Economic reward for the use of land is rent.

**ii) Labour**

The term labour is used to mean several things and can be a source of great deal of vagueness and imprecise statements. The term labour refers to only human effort (or activity) which can be physical, mental or a mixture of the two. It does not include the work performed by animals or machines or nature.

Labour lately is known as human resource. All companies need labor in order to carry out production. Everyone from the manual workers, to the owner of the company falls under the classification of human resources. Without this factor, there would be no production because nobody would be working. The salient features of labour are highlighted below.

- ✓ Labour cannot be separated from laborers. Worker sells their service and doesn't sell themselves.
- ✓ Labour cannot be stored. Once the labour is lost, it cannot be made up. Unemployed workers cannot store their labour for future employment.
- ✓ Labour is an active factor of production unlike land.
- ✓ Labour is heterogeneous. No two persons possess the same quality of labour. Skills and efficiency differs from person to person. So, some workers are more efficient and productive than others in the same job.
- ✓ Labour is an imperfectly mobile factor.
- ✓ Labour supply is inelastic in general. Supply of labour depends upon many factors like size of population, age and sex composition, desire to work, quality of education, attitude towards work, etc. Thus, supply cannot be changed easily according to changes in demand.
- ✓ The amount of labour is the product of (i) duration of time over which it is performed and (ii) the intensity with which it is performed.

Supply of labour in a country refers to

- ✓ the total number of workers available for labour
- ✓ the intensity with which they can work
- ✓ the duration for which they work
- ✓ their efficiency ( or productivity )

**iii) Capital**

Capital is another important factor which plays a huge role in the production. Capital includes things like tools, machines, and other things that a business uses in order to produce their goods or services. At some level, all companies rely on their capital in order to run successfully. Without these things, the company would be unable to carry out production.

The term capital may mean different in different disciplines; in economics, capital is that part of wealth which is used for production. It is one of the factors of production/ input. The word capital in economics may mean either of the three;

- ✓ assets
- ✓ money/ wealth
- ✓ income

The salient features of capital are highlighted below.

- ✓ Capital is not a gift of nature. It is manmade, secondary as well as an artificial factor of production.
- ✓ Capital helps in increasing level of productivity and speed of production.
- ✓ Supply of capital is relatively elastic.
- ✓ Capital is not perishable like labour. It has a long life subject to periodical depreciation.
- ✓ Capital is a perfectly mobile factor.
- ✓ Capital has a social cost. Capital as a resource has alternative uses. It can be put to either of the uses. The society in order to have one of them sacrifices another; accounting it as social cost.

**iv) Entrepreneurship**

Factors of production viz. land, labour and capital are scattered at different places. These cannot produce economic goods and services by themselves. They have to be brought together and, in a coordinated way, made to pass through a productive process to create output. According to Kaldor, entrepreneurship consists of three major functions, viz, coordination, management and supervision. All these factors have to be assembled together. This work is done by enterprise through entrepreneur. This is the function of an entrepreneur; to bring the required factors together and making them work harmoniously.

This final factor of production of entrepreneurship involves the activity right from start of the business to assembling of other factors in order to carry out production smoothly. It is not possible for an entrepreneur to start production process without other factors of production viz. land, labour, capital. Entrepreneurship is an independent factor of production. The salient features of an entrepreneur as a factor of production are highlighted below.

- ✓ Entrepreneur should be able to plan, organize, manage and allocate other primary factors of production efficiently.
- ✓ Entrepreneur should be able to define objective precisely.
- ✓ Entrepreneur should be able to deal with numerous risks involved in entrepreneurship.
- ✓ Entrepreneur should be able to incorporate innovation and adopt modern techniques of production.
- ✓ Entrepreneur should be able to take decisions promptly. Quick decisions are expected but hasty decisions may be avoided.

## 3.3 Production Function

The rate of output of a commodity functionally depends on the quantity of inputs used per unit of time. The technological-physical relationship between inputs and outputs is referred to as the production function. Basically, production function is an engineering concept, but it is widely used in business economics for studying production behaviour. "The production function is the name given to the relationship between rates of input of productive services and the rate of output of product. It is the economist's summary of technical knowledge"

**Definitions**

According to **Prof. L.R. Klein** "The production function is a technical or engineering relation between input and output. As long as the natural laws of technology remain unchanged, the production function remains unchanged."

In the words of **Prof. Koutsoyiannis** "The production function is purely a technical relation which connects factor inputs and output."

**Prof. Watson** says, "The relation between a firm's physical production (output) and the material factors of production (inputs)."

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

**Attributes of Production Function**

**i) Flow Concept**

A production function is a flow concept. It relates to the flow of inputs and the resulting flows of output of a commodity during a period of time. Here, time is taken to be functional or operational time period.

**ii) Physical Concept**

A production function is a technical relationship between inputs and outputs expressed in physical terms and not in terms of a monetary unit, such as rupee or dollar.

**iii) State of Technology and Inputs**

It implies that the production of a firm depends on the state of technology and inputs. Technology refers to the sum total of knowledge of the means and methods of producing goods and services. It is the society's knowledge concerning the industrial and agricultural arts. It includes methods of organisation and techniques of production. Input refers to anything that is used by the firm in the process of production. Thus, inputs include every type of productive resource — land, labour, capital, etc., also time and human energy as well as knowledge which are employed by the firm for producing a commodity. The set of factor inputs in a production function has the following important characteristics.

**iv) Inputs** (a, b, c, d...n) are complementary in nature as their combined productive services are transformed into production of a specific commodity.

**v) Some inputs are substitutes to one another**

Thus, for example, if a and b are substitutable factors, a may be increased instead of b. The a is fixed while b is variable at a time. In practice, however, factors like labour and capital, are not perfectly substitutable, but there may be sufficiently high degree of substitutability.

**vi) Some inputs may be specific**

Particularly, highly specialised factors are of specific use, as they have least degree of substitutability.

**vii) Factors Combination for the Maximum Output**

The concept of a production function in economic analysis is viewed to indicate something more than just a technical relationship. It is taken to be the technical relationship showing the maximum output that can be produced by a specific set of combination of factor inputs. From the economic point of view, the rational firm is interested not in all the numerous possible levels of output corresponding to the different combinations of factor inputs,but only that combination which yields maximum output.

**viii) Short-run and Long-run Production Function**

Fixity or variability of factors depends on the functional time period under consideration. On functional criteria, there are short period and long period. Correspondingly, we have a short-run and long-run production functions. Short-run production function pertains to the given scale of production. Long-run production function pertains to the changing scale of production.

**Time Element and Production Functions**

The functional relationship between changes in input and consequent changes in output depends on the time element short-run and long-run time periods. This time element considered here is the functional or operational time period.

**i) The Short-run**

The term "short-run" is defined as a period of time over which the inputs of some factors of production cannot be varied. Factors which cannot be altered in the short-run are called fixed factors. Thus, by definition, in the short period, some factors are fixed and some are variable. Elements of capital such as plant, machinery and equipment are generally fixed in the short-run. But a fixed factor can also be land or the manager or administrative staff. In the short period, thus, the output is produced with a given scale of production, *i.e.*, the size of plant or firm remaining unchanged.

Again, short-run production implies a restricted set of choices open to the firm on account of inelasticity of fixed factors. Hence, in the short-run period, output can be varied only by varying the variable factors combined with the given set of fixed factor inputs.

**Short-run Production Function**

By definition, in the short period, the production function includes fixed and variable components of inputs. At least one significant factor is fixed over the short period. Algebraically, thus, short-run production function may be stated as under:

$Q, = f(a/p0, c0, \ldots n0, T)$

where, stroke (/) divides between variable and fixed components. Subscript *0* at the top is used to denote fixed factors. Thus, *a, b, c* are quantities of fixed factors. Technology (*T*–) is, obviously, held constant.

**ii) The Long-run**

The term "long-run" is defined as a period of time long enough to permit variations in the inputs of all factors of production employed by a firm. In other words, the long period is such a time period over which all factors become variable. Thus, there is no distinction between fixed and variable factors in the long-run, as all factors become variable factors. Adjustment between factors can be easily brought about in the long-run. The size of plant which is usually fixed in the short period can be varied in the long-run; hence, the scale of production can be varied only in the long-run. Thus, in the long-run, there is a full scope for adjustment between factors in the production process.

Long-run (normal period) is associated with the change in the scale of production, assuming the basic technology of production to be constant. Again, the long-run being related to operational time involved in altering the fixed factors (of short period), does not correspond to a specific period of time.

**Long-run Production Function**

In the long-run, the firm operates with the changing scale of output and its size as a whole is varied. Thus, long-run production can be stated as under:

$Q = f(a, b, c, \ldots\ldots, n, T)$

It is evident that there is no dichotomy of inputs in the long-run, as all factors are denoted as variable components in production. However, for analytical convenience, *T*, the state of technology, is held constant.

**Cobb-Douglas Production Function**

One of the important tool of statistical analysis in production function that measures the relation between changes in physical input is Cobb-Douglas production function. The concept was originated in USA. This is more peculiar to manufacturing concerns. The cob-Douglas formula says that labour contributes about 75% increases in manufacturing production while capital contributes only 25%. The formula is as follows:-

$$O = KL^{a}C\ (1\text{-}a)$$

Where O is output. L is the quantity of labour "C" is the quantity of capital employed K and a ($a<1$) are positive constants. a and 1-a measure percentage response of output to percentage change in labour and capital respectively.

The production function shows at One (1%) percentage change in labour, capital remaining constant, is associated with 0.75% change in output. Similarly One percentage change in capital, labour remaining constant, is associated with a 20% change in output.

Returns to scale are constant. That is if factors of production are increased, each by 10 percentage then the output also increases by 10 percentage.

**The laws of Production**

Production function shows the relationship between a given quantity of input and its maximum possible output. Given the production function, the relationship between additional quantities of input and the additional output can be easily obtained. This kind of relationship yields the law of production. The traditional theory of production studies the marginal input-output relationship under (I) Short run; and (II) long run. In the short run, input-output relations are studied with one variable input, while other inputs are held constant. The Law of production under these assumptions are called "the Laws of variable production". In the long run input output relations are studied assuming all the input to be variable. The long-run input output relations are studied under `Laws of Returns to Scale.

## 3.4 Law of Diminishing Returns (Law of Variable Proportions)

The Laws of returns states the relationship between the variable input and the output in the short term. By definition certain factors of production (e.g.-Land, plant, machinery etc.,) are available in short supply during the short run. Such factors which are available in unlimited supply even during the short periods are known as variable factor. In short-run therefore, the firms can employ a limited or fixed quantity of fixed factors and an unlimited quantity of the variable factor. In other words, firms can employ in the short run varying quantities of variable inputs against given quantity of fixed factors. This kind of change in input combination leads to variation in factor proportions. The Law which brings out the relationship between varying factor properties and output are therefore known as the Law of variable proportions.

The variation in inputs lead to a disproportionate increase in output more and more units of variable factor when applied cause an increase in output but after a point the extra output will grow less and less. The law which brings out this tendency in production is known as "Law of Diminishing Returns".

The Law of Diminishing returns levels that any attempt to increase output by increasing only one factor finally faces diminishing returns. The Law states that when some factor remain constant, more and more units of a variable factor are introduced the production may increase initially at an increasing rate; but after a point it increases only at diminishing rate. Land and capital remain fixed in the short-term whereas labour shows a variable nature. The following table explains the operation of the Law of Diminishing Returns.

**Table 3.1**

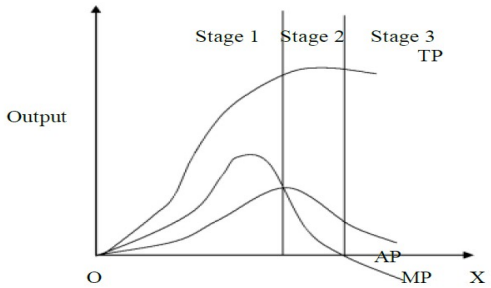
**Law of Diminishing Returns**

| No. of Workers | Total Product | Average Product | Marginal Product |
|---|---|---|---|
| 1 | 10 | 10 | 10 |
| 2 | 22 | 11 | 12 |
| 3 | 36 | 12 | 14 |
| 4 | 52 | 13 | 16 |
| 5 | 66 | 13.2 | 14 |
| 6 | 76 | 12.7 | 10 |
| 7 | 82 | 11.7 | 6 |
| 8 | 85 | 10.5 | 3 |
| 9 | 85 | 9.4 | 0 |
| 10 | 83 | 8.3 | (-2) |

The above table illustrates several important features of a typical production function. With one variable input - here both **Average Product (AP)** and **Marginal Product (MP)** first rise, reach a maximum – then decline. Average product is the product for one unit of labour. It is arrived at by dividing the **Total Product (TP)** by number of workers Marginal product is the additional product resulting term additional labour. It is found out by dividing the change in total product by the change in the number of workers. The total output increases at an increasing rate till the employment of the 4$^{th}$ worker. The rate of increase in the marginal product reveals this. Any additional labour employed beyond the 4$^{th}$ labour clearly faces the operation of the Law of Diminishing Returns. The maximum marginal product is 16 after which it continues to fall, ultimately becoming negative. Thus when more and more units of labour are combined with other fixed factors the total output increase first at an increasing rate then at a diminishing rate finally it becomes negative. The graphical representation the above table is shown below:

**Figure 3.1**

**Law of Diminishing Returns**




**No. of Worker**

OX axis represents the units of labour and OY axis represents the unit of output. The total output (TP) curve has a steep rise till the employment of the 4th worker. This shows that the output increases at an increasing rate till the employment of the 4th labour. TP curve still goes on increasing but only at a diminishing rate. Finally TP curve shows a downward trend.

The Law of Diminishing Returns operation at three stages. At the first stage, total product increases at an increasing rate. The marginal product at this stage increases at an increasing rate resulting in a greater increases in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage. The Law of increasing Returns operates from the second stage onwards. At the second stage, the total product continues to increase but at a diminishing rate. As the marginal product at this stage starts falling, the average product also declines. The second stage comes to an end where total product become maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline in the third stage.

**Assumptions of Law Diminishing Returns**

The Law of Diminishing Returns is based on the following assumptions;-

- ✓ The production technology remains unchanged.
- ✓ The variable factor is homogeneous.
- ✓ Any one factor is constant.
- ✓ The fixed factor remains constant.

**Law of Returns to scale**

In the long-run all the factor of production are variable and an increase in output is possible by increasing all the inputs. The Law of Returns to scale explains the technological relationship between changing scale of input and output. The law of returns of scale explain how a simultaneous and proportionate increase in all the inputs affect the total output. The increase in output may be proportionate, more than proportionate or less than proportionate. If the increase in output is proportionate to the increase in input, it is constant Returns to scale. If it is less then proportionate it is diminishing returns to scale. The increasing returns to the scale comes first, then constant and finally diminishing returns to scale happens.

**Increasing Returns to scale**

When proportionate increase in all factor of production results in a more than proportionate increase in output and this results first stage of production which is known as increasing returns to scale. Marginal output increases at this stage. Higher degree of

specialization, falling cost etc., will lead higher efficiency which result increased returns in the very first stage of production.

**Causes of Increasing Returns**

- ✓ The main reason for increasing returns in the first stage is that in the beginning the fixed factors are larger in quantity than the variable factor. When more units of the variable factor are applied to a fixed factor, the fixed factor is used more intensively and production increases rapidly.
- ✓ In the beginning, the fixed factor cannot be put to the maximum use due to the non-applicability of sufficient units of the variable factor. But when units of the variable factor are applied in sufficient quantities, division of labour and specialization lead to per unit increase in production and the law of increasing returns operates.
- ✓ Another reason for increasing returns is that the fixed factors are indivisible which means that they must be used in a fixed minimum size. When more units of the variable factor are applied on such a fixed factor, production increases more than proportionately. This points towards the law of increasing returns.

**Constant Returns to scale**

Firms cannot maintain increasing returns to scale indefinitely after the first stage, firm enters a stage when total output tends to increase at a rate which is equal to the rate of increase in inputs. This stage comes in to operation when the economies of large scale production are neutralized by the diseconomies of large scale operation.

**Diminishing Returns to Scale**

In this stage, a proportionate increase in all the input result only less than proportionate increase in output. This is because of the diseconomies of large scale production. When the firm grows further, the problem of management arise which result inefficiency and it will affect the position of output.

**Isoquant Curve**

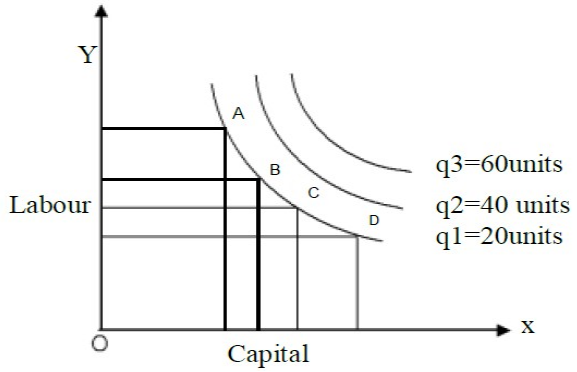
The terms “Iso-quant” has been derived from the Greek word ‘iso’ means ‘equal’ and Latin word ‘quantus’ means ‘quantity’. The iso-quant curve is therefore also known as ‘equal product curve’ or production indifference curve. An iso-quant curve is locus of point representing the various combination of two inputs–capital and labour–yielding the same output. It shows all possible combination of two inputs, namely - capital and labour which can produce a particular quantity of output or different combination of the two inputs that can give in the same output. An isoquant curve all along its length represents a fixed quantity of output. The following table illustrates combination of capital (K) and labour (L) which give

the same output say – 20 units. The combinations of A uses one unit of "K" and 12 units of "L" to produce is 20 units. Likewise, the combinations B, C, D and E give the same output -20 units.

**Table 3.2**

| Combination | Capital | Labour | Output |
|---|---|---|---|
| A | 1 | 12 | 20 |
| B | 2 | 8 | 20 |
| C | 3 | 5 | 20 |
| D | 4 | 3 | 20 |
| E | 5 | 2 | 20 |

**Figure 3.2**




The above curve shows the four different combinations of inputs. (Capital and Labour) which give the same output namely 20 units, 40 units, 60 units respectively. Thus it provides fixed level of output. Further the shape of isoquants reveal the degree of substitutability of one factor for another to yield the same level of output. It also implies the diminishing marginal rate of technical substitution. Marginal rate of technical substitution refers to the rate at which one output can be substituted for another in order to keep the output constant. The slope of an isoquant indicates the marginal rate of technical substitution at the point.

**Properties of Isoquants**

- ✓ Isoquants have a negative slope: An isoquant has a negative slope in the economic region or in the relevant range. Economic region means where substitution between input is technically possible that keeps same output.
- ✓ Isoquants are convex to origin: Convex nature of Isoquant shows the substitutability of one factor for another and the diminishing marginal rate of technical substitution.
- ✓ Isoquant cannot Intersect or be tangent to each other.

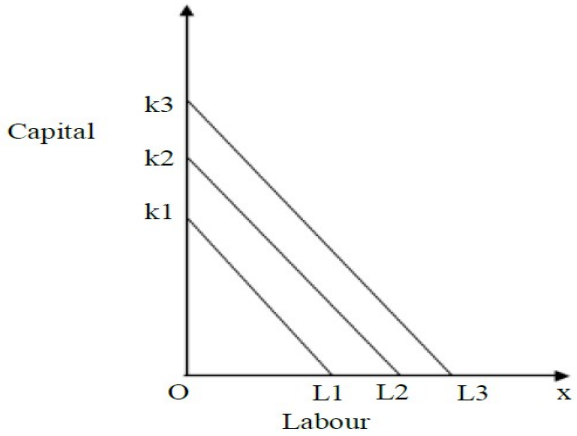
**Marginal Rate of Technical substitution (MRTS)**

MRTS is the rate at which marginal unit of an input can be substituted for the marginal units of the other input so that the level of output remains the same. In other words it is the ratio of marginal unit of labour substituted for the marginal units of capital without affecting the total output. This ratio indicates the slop of Isoquants.

**Isocost Curve**

Isocost curve shows the different combination that a firm can buy with a certain unit of money.

**Figure 3.3**



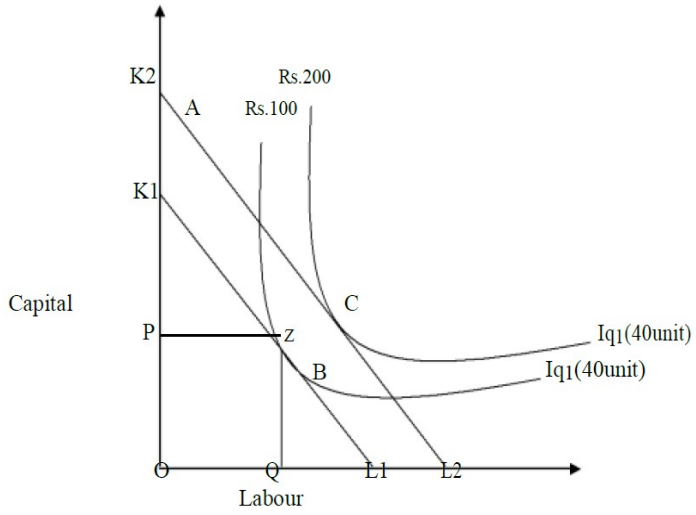

Usually, the management has to incur expenditure in buying inputs namely - labour, raw materials, machinery etc., Further, management is expected to know price of inputs what it costs to produce a given output. Therefore, it is required to minimize the cost of output that it produces. Here management is more helpful to draw isocost curve that represents the equal cost. An iso-cost line is so called because it shows the all combinations of inputs having equal total cost. The isocost lines are straight lines which represents the same cost with different input combinations. Suppose a firm decides to spend Rs.100 on output. If one unit of labour costs Rs. 10 the firm can purchase 10 units of labour. Similarly, if a unit of capital cost Rs.25, the firm can spend the whole amount on buying 4 units of capital likewise the firm can spend partly on capital, say 2 units and party on labour, say 5 units for this Rs.100.

The figure shows that the firm has the option to spend the total money either on capital or labour or on both, from this Rs. 100, the firm can buy either OL, units of labour or OK, units of capital or any combination of those two between the extremes “K1” and L1. An isocost curve represents the same cost for all the different combination of inputs. The upward isocost curve as represented by K2, L2 and K3, L3 shows higher amounts spent on larger quantities of both K and L.

**Optimum Combination of inputs**

A profit maximizing firm seeks to minimize its cost for a given output or to maximize the output for a given total cost. A certain quantity of output can be produced with different Input combinations. Optimum input combination is that which bears least cost. Thus the input combination that results in the minimum cost of production is to be found out. This is known as least - cost input combination. This can be found out by combining Isoquant curves and Isocost curves. The production function is represented by Isoquant curve and the cost function is represented by Isocost curve. The least cost combination exists at a point where Isoquant is tangent to Isocost.

**Figure 3.4**




The figure shows the least – cost combination of capital end labour. The Isoquant Iq1, is tangent to the Isocost curve K1, L1 at point `z`. At this point in the combination is OP of capital and OQ of labour. The point `z` gives the ideal combination which minimizes cost of production per units, it is the point at which the firm is in equilibrium. At the point `z` the isocost line K1, L1, representing Rs.100 is tangent to the isoquant curve Iq1, representing 20 units of output. Any other point on Iq1, would mean the same output, but at high cost. The point A or B or Iq1, gives the same output but with a higher cost combination of inputs K2, L2 representing Rs. 200. The point 'C' is the least cost point of producing 40 units formed by the intersection of Iq2 (40 units) and K2, L2 (Rs.200).

## 3.5 Economies of Scale

Economies of scale means a fall in average cost of production due to growth in the size of the industry within which a firm operates. The factors which cause the operation of the laws of returns the scale are grouped under economies and diseconomies of scale.

Increasing returns to scale operates because of economies of scale and decreasing returns to scale operates because of diseconomies of scale where economies and diseconomies arise simultaneously. Increasing returns to scale operates when economies of scale are greater than the diseconomies of scale and returns to scale decreases when diseconomies overweight the economies of scale. Similarly when economies and diseconomies are in balance, returns to scale becomes constant. Economies of scale exist when long run average costs decline as output is increased. Diseconomies of scale exist when long run average cost rises as output is increased

The economies of scale occur because of (i) Technical economies: the change in production process due to technology adoption. (ii) Managerial economies (iii) Purchasing economies, (iv) Marketing economies and (v) Financial economies.

**Diseconomies of Scale**

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

**Factors Causing Economies of Scale**

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

**Internal Factors**

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

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

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

iv) **Marketing economies:** use of various marketing strategies will help in achieving economies of scale.

v) **Vertical integration:** if there is vertical integration then there will be efficient use of raw material due to internal factor flow.

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

vii) **Economies of risk spreading:** having variety of products and diversification will help them tospread their risk and reduce losses.

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

**External Factors**

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

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

iii) **Training and Development:** continuous training and development of skills in the managerial,

iv) production level will achieve economies of scale.

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

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

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

**Factors Causing Diseconomies of Scale**

i) **Labour union:** Continuous labour problem and dissatisfaction can lead to diseconomies of scale.

ii) **Poor team work:** Poor performance of the team leads to diseconomies of scale.

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

iv) **Difficulty in fund raising:** Difficulties in fund raising reduce the scale of operation.

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

vi) **Scarcity of Resources:** Raw material availability determines the purchase and price. Therefore there is a possibility of facing diseconomies in firms.

vii) **Increased risk:** Growing risk factors can cause diseconomies of scale in an organization. It is essential to reduce the same.

## 3.6 Cost Concepts

The term cost simply means cost of production. It is the expenses incurred in the production of goods. It is the sum of all money-expenses incurred by a firm in order to

produce a commodity. Thus it includes all expenses from the time the raw material are bought till the finished products reach the wholesaler. A managerial economist must have a proper understanding of the different cost concept which are essential for clear business thinking. The cost concept which are relevant to business operation and decision can be grouped on the basis of their purpose under two overlapping categories:

1. Concept used for accounting purpose
2. Concept used in economics analysis of the business

**Types of Cost (or Cost Concepts)**

There are several types of costs (or cost concepts).Following are the important items:-

i) **Money Cost**: money cost means the total money expenses incurred by a business firm on the various items entered into the production of a particular product. For example, money payments made on wages and salaries to workers and managerial staff, payments for raw materials purchased, expenses on power and light, insurance, transportation, advertisement and also payments made on the purchase of machinery and equipments etc., constitute money cost of production. Money cost is also called nominal cost.

ii) **Real Cost:** Real cost means the real cost of production of a particular product. It is the next best alternative sacrificed in order to obtain that product. It also denotes the "efforts" of workers and sacrifices of owners undergone in the production of a particular product.

iii) **Opportunity Cost:** Opportunity cost refers to the cost of foregoing or giving up an opportunity. It is the cost of the next best alternative. It implies the income of benefit foregone because a certain course of action has been taken. As Adam smith observed, if a hunter can bag a deer or a beaver in the single day, the cost of deer is a beaver and the cost of beaver is a deer. A man who marries a girl is foregoing the opportunity of marrying another girl. A film actress can either act in films or do modelling work. She cannot do both the jobs at the same time. Her acting in the film results in the loss of an opportunity of doing modelling work. Likewise, if an old building is proposed to be used for a business, where rent of the building is the opportunity cost. The opportunity cost concept was first developed by an Austrian economist, Wieser. The opportunity cost concept plays an important role in managerial decisions. It is useful in determination of relative prices of different goods. It is also useful in fixing the price of an output factor. Above all, it helps in the best allocation of available resources.

iv) **Sunk Cost:** Sunk costs are those which have already been incurred and which cannot be changed by any decision made now or in the future. These are past or historical costs.

v) **Incremental cost:** These are additional costs incurred due to a change in the level or nature of activity.

vi) **Differential Cost:** It refers to the change in cost due to change in the level of activity or pattern of production or method of production.

vii) **Explicit Cost:** Explicit costs are those costs, which are actually paid (or paid in cash.). They are paid out costs.

viii) **Implicit Cost:** Implicit costs are those costs, which are not paid in cash to anyone. These are not actually incurred, but are computed for decision-making purpose. These are the costs, which the entrepreneur pays to himself. For example, rent charged on owned premises, wages of entrepreneur, interest on owned capital etc., Implicit costs are also known as imputed costs or hypothetical costs.

ix) **Accounting cost:** Accounting costs represent all such expenditures, which are incurred by a firm on factors of production. Thus, accounting costs are explicit costs. In short, all items of expenses appearing on the debit side of trading, profit and loss account of a firm represent the accounting cost. Since all the expenses on production are in money terms, the accounting costs are money costs or nominal costs.

x) **Economic Cost**: Economic cost refers total of explicit cost and implicit cost. Thus it includes the payment for factors of production (that is rent, wages etc.,) and the payments for the self-owned factors (interest on owned capital, rent on owned premises, salary to entrepreneur etc.,)

## 3.7 Cost Function

The concept of cost function refers to mathematical relation between cost of a product and the various determinants of cost. In cost function the dependent variable is unit cost or total cost and the independent variable are the price of factor, the size of the output or nay other relevant phenomenon.

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

C = Cost O = Level of Output S = Size of Plant T = Time under Consideration P = Price of the factor of production

**Determinants of Cost Function**

**i) Level of Output**

There is positive relationship between total output and total cost. As the output increases the total cost also increases. The cost may rise or fall by different rates in different periods of time.

**ii) Size of Plant**

Size of plant or scale of operation is inversely related to cost. As the scale of operation increases the cost declines but only up to a certain point.

**iii) Price of Inputs**

The cost also depends on the price of factors of production. Any increase in prices of input will also increase the cost.

**iv) Managerial Efficiency**

Managerial efficiency has direct bearing on cost function. With the increase inefficiency the cost declines and productivity increases, and economies the cost.

**v) State of Technology**

State of technology also influences the cost. Better the technology better is the technological efficiency. How best we can produce with the available technology determines the level of costs.

**vi) Time under Consideration**

The time period under consideration significantly affects demand elasticity, with longer periods typically leading to higher elasticity. Demand elasticity refers to how sensitive the demand for a good or service is to changes in its price.

## 3.8 Cost Output Relationship

The theory of cost deals with the behaviour of cost in relation to change in output. In other words, the cost theory deals with the cost output relationship.

The basic principle of the cost behaviour is that the total cost increases with the increase in output. But the specific form of cost function depends on whether the time framework chosen for cost analysis is short – run or long – run. It is important to know that some costs remain constant in the short run while all costs are variable in the long run.

**Cost Output Relationship in the Short - Run**

Short run is the period wherein only some of the factors are held constant and some are variable. Therefore, the costs associated with both fixed and variable inputs form part of the short period costs.

**Short – Run Total Cost:- TC = TFC + TVC**

The costs which are found in the short period:

i) Total Fixed Cost

ii) Total Variable Cost

iii) Total Cost

iv) Average Cost: - a) Average Variable Cost b) Average Fixed Cost c) Average Total Cost

v) Marginal Cost

**i) Total Fixed Cost (TFC)**

Total fixed cost is the sum of fixed cost which remains same irrespective of the level of output. This is the expenditure incurred by the firm on the fixed factors of production.

For example, the money incurred on land, building, machinery, etc. remains the same whatever is the amount of output.

They are also called Overhead Costs.

**Figure 3.5**

**Total Fixed Cost (TFC)**

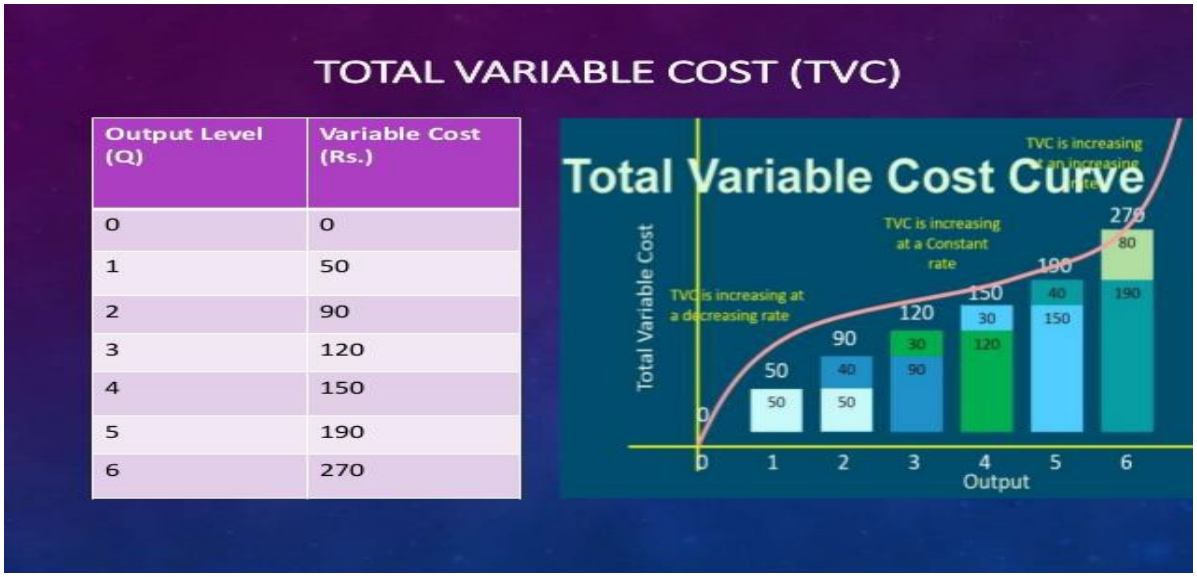
**ii) Total Variable Cost (TVC)**

Total variable costs are those costs of production that change directly with output. They rises when output increases, and falls when output declines. If there is no output the total variable cost will be zero. They include expenses on raw materials, power, taxes, advertising, etc.

Marshall has called variable cost as 'Prime Cost' or 'Avoidable Cost'.

**Figure 3.6**

**Total Variable Cost (TVC)**




In the short run cost diagram shows that total variable cost varies directly with the volume of output. TVC curve starts from the origin, up to a certain range it remains concave from below and then it becomes convex. If taken from a different angle we can say that initially the variable cost rises but with diminished rate and later the variable cost rises with increased rate. This makes the TVS curve inversely S-shaped.

**iii) Total Cost (TC)**

Total costs are the total expenses incurred by a firm in producing a given quantity of a commodity. When we add TFC and TVC it becomes total cost (TC).

They include payment for rent, interest, wages, and expenses on raw materials, electricity, water, etc.

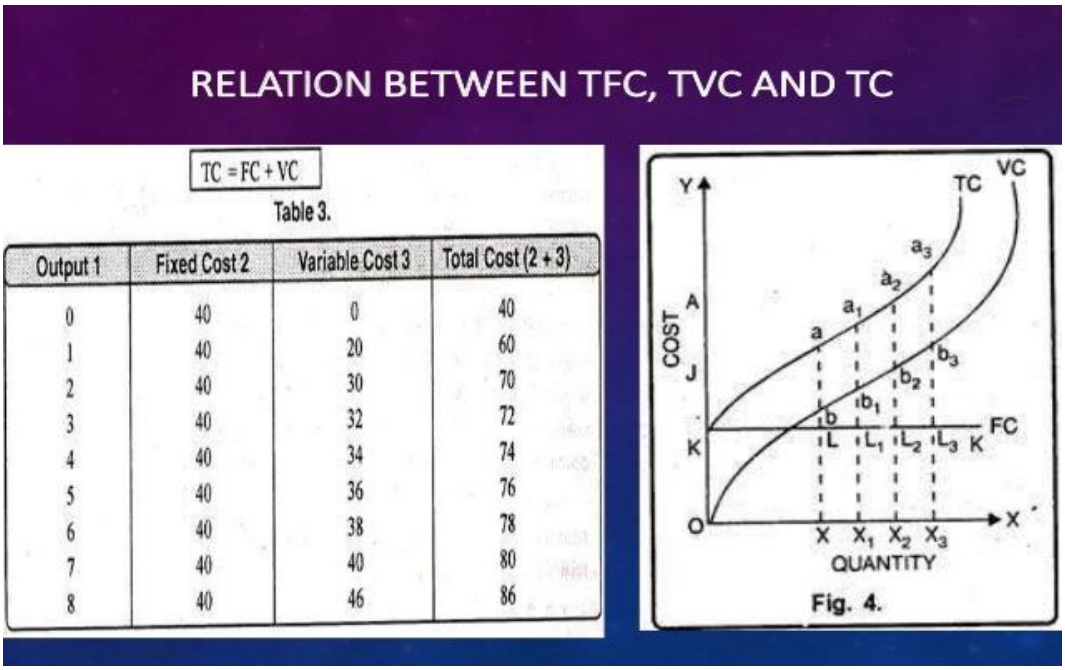
**Relation between TFC, TVC and TC**

In order to determine the total costs of a firm, we aggregate fixed as well as variable costs at different levels of output i.e.

- ✓ TC = TFC + TVC
- ✓ TFC = TC – TVC
- ✓ TVC = TC – TFC

**Figure 3.7**

**Total Variable Cost (TVC)**




In the figure TFC is parallel to X-axis. This curve starts from the point on the Y-axis meaning thereby that fixed cost will be incurred even if the output is zero.

On the other hand, total variable cost curve rises upward showing thereby that as output increases, total variable cost also increases. This curve starts from the origin which shows that when the output is zero, variable costs are also nil.

The total cost curve has been obtained by adding vertically total fixed cost curve and total variable cost.

**iv) Average Cost**

The concept of average cost is more relevant from the point of view of a firm because per unit cost helps in explaining the pricing of a product in a better way rather than the total cost.

The concept of average cost is divided in to two"

a) Average Fixed Cost

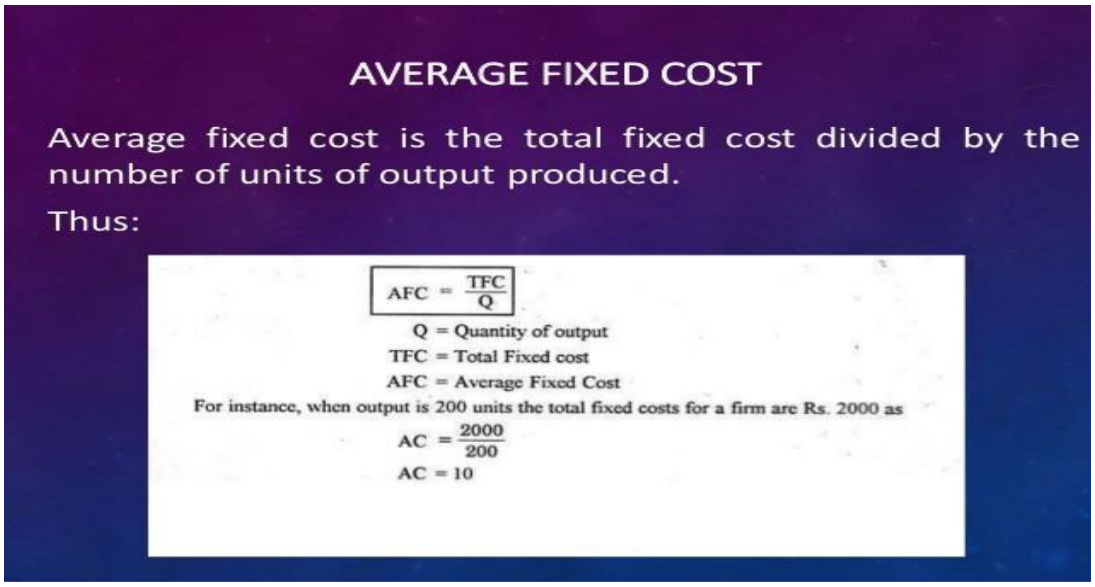
b) Average Variable Cost

c) Average Total Cost

**a) Average Fixed Cost**

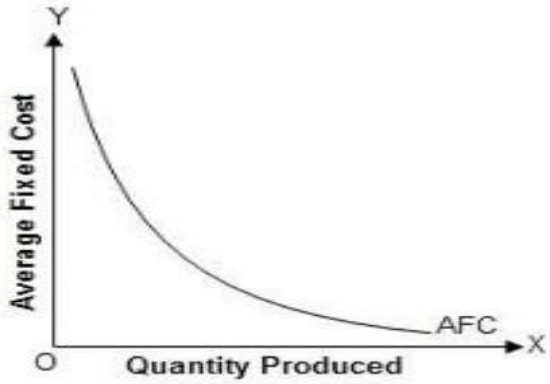
Average fixed cost is the total fixed cost divided by the number of units of output produced. Thus:-

**Figure 3.8**
**Average Fixed Cost**




Since, total fixed cost is a constant quantity, average fixed cost will steadily fall as output increases, thus, the average fixed cost curve slopes downward throughout the length.

**Figure 3.9**
**Average Fixed Cost**




In Figure the average fixed cost curve slopes downward with a view to touch the horizontal axis. But it will not be so because AFC can never be zero. Thus, it is clear that as output increases, average fixed costs go on diminishing.

**b) Average Variable Cost**

Average variable cost is the total variable cost divided by the number of units of output produced.

**AVC = TVC / Q**

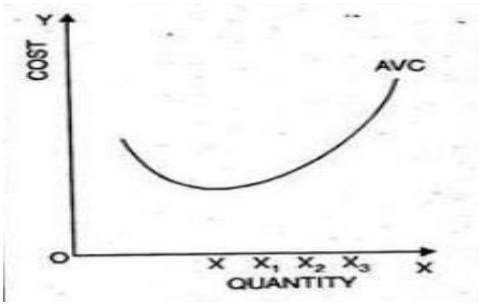
AVC = Average variable costs.

TVC = Total variable costs

Q = Output

Generally, the AVC falls as output increases from zero to the normal capacity output due to the law of increasing returns. But beyond the normal capacity output, the AVC will rise steeply because of the operation of the law of diminishing returns.

**Figure 3.10**
**Average Variable Cost**




**c) Average Total Cost**

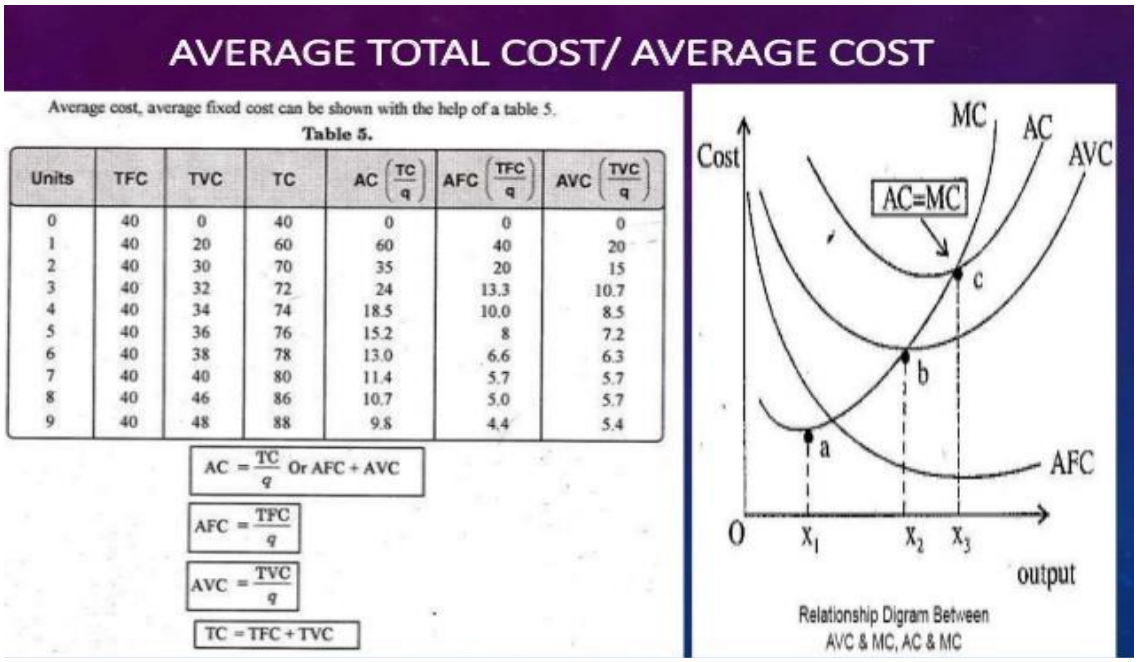
**Average Total Cost/ Average Cost** "The average cost of production is the total cost per unit of output." In other words average cost of production is the total cost of production divided by the total number of units produced.

Suppose, the total cost of producing 500 units is Rs. 1000,

the average cost will be: **AC=TC/Q**

**AC=1000/500= 2**

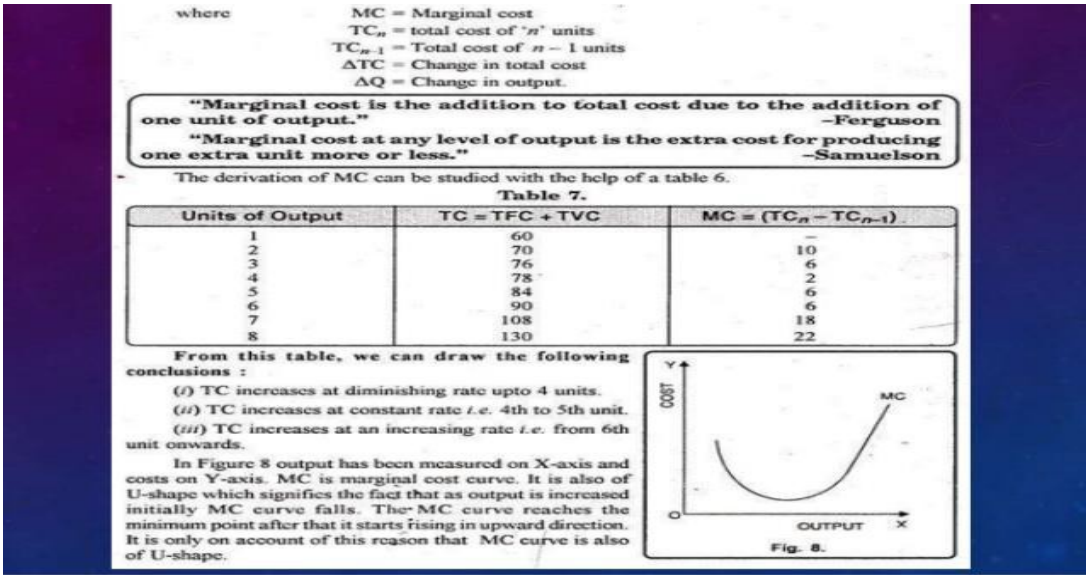
**Figure 3.11**
**Average Total Cost**




**v) Marginal Cost**

Marginal cost is an addition to the total cost caused by producing one more unit of output. For instance, the total cost for the production of 100 units is Rs. 5000. Suppose the production of one more unit costs Rs. 5000. It will be called the marginal cost.

**Figure 3.12**
**Marginal Cost**



**Cost Output Relationship in the Long - Run**

Long run means time period long enough to make the entire productive factors variable In the long run all factors of production become variable. The entrepreneur has number of choices to change the plant size and level of output. The long run cost curve is also known as planning curve. The long run average cost curves is derived from short run average cost curves.

Long run average cost is also known as:

**i) Envelope Cost**

It is also known as "envelope cost" because it encloses all short run average cost curves. The curve is created as an envelope of an infinite number of short-run average total cost curves.

**ii) Planning Curve**

With the help of this curve a firm can plan as to which plant it should use to produce different quantities, so that production is obtained at the minimum cost.

The LRAC curve is U-shaped, reflecting economies of scale when it is negatively- sloped and diseconomies of scale when it is positively sloped.

In some industries, the LRAC is L-shaped, and economies of scale increase indefinitely. Initially the long-run average cost rapidly falls but after a point it remains flat throughout or at its right-hand end it may even slope gently downward.

**Figure 3.13**
**Long Run Average Cost Curve**

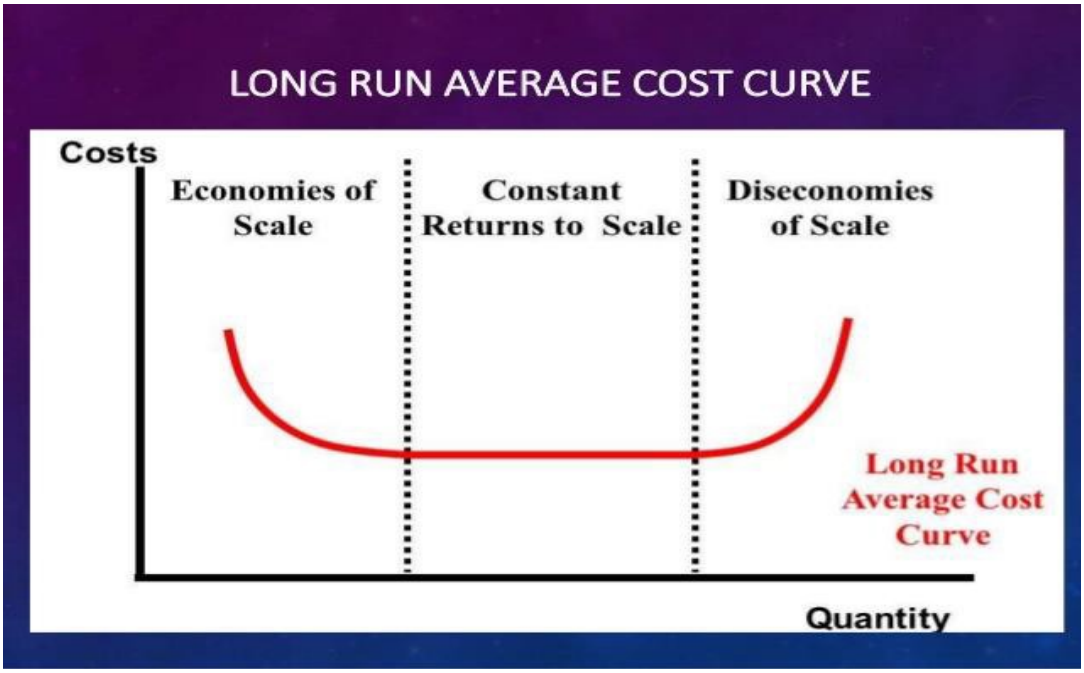


**Figure 3.14**
**Long Run Average Cost Curve**

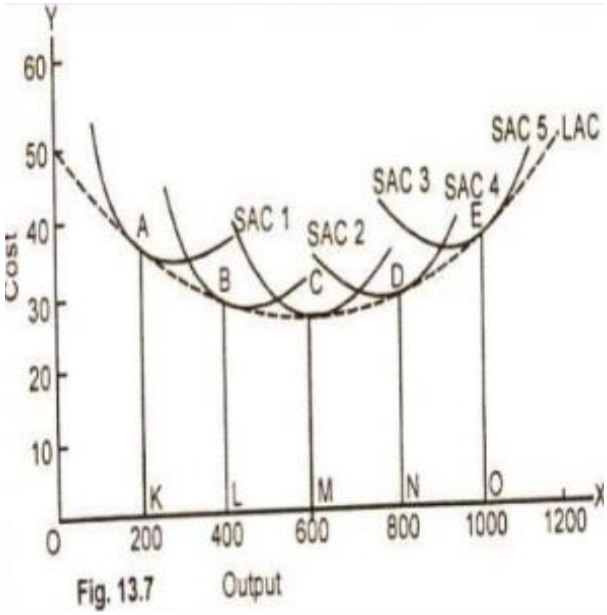


Fig. 13.7

if the anticipated rate of output is 200 units per unit of time, the firm will choose the smallest plant It will build the scale of plant given by SAC1 and operate it at point A. This is because of the fact that at the output of 200 units, the cost per unit is lowest with the plant size 1 which is the smallest of all the four plants.

In case, the volume of sales expands to 400, units, the size of the plant will be increased and the desired output will be attained by the scale of plant represented by SAC2 at point B.

If the anticipated output rate is 600 units, the firm will build the size of plant given by SAC3 and operate it at point C where the average cost is $26 and also the lowest The optimum output of the firm is obtained at point C on the medium size plant SAC3.

If the anticipated output rate is 1000 per unit of time the firm would build the scale of plant given by SAC5and operate it at point E.

If we draw a tangent to each of the short run cost curves, we get the long average cost (LAC) curve. The LAC is U-shaped but is flatter than tile short run cost curves. Mathematically expressed, the long-run average cost curve is the envelope of the SAC curves.

In this figure , the long-run average cost curve of the firm is lowest at point C. CM is the minimum cost at which optimum output OM can be, obtained.

## 3.9 Revenue

The amount of money that a producer receives in exchange for the sale proceeds is known as revenue.

**For example,** if a firm gets Rs. 16,000 from sale of 100 chairs, then the amount of Rs. 16,000 is known as revenue. Revenue refers to the amount received by a firm from the sale of a given quantity of a commodity in the market. Revenue is a very important concept in economic analysis. It is directly influenced by sales level, i.e., as sales increases, revenue also increases.

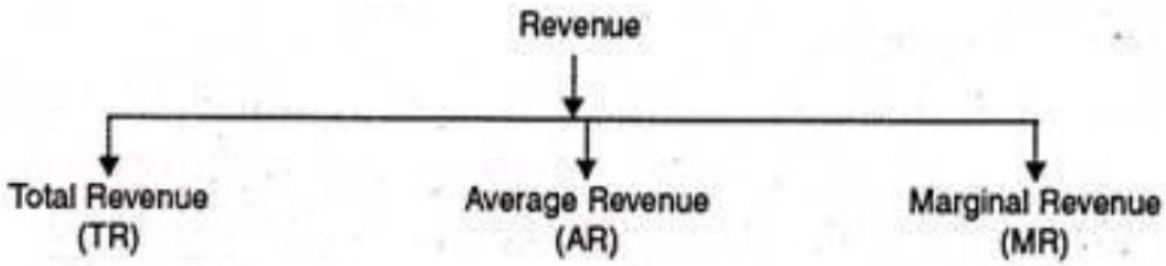
**Features of Revenue**

- ✓ Revenue arises from the normal trading activities of a business.
- ✓ Revenue eventually creates an inflow of funds into the business.
- ✓ Revenue is measured in monetary terms.
- ✓ Revenue must be allocated to a particular accounting period.
- ✓ Revenue is earned as a result of revenue generating activities typically expressed as expenses.

**Concept of Revenue**

The concept of revenue consists of three important terms; Total Revenue, Average Revenue and Marginal Revenue.

**Figure 3.15**
**Revenue**




**i) Total Revenue (TR)**

Total Revenue refers to total receipts from the sale of a given quantity of a commodity. It is the total income of a firm. Total revenue is obtained by multiplying the quantity of the commodity sold with the price of the commodity.

**Total Revenue = Quantity × Price**

**For example,** if a firm sells 10 chairs at a price of Rs. 160 per chair, then the total revenue will be: 10 Chairs × Rs. 160 = Rs 1,600

**ii) Average Revenue (AR)**

Average revenue refers to revenue per unit of output sold. It is obtained by dividing the total revenue by the number of units sold.

**Average Revenue = Total Revenue/Quantity**

**For example,** if total revenue from the sale of 10 chairs @ Rs. 160 per chair is Rs. 1,600, then:

**Average Revenue = Total Revenue/Quantity**

AR= 1,600/10 = Rs 160

**AR and Price are the Same**

We know, AR is equal to per unit sale receipts and price is always per unit. Since sellers receive revenue according to price, price and AR are one and the same thing. This can be explained as under:

**TR = Quantity × Price … (1)**

**AR = TR/Quantity …… (2)**

Putting the value of TR from equation (1) in equation (2), we get

**AR = Quantity × Price / Quantity**

**AR = Price**

**AR Curve and Demand Curve are the Same**

A buyer's demand curve graphically represents the quantities demanded by a buyer at various prices. In other words, it shows the various levels of average revenue at which different quantities of the good are sold by the seller. Therefore, in economics, it is customary to refer AR curve as the Demand Curve of a firm.

**iii) Marginal Revenue (MR)**

Marginal revenue is the additional revenue generated from the sale of an additional unit of output. It is the change in TR from sale of one more unit of a commodity.

**MRn = TRn-TRn-1**

Where:

MRn = Marginal revenue of nth unit;

TRn = Total revenue from n units;

TR n-1 = Total revenue from (n – 1) units; n = number of units sold

**For example,** if the total revenue realised from sale of 10 chairs is Rs. 1,600 and that from sale of 11 chairsis Rs. 1,780, then MR of the 11th chair will be:

**MR11 = TR11 – TR (11-1=10) MR11=TR11-TR10**

**MR11 = Rs. 1,780 – Rs. 1,600 = Rs. 180**

One More way to Calculate MR:

We know, MR is the change in TR when one more unit is sold. However, when change in units sold is more than one, then MR can also be calculated as:

MR = Change in Total Revenue/ Change in number of units = ΔTR/ΔQ

**Let us understand this with the help of an example:**

If the total revenue realised from sale of 10 chairs is Rs. 1,600 and that from sale of 14 chairs is Rs. 2,200, then the marginal revenue will be:

MR = TR of 14 chairs – TR of 10 chairs / 14 chairs -10 chairs = 600/4 = Rs. 150

**TR is summation of MR:**

Total Revenue can also be calculated as the sum of marginal revenues of all the units sold.

It means, TRn = MR1 + M2 + MR3 + …….MRn

or, TR = ΣMR

The concepts of TR, AR and MR can be better explained through Table 7.1.

**Table 3.3**
**TR, AR and MR**

| Units Sold (Q) | Price (Rs.) (P) | Total Revenue (Rs.) TR = Q x P | Average Revenue (Rs.) AR = TR+Q = P | Marginal Revenue (Rs.) Mrn = TRn – TRn-1 |
|---|---|---|---|---|
| 1 | 10 | 10=1x10 | 10 =10+1 | 10 =10-0 |
| 2 | 9 | 18 =2×9 | 9 =18 + 2 | 8 =18-10 |
| 3 | 8 | 24 =3×8 | 8 =24 + 3 | 6 =24-18 |
| 4 | 7 | 28 = 4×7 | 7 =28 + 4 | 4 =28-24 |
| 5 | 6 | 30 = 5×6 | 6 =30 + 5 | 2 =30-28 |
| 6 | 5 | 30 = 6x5 | 5 =30 + 6 | 0 =30-30 |
| 7 | 4 | 28 = 7×4 | 4 =28 + 7 | -2 =28-30 |

**Shapes of Revenue Curve**

**i) Total Revenue curve**

TR is obtained by multiplying amount of output sold by the given price determined in the market by intersection of market demand and market supply curve.

i.e. TR = Q × P

Where, Q= amount of product sale

P= Market Price which is constant.

TR increases at the same rate because, every additional unit of the commodity is sold at the same price. In this type of market firms are price taker not price maker.

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

**Table 3.4**

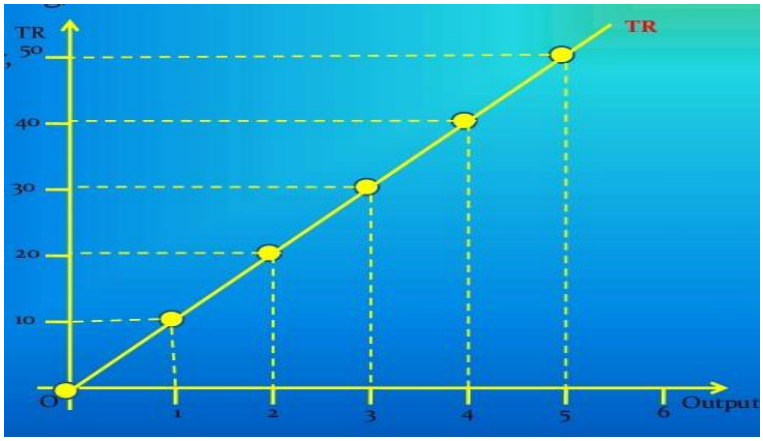
**Total Revenue Under Perfect Competition**

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

In above table total revenue (TR ) is obtained by multiplying output (Q) and Price (P). When output is zero TR also zero. TR is Rs. 10, 20, 30, 40 and 50for the 1, 2, 3, 4 and 5 units of sale respectively, where price is constant at Rs. 10.

In the above table as increase in sell of output total revenue also increasing, but the rate of increase in total revenue is constant.

**Figure 3.16**
**Total Revenue Under Perfect Competition**




**ii) Average Revenue curve**

Average Revenue (AR): Per unit revenue obtained by a seller by selling product at market price in the market in certain time period is known as AR for that time period of that seller or producer.

It is calculated by dividing total revenue (TR) by corresponding quantity sold (Q) in the market at market price (P).

**i.e. AR = TR/Q**

**i.e. AR =( P×Q)/Q**

**i.e. AR = P**

Therefore, another name of AR is the average market price of the product. Since, price is constant in perfect competition market and hence, AR is also constant.

It can be explained with the help of following table;

**Table 3.5**
**Average Revenue Under Perfect Competition**

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

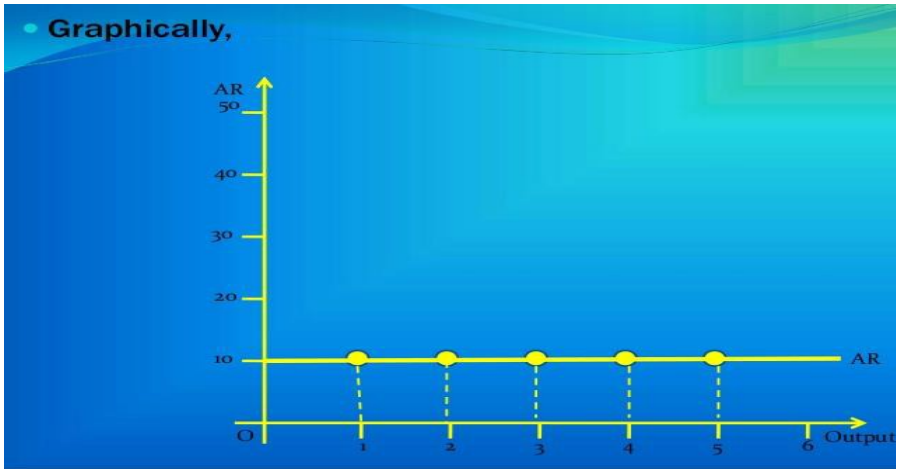
In the above table as increase in sells of output of the product Average Revenue (AR) remains constant i.e. Rs. 10 for first unit to fifth unit of output.

Above information shows that AR is constant and equal to the price for all level of output.

In the following figure average revenue curve is found by plotting the combination of points of the quantity sold on the horizontal axis and corresponding AR on the vertical axis.

AR curve is a horizontal straight line at the different level of output sold at given price. It shows that AR is constant and equal to the price for all level of output, i.e. AR = P.

**Figure 3.17**
**Average Revenue Under Perfect Competition**



### iii) Marginal Revenue curve

Marginal revenue is the change in total revenue in response to the change in quantity sold. It is calculated by dividing the change in total revenue (ΔTR) by the change in quantity sold (ΔQ).

In case of perfectly competitive market marginal revenue (MR) remains constant and equal to the market price for all level of output sold, i.e. MR = P.

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

**Table 3.6**

**Marginal Revenue in Perfect Competition**

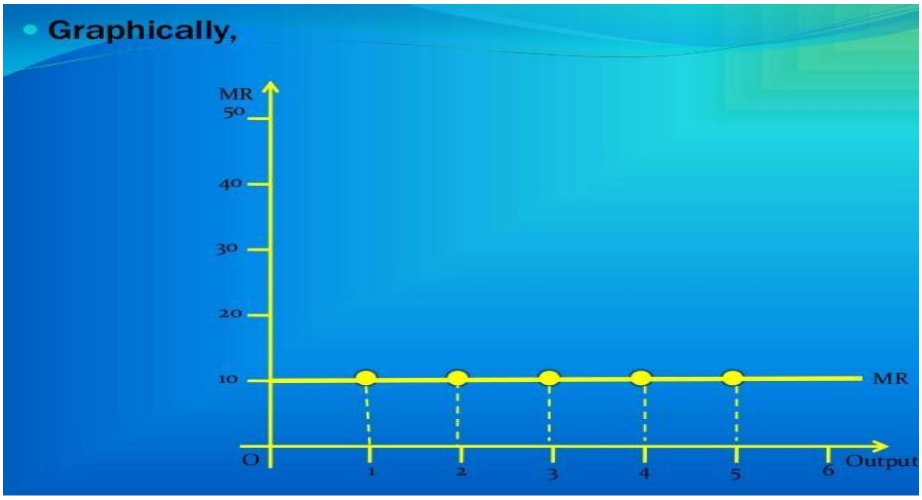
| Units of Output (Q) | Per Unit Price (P) | Total Revenue (TR) - PxQ | Average Revenue AR-TR/Q | Marginal Revenue (MR) – ΔTR/ΔR |
|---|---|---|---|---|
| 0 | 10 | 0 | - | - |
| 1 | 10 | 10 | 10 | 10 |
| 2 | 10 | 20 | 10 | 10 |
| 3 | 10 | 30 | 10 | 10 |
| 4 | 10 | 40 | 10 | 10 |
| 5 | 10 | 50 | 10 | 10 |

In the above table as increase in output sold at market price TR increases at constant rate. But MR remains constant i.e. Rs. 10. which is equal to price.

Form above table we conclude that Price, AR and MR are same i.e. Rs. 10. that means P = AR = MR.

**Figure 3.18**

**Marginal Revenue in Perfect Competition**




In the above figure MR is the slope of the TR. The MR curve is found by plotting the MR on y-axis and quantity sold on x-axis.

The MR curve is also horizontal to the x-axis as of the AR. It shows that AR and MR are overlapped and equal to the price in perfectly competitive market.

**Significance of Revenue Curve**

The main points of significance of revenue curves are as under:

**i) Estimation of Profits and Losses**

A producer aims at maximizing his profits. His profits will be maximum where he finds AR > AC.

The maximum difference between AR and AC will show maximum profits. A producer finds out whether he is making supernormal profits, normal profits or sustaining losses.

**ii) Equilibrium**

The second point of the importance of AR and MR curves is to know how much a producer should produce. In this case, the concept of MR is very important. The firm will be in equilibrium at that point where MR = MC. This is a general condition for the firm under all market situations. MR = MC determines output, price, profits or loss.

**iii) Capacity Utilization**

It is through revenue curves that we come to know whether a firm is producing at its full capacity or not. In other words, the firm will be producing at its full capacity, if AR curve is tangent to AC curve at its minimum point. It is possible only under perfect competition but not under imperfect competition like monopoly, monopolistic competition etc.

**iv) Price Changes**

The concepts of AR and MR are also useful to the factor services in determining their price. In factor pricing like rent, wages, interest and profits, they become inverted U-shaped. The AR and MR curves become ARP and MRP (Average Revenue productivity and Marginal Revenue Productivity). It is an important tool in explaining the equilibrium of the firm under different market conditions.

**Relationship of Total Revenue, Average Revenue and Marginal Revenue**

The relation of total revenue, average revenue and marginal revenue can be explained with the help of table and figure.

**Table Representation**

The relationship between TR, AR and MR can be expressed with the help of a table 3.5.

**Table 3.7**
**Relationship between TR, AR and MR**

| Unit (q) | TR/q AR or Price | (Pq) TR | (TRn – TRn – 1) MR |
|---|---|---|---|
| 1 | 10 | 10 | 10 |
| 2 | 9 | 18 | 8 |
| 3 | 8 | 24 | 6 |
| 4 | 7 | 28 | 4 |
| 5 | 6 | 30 | 2 |
| 6 | 5 | 30 | 0 |
| 7 | 4 | 28 | -2 |
| 8 | 3 | 24 | -4 |
| 9 | 2 | 18 | -6 |
| 10 | 1 | 10 | -8 |

From the table 3.5 we can draw the idea that as the price falls from Rs. 10 to Re. 1, the output sold increases from 1 to 10. Total revenue increases from 10 to 30, at 5 units. However, at 6th unit it becomes constant and ultimately starts falling at next unit i.e. 7th. In the same way, when AR falls, MR falls more and becomes zero at 6th unit and then negative. Therefore, it is clear that when AR falls, MR also falls more than that of AR: TR increases initially at a diminishing rate, it reaches maximum and then starts falling.

**The formula to calculate TR, AR and MR is as under:**

TR = P x q

Or TR = MR1 + MR2 + MR3 + MR3 +….. MR,,

TR

AR = TR/q MR = TRn – TRn _ x

In fig. 1 three concepts of revenue have been explained. The units of output have been shown on horizontal axis while revenue on vertical axis. Here TR, AR, MR are total revenue, average revenue and marginal revenue curves respectively.

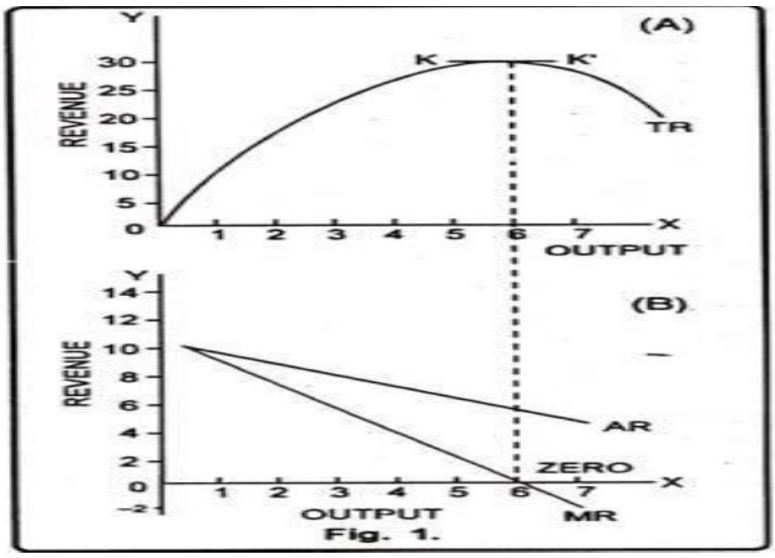
In figure 1 (A), a total revenue curve is sloping upward from the origin to point K. From point K to K' total revenue is constant. But at point K' total revenue is maximum and begins to fall. It means even by selling more units total revenue is falling. In such a situation, marginal revenue becomes negative.

Similarly, in the figure 1 (B) average revenue curves are sloping downward. It means average revenue falls as more and more units are sold.

In fig. 1 (B) MR is the marginal revenue curve which slopes downward. It signifies the fact that MR with the sale of every additional unit tends to diminish. Moreover, it is also

clear from the fig. that when both AR and MR are falling, MR is less than AR. MR can be zero, positive or negative but AR is always positive.

**Figure 3.19**
**The relationship between TR, AR and MR**




The relationship between TR, AR, and MR

In order to understand the basic concepts of revenue, it is also important to pay attention to the relationship between TR, AR, and MR. When the first unit is sold, TR, AR, and MR are equal.

Therefore, all three curves start from the same point. Further, as long as MR is positive, the TR curve slopes upwards.

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

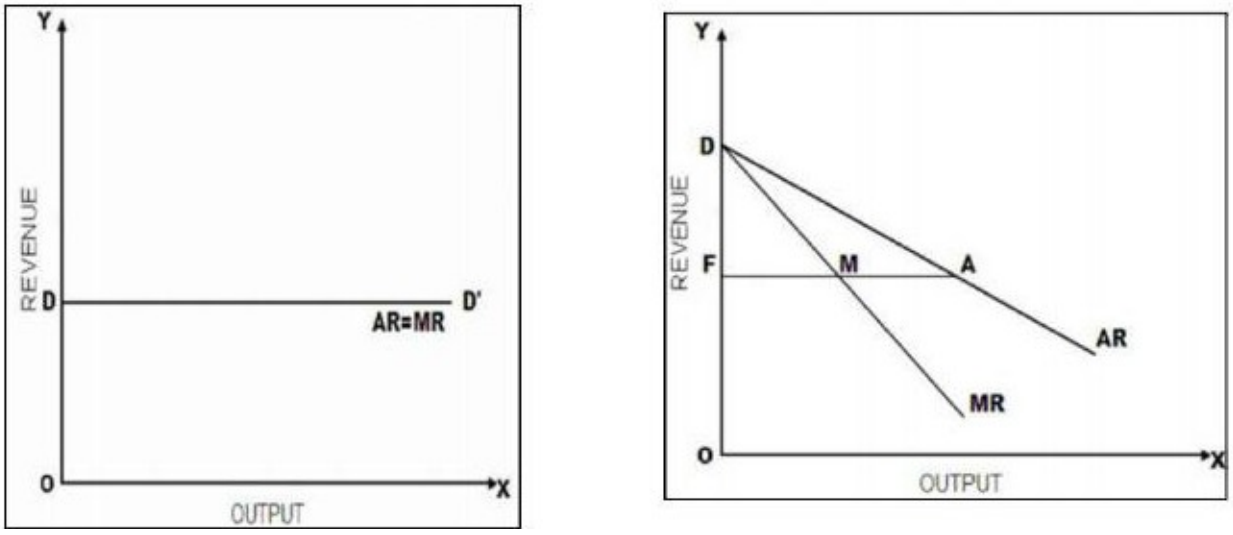
Further, if the MR curve goes below the X-axis, the TR curve starts sloping downwards.

Any change in AR causes a much bigger change in MR. Therefore, if the AR curve has a negative slope, then the MR curve has a greater slope and lies below it.

Similarly, if the AR curve has a positive slope, then the MR curve again has a greater slope and lies above it. If the AR curve is parallel to the X-axis, then the MR curve coincides with it.

Here is a graphical representation of the relationship between AR and MR:

**Figure 3.20**
**Relationship between AR and MR**




In the left half, you can see that AR has a constant value (DD'). Therefore, the AR curve starts from point D and runs parallel to the X-axis. Also, since AR is constant, MR is equal to AR and the two curves coincide with each other.

In the right half, you can see that the AR curve starts from point D on the Y-axis and is a straight line with a negative slope. This basically means that as the number of goods sold increases, the price per unit falls
at a steady rate.

Similarly, the MR curve also starts from point D and is a straight line as well. However, it is a locus of all the points which bisect the perpendicular distance between the AR curve and the Y-axis. In the figure above, FM=MA.

## 3.10 Supply Analysis

Supply and demand are the dual forces which determine the price of a good in the market. As Alfred Marshall argued, only when both an object's scarcity, namely supply and the intensity of wanting it, viz. demand are known, it will be possible to understand how its price is determined. The concept of supply which is one of the two "blades of the scissors" that determines price is similar in many ways to the other blade, viz. demand.

**Meaning of Supply**

The meaning of supply is symmetrical with that of demand. It can be defined as the quantity of a good or service that a seller wishes to sell on the market at a particular price at a particular time. Supply of a good is different from its stock. The quantity of a good that a seller can bring out to sell immediately on demand is his stock. But it should be noted that the seller is not always ready to sell the whole of his stock. As the market conditions change, he

varies the quantity of the good he is prepared to sell from time to time. Therefore, generally a seller offers only a portion or part of his stock for sale as supply. In short, supply is that part of the stock which a seller offers for sale at a particular price at a particular time. While stock refers to potential supply, supply means the quantity which is actually brought in the market.

**Law of Supply**

More of a commodity will be offered for sale when price rises and less will be offered for sale when price falls, ceteris paribus. The relationship between price and supply is direct and that between price and demand is inverse. To put it otherwise, "other things remaining the same, the supply of a good extends with a rise in its price and contracts with a fall in its price".

**Factors determining supply**

**A** variety of factors determine the supply of a commodity.

- ✓ Price of the commodity is the most important. As the price rises, sellers like to sell more and vice versa.
- ✓ A rise in the prices of factors of production raises its cost of production which, in turn, lowers profits and thereby the supply. Thus a rise in the cost of production of a good lessens the supply of that good. Similarly a fall in cost of production of a good increases supply.
- ✓ Any change in the prices of other products would influence the supply of a good by causing substitution of one product for another.
- ✓ A change in technology as a result of innovations or inventions affects the supply by altering the cost of production. With an improvement in production technology used by the firm, the cost of production declines and as a result the firm would supply more than before at the given price. Thus supply would increase.
- ✓ The objective of the production unit also determines the supply. If the firm aims at maximisation of revenue or sales rather than of profits,` supply would be larger.
- ✓ If the number of firms producing a good increases, the market supply would increase.
- ✓ Sellers' expectations of future prices also determine supply. During inflation, sellers anticipate further rise in prices in future and would reduce supply.
- ✓ The imposition of a sales tax or an excise duty causes a downward shift in supply and the grant of subsidy by the government increases supply.
- ✓ Supply depends on many other factors like, changes in government policy, fear of war or depression, climatic conditions, inequalities of income, means of transport and communications, agreements among producers, etc.

**The Supply Function**

It is a short hand formula of the various factors determining supply of a good. Symbolically, $S = (P_1, P_2 \ldots P_n, F_1 \ldots F_n, T, O, O_d)$

Where S stands for the supply of a good, P; for price of the good P2 to Pn for prices of all other goods, Fl to Fn for prices of all factors of production, T for technology, O for objective of the firm and Od for other determinants.

**The supply schedule and supply curve:** Supply schedule shows the various quantities of the good offered for sale at different prices. Corresponding to the demand schedule, it is possible to construct an individual's supply schedule as follows:

**Table 3.8**

| Price of the good (in Rs.) | Quantity of supply (in units) |
|---|---|
| 3 | 40 |
| 4 | 50 |
| 5 | 60 |
| 6 | 70 |
| 7 | 80 |

If the data are drawn into a diagram graphically, it gives a supply curve.

**Figure 3.21**
**Supply Curve**

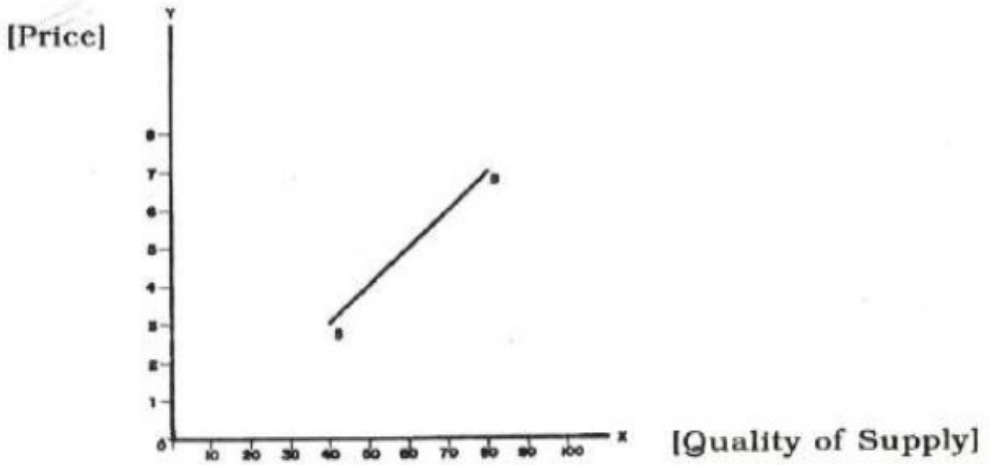


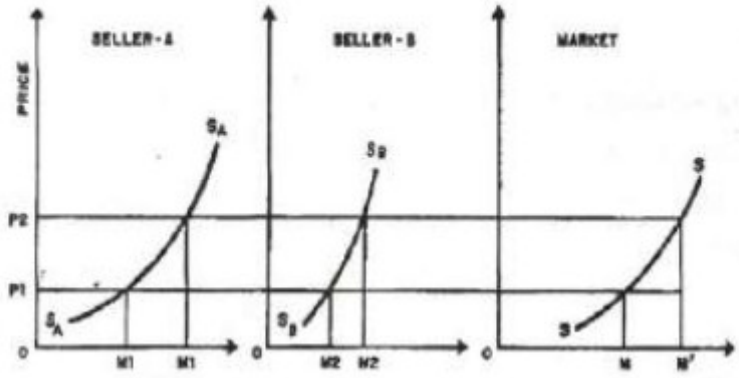

Fig. 20 **Supply Curve**

Figure 3.18 is the supply curve sloping upwards from left to right. Suppose the price of pen is Rs.3 per unit, 40 units are offered for sale by an individual at this price. Increase in price will bring out increase in supply, as shown in the Table and in the Curve. SS curve shows the direct relation between price and supply. If we add up horizontally through the

lateral summation process the supply curves of all individual sellers of the good in a market, we derive a Market Supply Curve as shown in Figure 3.19.

**Figure 3.22**

**Deviation of Market Supply Curve from Individual Supply Curve**




At price OP1, seller A is prepared to sell amount OMI while seller B offers for sale the amount 0M2 .If there are only two sellers, A and B at price OP1 ,market supply is the amount OM(OMI + OM2). At a higher price 0P2 both sellers offer more for sale and market supply is OMI (OMI+ 0M2). Similarly we find the amounts of market supply at different prices and draw the market supply curve SS. This market supply curve is a lateral summation of the individual supply curves, SA and SB.

As compared to the individual supply curves, the market supply curve is quite elastic for reasons, as follows:

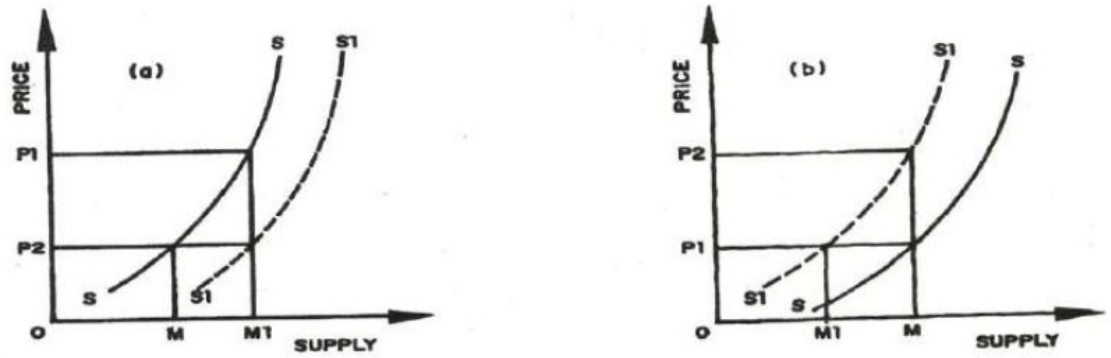
- ✓ The sellers already present in the market sell more and more as price rises.
- ✓ With a rise in price, more sellers are attracted to the market to sell. Since profit is the goal for sale, which depends upon the cost of production and price, ultimately the elasticity of supply curves of producers in a market rests on the way costs change with increased production.

**Shifts in Supply Curve**

The most important factor bringing about changes in supply is the change in price. Sellers plan their production and supply taking into consideration the price of the product in the market. With a rise in price, the amount supplied extends and with a fall in price, the amount of supply contracts. Thus changes in price induce extension and contraction in supply.

**Figure 3.20**

**3.23 (a) Increase in Supply** **3.23 (b) Decrease in Supply**




If the amount offered for sale rises without any change in price, or when the same amount is supplied even at a lower price, it is called increase in supply. In Figure 3.23 (a) market supply is the same (OM) even at a lower price OPI. Looked at another way, at the same price OP2 , the amount supplied increases from OM to OMI as the supply curve shifts from its position SS to S1S1. This is the case of an increase in supply. Now we can take the opposite case, the case of a decrease in supply. If the same amount is supplied at a higher price or at the same price a lower amount is offered for sale, supply is said to have decreased.

In Figure 3.23 (b) the same amount OM is supplied at higher price 0P2or lesser quantity (OMI) is being offered for sale at the same price OP1'Increase in supply means a shift of the supply curve to the right and a decrease in supply involves a shift of the supply curve to the left.

**Elasticity of Supply**

The responsiveness of supply to changes in price is called elasticity of supply. Elasticity of supply is a measure of the rate at which supply changes as a result of change in price. It is the percentage change in amount supplied with a given percentage change in price.

$$\text{Elasticity of supply} = \frac{\text{Proportionate change in supply}}{\text{Proportionate change in price}}$$

Ordinarily when price increases amount supplied rises. Likewise, with a fall in price amount supplied falls. Price and amount supplied move in the same direction. Therefore, elasticity of supply will be always positive. In the limiting case of completely inelastic supply curve, when the supply curve is a vertical straight line the elasticity of supply is zero. It means that the amount supplied remains the same, however much price rises. In the other limiting case, when supply curve is a straight line parallel to the X axis elasticity of supply is

infinite: a small rise in price evokes a large rise in the amount supplied. We use the formula given above to find out the magnitude of elasticity of supply. If the proportionate increase in the amount supplied **is** double the proportionate rise in price, elasticity of supply is 2. If the proportionate change in amount supplied is only one-half of the proportionate change in price, elasticity of supply is 0.5. On the same line supply has unitary elasticity if the amount supplied changes in the same proportion as price has changed.

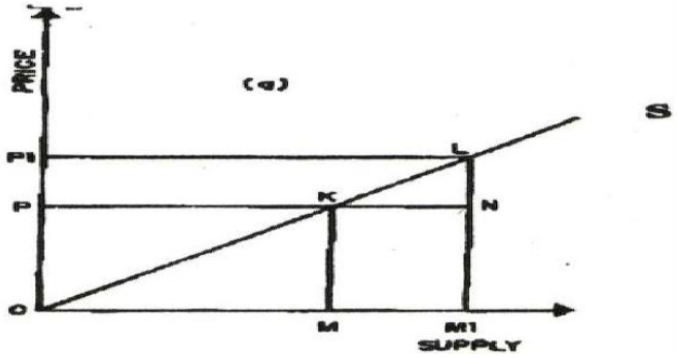
It is helpful to know whether one supply curve **is** more or less elastic than another over a range, or at a point. We should therefore know the geometrical estimation of elasticity at a particular point of a supply curve. Exact measurement of elasticity of supply is possible through the use of the formula given above. Geometrically, we can say that

a) if supply curve is a straight line passing through the origin, it has unitary elasticity throughout.
b) If the supply curve is a straight line cutting the Y-axis, it has an elasticity more than unity.
c) if supply curve is a straight line intersecting the X-axis it has an elasticity of less than unify.

**Elasticity of supply is Unitary**

**Figure 3.24**

**Elasticity of Supply Equals One**




In Figure 3.21 the straight line supply OS curve passes through the origin O. When price rises from OP to OP1, amount supplied goes up from OM to OM1.

Now, elasticity of supply

$$= \frac{\text{Change in supply}}{\text{Amount supplied}} \div \frac{\text{Change in price}}{\text{Price}}$$

$$= \frac{KN}{OM} \div \frac{PP_1}{OP}$$

$$= \frac{KN}{OM} \times \frac{OP}{PP_1}$$

$$= \frac{KN}{OM} \times \frac{KM}{LN}$$

$$= \frac{KN}{LN} \times \frac{KM}{OM} (\text{Since } OP = KM \text{ and } PP_1 = LN \qquad \ldots\ldots\ldots (1)$$

Triangles OKM and KLN are similar, therefore,

$$\frac{KN}{LN} = \frac{OM}{KM}$$

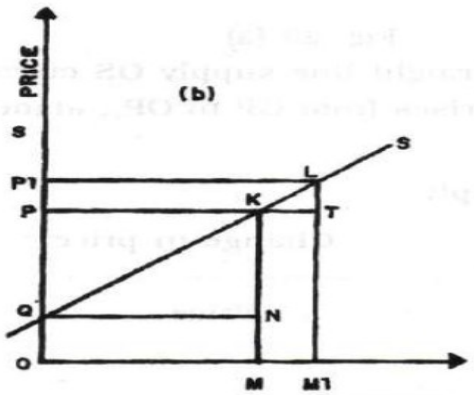
Putting this value in equation (1) derived above, we have. Elasticity of Supply

$$= \frac{OM}{KM} \times \frac{KM}{OM} = \frac{KM}{KM} \quad = 1$$

Thus a straight line supply curve passing through the origin has unitary elasticity.

**Elasticity of Supply Greater than One**

**Figure 3.25**
**Supply**



$$ES = \frac{Change\ in\ supply}{\text{Amount supplied}} \div \frac{\text{Change in price}}{\text{Price}}$$

$$= \frac{MM1}{OM} \div \frac{PP1}{OP}$$

As MM1 =KT, PP1=LT and OP =KM ;it can be rewritten as

$$ES = \frac{KT}{OM} \div \frac{LT}{KM}$$

$$= \frac{KT}{OM} \times \frac{KM}{LT}$$

$$= \frac{KT}{OM} \times \frac{KM}{LT}$$

$$= \frac{KT}{QN} \times \frac{KM}{LT} \ (\text{since OM} = \text{QN})$$

$$or \ = \frac{KT}{LT} \times \frac{KM}{QN} \qquad \ldots\ldots\ldots(2)$$

Triangles KLT and QKN are similar, therefore,

$$\frac{KT}{LT} = \frac{QN}{KN}$$

Putting this in our equation (2) above we get

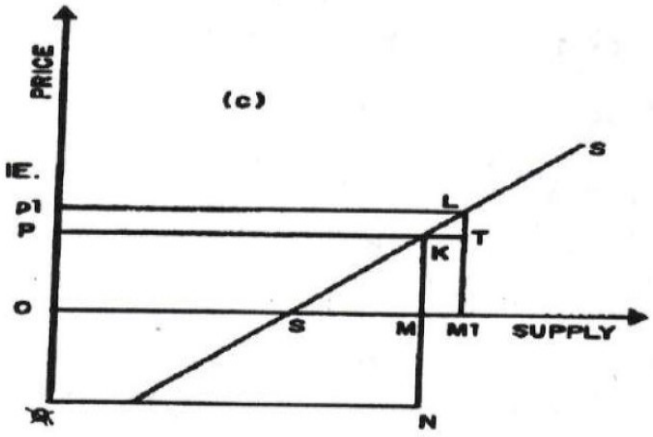
Elasticity of supply

$$= \frac{QN}{KN} \times \frac{KM}{QN} = \frac{KM}{KN}$$

which is obviously less than one. This shows that when a straight line supply curve (or its projection) cuts the X-axis it has an elasticity of less than unity.

**Elasticity of Supply Less than One**

**Figure 3.26**
**Supply**




In the same way, we can find out the elasticity of supply. In figure 3.23 (c) where the supply function SS cuts the X axis at Q. In the range Ks, elasticity of supply is

$$\frac{\text{Change in supply}}{\text{Amount supplied}} \div \frac{\text{Change in price}}{\text{Price}}$$

$$\frac{MM_1}{OM} \div \frac{LT}{KM} = \frac{KT}{OM} \div \frac{LT}{KM} = \frac{KT}{OM} \times \frac{KM}{LT} \quad (MM_1 = KT)$$

$$= \frac{KT}{LT} \times \frac{KM}{OM} = \frac{KT}{LT} \times \frac{KM}{QN} (MM1 = KT \text{ and } OM = QN) \quad \ldots\ldots\ldots (3)$$

Since triangles KTL and QNK are similar

$$\frac{KT}{LT} = \frac{QN}{KN}$$

**Putting this value in equation (3) derived above, we get**

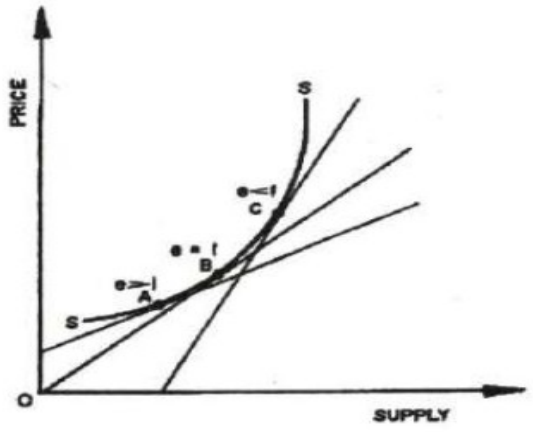
$$\textbf{Elasticity of supply} = \frac{QN}{KN} \times \frac{KM}{QN} = \frac{KM}{KN}$$

which is obviously less than one. This shows that when a straight line supply curve (or its projection) cuts the X-axis it has an elasticity of less than unity.

**Elasticity of supply in a Supply Curve**

When the supply function in question is a curve, we use the method of finding elasticity at a point by drawing a tangent to the supply curve at that point. If the tangent passes through the origin, elasticity of supply at the point of tangency is one; if the tangent intersect the Y-axis, i' is more than unity, and if the tangent cuts the X axis the elasticity 01 supply at the point is less than unity. This is shown in Figure 3.24.

**Figure 3.27**
**Elasticity of supply in a Supply Curve**




Elasticity of supply varies with the period under consideration. Given a small change in price the quantity offered for sale in a given period will be smaller in the short run than in the long run. The longer the period to which supply curve is related, the greater will be the elasticity.

Supply may be inelastic in the short period and quite elastic in the long period. Thus, elasticity of supply has a time dimension while elasticity of demand has none.

**Uses of the Concept of Elasticity of Supply**

The concept of elasticity of supply has many uses:

- ✓ It helps us in knowing the effect on the price of a commodity when its demand rises. It will depend, among other things, on the elasticity of supply. The more elastic is supply the smaller the rise in price needs to be in order to induce sellers to offer more of the commodity for sale.
- ✓ The difference between short-run inelasticity of supply and long-run elasticity of supply of capital assets, technical and entrepreneurial talent helps us in an understanding of the _quasi-rent, they enjoy. The greater the elasticity of supply of a factor or production the higher is the share of rent in the total earning. If the supply of a factor is perfectly elastic (supply curve is a straight line parallel to the horizontal

axis) then there is no rent element in the factor earning. On the extreme opposite, if the supply of a factor is altogether inelastic, as in the case of land for a country, then the whole of its earnings are rent. Thus the elasticity of supply of a factor determines what part of its earning **is** in the nature of rent.

- ✓ The elasticity of supply concept is also useful in economic planning. In less developed countries knowledge of supply elasticities of at least the key industries is essential for the formulation of production programmes and for avoiding unnecessary shortage induced inflationary pressures.

**Check Your Progress**

**Choose the Correct Answer:**

1. **Production refers to**

   a) Creation of utility

   b) Selling of goods

   c) Transportation of goods

   d) Consumption of goods

   **Answer: a) Creation of utility**

2. **Which of the following is a factor of production?**

   a) Land

   b) Labour

   c) Capital

   d) All of the above

   **Answer: d) All of the above**

3. **A production function shows the relationship between**

   a) Cost and revenue

   b) Inputs and output

   c) Demand and supply

d) Price and profit

**Answer: b) Inputs and output**

4. **The law of variable proportion operates in**

a) Long run

b) Short run

c) Very long run

d) All periods

**Answer: b) Short run**

5. **According to the law of variable proportion, when more units of a variable factor are used with a fixed factor, output will**

a) Increase at an increasing rate initially

b) Remain constant

c) Decrease immediately

d) Stop completely

**Answer: a) Increase at an increasing rate initially**

6. **The law of returns to scale operates in**

a) Short run

b) Long run

c) Market period

d) Very short run

**Answer: b) Long run**

7. **Economies of scale refer to**

a) Increase in production cost

b) Reduction in cost per unit due to large scale production

c) Increase in demand

d) Decrease in production

**Answer: b) Reduction in cost per unit due to large scale production**

8. **Which of the following is a cost concept?**

a) Fixed cost

b) Variable cost

c) Total cost

d) All of the above

**Answer: d) All of the above**

9. **In the short run, at least one factor of production is**

a) Variable

b) Fixed

c) Abundant

d) Unlimited

**Answer: b) Fixed**

10. **The supply curve normally slopes**

a) Downward

b) Upward

c) Horizontal

d) Vertical

**Answer: b) Upward**

**Small Questions – LOCF Mapping Table**

| S.No | Small Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | What is production? | CO1 | Remember | PO1 |
| 2 | What are the factors of production? | CO1 | Remember | PO1 |
| 3 | What is a production function? | CO2 | Understand | PO2 |
| 4 | What is meant by economies of scale? | CO2 | Understand | PO2 |
| 5 | What is supply? | CO3 | Understand | PO3 |

**Big Questions – LOCF Mapping Table**

| S.No | Big Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | Explain the concept of production and the factors of production. | CO1 | Understand | PO1 |
| 2 | Discuss the production function and the law of variable proportions. | CO2 | Analyze | PO2 |
| 3 | Explain the law of returns to scale and economies of scale. | CO2 | Understand | PO3 |
| 4 | Describe the different cost concepts and the cost–output relationship in the short run and long run. | CO3 | Analyze | PO4 |
| 5 | Explain the revenue curves of firms and supply analysis. | CO3 | Evaluate | PO5 |

# UNIT – IV

## Structure:


## 4.1 Introduction

## 4.2 Objectives of Pricing Policy

## 4.3 Factors Involved In Pricing Policy

## 4.4 Methods of Pricing

## 4.5 Dual Pricing

## 4.6 Price Discrimination


## 4.1 Introduction

Pricing is one of the most important elements of the marketing, as it is the only factor which generates a turnover for the organization. It can be defined as "Activities aimed at finding a product's optimum price, typically including overall marketing objectives, consumer demand, product attributes, competitors' pricing, and market and economic trends." It costs to produce and design a product; it costs to distribute a product and costs to promote it.

Price must support these elements of the mix. Pricing is difficult and must reflect supply and demand relationship. Pricing a product too high or too low could mean a loss of sales for the organization.

It is the value that is put to a product or service and is the result of a complex set of calculations, research and understanding and risk taking ability.

**Meaning of Pricing**

Pricing is a process of fixing the value that a manufacturer will receive in the exchange of services and goods. Pricing method is exercised to adjust the cost of the producer's offerings suitable to both the manufacturer and the customer. The pricing depends on the company's average prices, and the buyer's perceived value of an item, as compared to the perceived value of competitors product.

Every businessperson starts a business with a motive and intention of earning profits. This ambition can be acquired by the pricing method of a firm. While fixing the cost of a product and services the following point should be considered:

- ✓ The identity of the goods and services
- ✓ The cost of similar goods and services in the market
- ✓ The target audience for whom the goods and services are produces

- ✓ The total cost of production (raw material, labour cost, machinery cost, transit, inventory cost etc).
- ✓ External elements like government rules and regulations, policies, economy, etc.,

**The Influencing Factors for a Pricing Decision Can Be Divided Into Two Groups**

a) Internal Factors

b) External Factors

**Figure 4.1**
**Factors Affecting Pricing Decisions**

**a) Internal Factors**

**i) Organizational Factors**

Pricing decisions occur on two levels in the organisation. Over-all price strategy is dealt with by top executives. They determine the basic ranges that the product falls into in terms of market segments. The actual mechanics of pricing are dealt with at lower levels in the firm and focus on individual product strategies. Usually, some combination of production and marketing specialists are involved in choosing the price.

**ii) Marketing Mix**

Marketing experts view price as only one of the many important elements of the marketing mix. A shift in any one of the elements has an immediate effect on the other three —Production, Promotion and Distribution. In some industries, a firm may use price reduction as a marketing technique.

Other firms may raise prices as a deliberate strategy to build a high-prestige product line. In either case, the effort will not succeed unless the price change is combined with a total marketing strategy that supports it. A firm that raises its prices may add a more impressive looking package and may begin a new advertising campaign.

**iii) Product Differentiation**

The price of the product also depends upon the characteristics of the product. In order to attract the customers, different characteristics are added to the product, such as quality, size, colour, attractive package, alternative uses etc. Generally, customers pay more prices for the product which is of the new style, fashion, better package etc.

**iv) Cost of the Product**

Cost and price of a product are closely related. The most important factor is the cost of production. In deciding to market a product, a firm may try to decide what prices are realistic, considering current demand and competition in the market. The product ultimately goes to the public and their capacity to pay will fix the cost, otherwise product would be flapped in the market.

**v) Objectives of the Firm**

A firm may have various objectives and pricing contributes its share in achieving such goals. Firms may pursue a variety of value-oriented objectives, such as maximizing sales revenue, maximizing market share, maximizing customer volume, minimizing customer volume, maintaining an image, maintaining stable price etc. Pricing policy should be established only after proper considerations of the objectives of the firm.

**b) External Factors**

**i) Demand**

The market demand for a product or service obviously has a big impact on pricing. Since demand is affected by factors like, number and size of competitors, the prospective buyers, their capacity and willingness to pay, their preference etc. are taken into account while fixing the price.

A firm can determine the expected price in a few test-markets by trying different prices in different markets and comparing the results with a controlled market in which price is not altered. If the demand of the product is inelastic, high prices may be fixed. On the other hand, if demand is elastic, the firm should not fix high prices, rather it should fix lower prices than that of the competitors.

**ii) Competition**

Competitive conditions affect the pricing decisions. Competition is a crucial factor in price determination. A firm can fix the price equal to or lower than that of the competitors, provided the quality of product, in no case, be lower than that of the competitors.

**iii) Suppliers**

Suppliers of raw materials and other goods can have a significant effect on the price of a product. If the price of cotton goes up, the increase is passed on by suppliers to manufacturers. Manufacturers, in turn, pass it on to consumers.

Sometimes, however, when a manufacturer appears to be making large profits on a particular product, suppliers will attempt to make profits by charging more for their supplies. In other words, the price of a finished product is intimately linked up with the price of the raw materials. Scarcity or abundance of the raw materials also determines pricing.

**iv) Economic Conditions**

The inflationary or deflationary tendency affects pricing. In recession period, the prices are reduced to a sizeable extent to maintain the level of turnover. On the other hand, the prices are increased in boom period to cover the increasing cost of production and distribution. To meet the changes in demand, price etc.

**Several pricing decisions are available:**

- ✓ Prices can be boosted to protect profits against rising cost,
- ✓ Price protection systems can be developed to link the price on delivery to current costs,
- ✓ Emphasis can be shifted from sales volume to profit margin and cost reduction etc.

**v) Buyers**

The various consumers and businesses that buy a company's products or services may have an influence in the pricing decision. Their nature and behaviour for the purchase of a particular product, brand or service etc. affect pricing when their number is large.

**vi) Government**

Price discretion is also affected by the price-control by the government through enactment of legislation, when it is thought proper to arrest the inflationary trend in prices of certain products. The prices cannot be fixed higher, as government keeps a close watch on pricing in the private sector. The marketers obviously can exercise substantial control over the internal factors, while they have little, if any, control over the external ones.

**While Setting the Price, the Firm May Aim At the Following Objectives**

**i) Price-Profit Satisfaction**

The firms are interested in keeping their prices stable within certain period of time irrespective of changes in demand and costs, so that they may get the expected profit.

**ii) Sales Maximization and Growth**

A firm has to set a price which assures maximum sales of the product. Firms set a price which would enhance the sale of the entire product line. It is only then, it can achieve growth.

**iii) Making Money**

Some firms want to use their special position in the industry by selling product at a premium and make quick profit as much as possible.

**iv) Preventing Competition**

Unrestricted competition and lack of planning can result in wasteful duplication of resources. The price system in a competitive economy might not reflect society's real needs. By adopting a suitable price policy the firm can restrict the entry of rivals.

**v) Market Share**

The firm wants to secure a large share in the market by following a suitable price policy. It wants to acquire a dominating leadership position in the market. Many managers believe that revenue maximisation will lead to long run profit maximisation and market share growth.

**vi) Survival**

In these days of severe competition and business uncertainties, the firm must set a price which would safeguard the welfare of the firm. A firm is always in its survival stage. For the sake of its continued existence, it must tolerate all kinds of obstacles and challenges from the rivals.

**vii) Market Penetration**

Some companies want to maximise unit sales. They believe that a higher sales volume will lead to lower unit costs and higher long run profit. They set the lowest price, assuming the market is price sensitive. This is called market penetration pricing.

**viii) Marketing Skimming**

Many companies favour setting high prices to 'skim' the market. DuPont is a prime practitioner of market skimming pricing. With each innovation, it estimates the highest price it can charge given the comparative benefits of its new product versus the available substitutes.

**ix) Early Cash Recovery**

Some firms set a price which will create a mad rush for the product and recover cash early. They may also set a low price as a caution against uncertainty of the future.

**x) Satisfactory Rate of Return**

Many companies try to set the price that will maximise current profits. To estimate the demand and costs associated with alternative prices, they choose the price that produces maximum current profit, cash flow or rate of return on investment.

**Types of Pricing**

**a) Cost Based Pricing Metho**d

**i) Cost plus pricing**

Product unit's total cost + percentage of profit. Commonly followed in departmental stores. Does not consider the competition factor.

**ii) Marginal cost pricing**

Also called break-even pricing. Selling price is fixed in such a way that it covers fully the variable or marginal cost.

**b) Competition-Oriented Pricing**

**i) Sealed bid Pricing**

This method is more popular in tenders & contracts. Each contracting firm quotes its price in a sealed cover called 'tender'. All the tenders are opened on a scheduled date and the person who quotes the lowest price is awarded the contract.

**ii) Going rate Pricing**

Price is charged in tune with the price in the industry as a whole. When one wants to buy or sell gold, the prevailing market rate at a given point of time is taken as the basis to determine the price

**c) Demand-Oriented Pricing**

**i) Price discrimination**

Practice of charging different prices to customers for the same good. It is also called differential pricing. Prices are discriminated on the basis of customer requirements, nature of product itself, geographical areas, income group etc.

**ii) Perceived value pricing**

Price fixed on the basis of the perception of the buyer of the value of the product. For example: Mobile phones without touch screens these days.

**d) Strategy-Based Pricing**

**i) Market Skimming**

When the product is introduced for the first time in the market, the company follows this method. Under this method, the company fixes a very high price for the product. The idea is to charge the customer maximum possible. Mostly found in technical products.

**ii) Market Penetration**

Opposite to the market skimming method. Here the product is fixed so low that the company can increase its market share.

**iii) Two-part pricing**

A firm charges a fixed fee for the right to purchase its goods, plus a per unit charge for each unit purchased. Organizations such as country clubs, golf courses charge membership fee and offer their products & services cost- to-cost.

**iv) Block Pricing**

Block pricing is another way a firm with market power can enhance its profits. We see block pricing in our day-to- day life. Six lux soaps in a single pack or Maggi noodles in a single pack illustrate this pricing methods. By selling certain number of units of a product as one package, the firm earns more than by selling unit wise.

**v) Commodity bundling**

Commodity bundling refers to the practice of bundling two or more different products together and selling them at a single 'bundle price'. For example: The package deals offered by the tourist companies, airlines etc.

**vi) Peak load Pricing**

During seasonal period when demand is likely to be higher, a firm may enhance profits by peak load pricing. The firm's philosophy is to charge a higher price during peak times than is charged during off- peak times

**vii) Cross subsidization** In cases where demand for two products produced by a firm is interrelated through demand or costs, the firm may enhance the profitability of its operation through cross subsidization. Using the profits generated by established products, a firm may expand its activities by financing new product development and diversification into new product market. For example, A computer selling both hardware & Software.

**viii) Transfer Pricing**

Transfer pricing is an internal pricing technique. It refers to a price at which inputs of one department are transferred to another, in order to maximize the overall profits of the company.

**ix) Price Matching**

A firm promises to match a lower price offered by any competitor, while announcing its own price. It is necessary that one should be confident, before adopting this strategy.

**x) Promoting Brand Loyalty**

This is an advertising strategy where the customers are frequently reminded by the brand value of a given product or service. Conviction is to retain the brand loyalty, so that customers will not slip away when the competitors come up with lower prices. For example: Pepsi and Coke spend huge amounts on advertising campaigns to draw the attention of consumers.

**xi) Time-to-time Pricing**

This is also called randomized pricing strategy where the firm varies its price from time-to-time, say hour-to- hour or day-to-day. Customers cannot learn from experience which firm charges the lowest price in the market. For ex: Markets of bullion, currency and bank deposits.

**xii) Promotional Pricing**

Promoting the product by intentionally charging lower price to attract the customer

**xiii) Target Pricing**

This is a strategy where company fixes a price keeping in view a targeted profit in mind.

**Pricing Practices and Strategy**

It takes into account segments, ability to pay, market conditions, competitor actions, trade margins and input costs, amongst others. It is targeted at the defined customers and against competitors.

**i) Cost-plus pricing**

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

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

P = AVC + AVC (M)

AVC= Average Variable Cost

M = Mark-up percentage

AVC (m) = Gross profit margin

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

AVC (m) = AFC+ NPM

**a)** 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.

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

**Advantages of cost-plus pricing method are as follows:**

- ✓ Requires minimum information
- ✓ Involves simplicity of calculation
- ✓ Insures sellers against the unexpected changes in costs

**Disadvantages of cost-plus pricing method are as follows**:

- ✓ Ignores price strategies of competitors
- ✓ Ignores the role of customers

**ii) Markup Pricing**

It Refers to a pricing method in which the fixed amount or the percentage of cost of the product is added to product's price to get the selling price of the product. Markup pricing is more common in retailing in which a retailer sells the product to earn profit.

**For example**, if a retailer has taken a product from the wholesaler for Rs. 100, then he/she might add up a markup of Rs. 20 to gain profit.It is mostly expressed by the following formulae:

a. Markup as the percentage of cost= (Markup/Cost) *100

b. Markup as the percentage of selling price= (Markup/ Selling Price)*100

c. For example, the product is sold for Rs. 500 whose cost was Rs. 400. The mark up as a percentage to cost is equal to (100/400)*100 =25. The mark up as a percentage of the selling price equals (100/500)*100= 20.

**iii) Demand-based Pricing**

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

on the ability of marketers to analyze the demand. This type of pricing can be seen in the hospitality and travel industries

**iv) Competition-based Pricing**

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

The aviation industry is the best example of competition-based pricing where airlines charge the same or fewer prices for same routes as charged by their competitors. In addition, the introductory prices charged by publishing organizations for textbooks are determined according to the competitors' prices.

**v) 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.

**vi) Target Return Pricing**

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

**vii) Going Rate Pricing**

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

**viii) Transfer Pricing**

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

**ix) Market Skimming Pricing**

Skimming is adopted where a new product is launched and the seller has little information on the acceptable price in the market. The seller, therefore, starts by setting a

high price on the launch of the product and then, over a period of time, lowers the price to meet the varying price elastic ties of demand.

This enables gradual expansion in capacity by the seller. This practice is followed in the consumer durables market. The seller chooses to start by setting at a high price to avoid the risk of losing on customers who are willing to pay a high price.

**x) Penetration Pricing**

Penetration pricing is a strategy employed by businesses introducing new goods or services into the marketplace. With this policy, the initial price of the good or service is set relatively low in hopes of 'penetrating' into the marketplace quickly and securing significant market share.

- ✓ A penetration policy is even more attractive if selling larger quantities results in lower costs because of economies of scale. Penetration pricing may be wise if the firm expects strong competition very soon after introduction.
- ✓ A low penetration price may be called a 'stay out' price. It discourages competitors from entering the market. Once the product has secured a desired market share, its producers can then review business conditions and decide whether to gradually increase the price.
- ✓ Penetration pricing involves the setting of lower, rather than higher prices in order to achieve a large, if not dominant, market share.

This strategy is most often used in businesses wishing to enter a new market or build on a relatively small market share.

This will only be possible where demand for the product is believed to be highly elastic, i.e., demand is price-sensitive and either new buyers will be attracted or existing buyers will buy more of the product as a result of a low price.

**xi) Bundling Pricing**

It is a pricing practice when two or more products are sold as bundle. Also, the constituent products of the bundle are not sold individually.

Price bundling is a strategy whereby a seller bundles together many different goods/items being sold and offers the entire bundle at a single price.

**There are two forms of price bundling—pure bundling**, where the seller does not offer buyers the option of buying the items separately, and **mixed bundling**, where the seller offers the items separately at higher individual prices. Mixed bundling is usually preferable to pure

bundling, both because there are fewer legal regulations forbidding it, and because the reference price effect makes it appear even more attractive to buyers.

**Suppose** there are two buyers, A and B, and two products, X and Y. Suppose buyer A values product X at 20 units above the cost of production, and values 7 at 15 units above the cost of production. Suppose buyer B values Y at 20 units above the cost of production, and X at 15 units above the cost of production.

The ideal thing for the seller would be to practice price discrimination: charge each buyer the maximum that buyer is willing to pay. However, this may be forbidden by law or otherwise difficult to implement.

Instead, the seller can pursue the following bundling strategy- charge slightly under 35 units above production cost for the combination of X and Y. Since both buyers value the combination at 35 units, this deal appeals to both buyers. This allows the seller to obtain the entire social surplus as producer surplus.

The seller can even make this a mixed bundling strategy – offer both X and Y individually for 20 units, and offer the combination for slightly less than 35 units.

**xii) Peak Load Pricing**

It is a pricing practice where price varies with time of the day. When demand for a commodity or service varies at different periods of time, it has been generally suggested that higher price of a commodity or service be charged for the peak period when demand is greater and lower price be charged for off-peak period when demand is lower. This dual pricing, that is higher price for peak period and lower price for off-peak period is known as peak-load pricing.

**For example**. In India charges for trunk or STD calls during day time which is the peak period is higher and charges for the off-peak period from 9 P.M. to 6 A.M. are lower. In many countries, electric companies are permitted to charge higher rates during the day time which is the peak period for the use of electricity and lower rates for the night which is off-peak period for the use of electricity. Similarly, airlines often follow peak-load pricing; in off season they often lower their rates as compared to the peak periods of travel.

**xiii) Limit Pricing**

Limit pricing refers to the pricing by incumbent firm(s) to deter or inhibit the entry or the expansion of fringe firms.

Limit pricing implies that firms sacrifice current profits in order to deter entry of new firms and earn future profits. It is not clear whether this strategy is always superior to one where current prices (and profits) are higher, but decline over time as an entry occurs.

Limit pricing thus involves charging prices below the monopoly price in order to make entry appear unattractive (to limit entry). A low price would discourage entry if prices had a commitment value. But they do not, because prices can be changed quickly. Hence, if a potential entrant has complete information about the incumbent, limit pricing would be useless.

It is the policy adopted by firms already in a market to reduce their prices so as to make it unprofitable for other firms to try to enter the market. The price so established is called an entry forestalling price.

**xiv) Prestige Pricing**

Prestige pricing is a marketing strategy where prices are set higher than normal because lower prices will hurt instead of helping sales, such as for high-end perfumes, jewelry, clothing, cars, etc. It is also called image pricing or premium pricing.

It is a price system that implies added value of a product because of its location at the higher end of the price scale. Prices within this type of financial modeling are artificially elevated for a psychological marketing advantage. This type of pricing aims to capitalize on buyers' notions that one brand's high-priced item is superior in quality to a similar item that could be purchased for significantly less.

The strategy behind prestige pricing is not tied to its quality but more to its image.

**Advantages of Price Practices**

**i) Firms will be able to increase revenue**

Price discrimination will enable some firms to stay in business who otherwise would have made a loss. For example price discrimination is important for train companies who offer different prices for peak and off-peak. Without price discrimination, they may go out of business or be unable to provide off-peak services.

**ii) Increased investment**

These increased revenues can be used for research and development which benefit consumers

**iii) Lower prices for some**

Some consumers will benefit from lower fares. For example, old people benefit from lower train companies; old people are more likely to be poor. Also, customers willing to spend time in researching ‘special offers’ and travelling at awkward times will be rewarded with lower prices.

**iv) Manages demand**

Airlines can use price discrimination to encourage people to travel at unpopular times (early in the morning) This helps avoid over-crowding and helps to spread out demand.

**Disadvantages of Pricing Practices**

**i) Higher prices for some**

Under price discrimination, some consumers will end up paying higher prices (e.g. people who have to travel at busy times). These higher prices are likely to be allocatively inefficient because P > MC.

**ii) Decline in consumer surplus**

Price discrimination enables a transfer of money from consumers to firms – contributing to increased inequality.

**iii) Potentially unfair**

Those who pay higher prices may not be the poorest. For example, adults paying full price could be unemployed, senior citizens can be very well off.

**iv) Administration costs**

There will be administration costs in separating the markets, which could lead to higher prices.

**v) Predatory pricing**

Profits from price discrimination could be used to finance predatory pricing.

## 4.2 Objectives of Pricing Policy

Pricing is not an end in itself. Pricing is a means to an end. Therefore, the firm must explicitly lay down its pricing objectives. The firm's overall objectives serve as guiding principle to pricing. Thus, firm's business objectives are normally spelled out as the objectives of its price policy. Empirical evidences reflect that theoretical goal of profit maximisation is rarely taken in practice by the business firms in their price policy.

The following are the commonly adopted major pricing objectives of a business firm:

**Survival**

Basically, in these days of monopolistic competition or dynamic changes and business uncertainties, a firm is always interested in its continued survival first. For the sake of assuring continued existence, generally, a firm is ready to tolerate all kinds of upheaval in product lines, organisational and even personnel changes.

**Rate of Growth and Sales Maximisation**

A firm may be interested in setting a price policy which will permit a rapid expansion of the firm's business and its sales maximisation.

**i) Market Shares**

By adopting a price policy the firm may wish to capture a larger share in the market and acquire a dominating leadership position. In oligopoly market, this is quite common.

**ii) Target Return on Investment**

The firms may have a predetermined target return of their investment, for instance say 10 per cent.

**iii) Preventing Competition**

In pricing its product, the firm may keep an eye on rival's entry. So, it may fix up the price such that would prevent competition.

**iv) Making Money**

Some firms are interested in making a fast buck taking their monopoly advantage into account and try to sell their goods at premium. Thus, pricing objective may be of making money.

**v) Service Motive**

A firm may set pricing policy such as to serve the community and improve its welfare.

**vi) Regular Income**

Some firms are interested in maintaining regular flow of income, so would set their price policy accordingly.

**vii) Price Stabilisation**

The firms may be generally interested in keeping their prices stable within certain range over a period of time, irrespective of marginal changes in demand and costs.

However, the survival of the firm is always the underlying objective in pricing. In practice, thus, the following interrelated pricing objectives are commonly held:

- ✓ to fulfil a goal rate of return on investment;
- ✓ to seek the anticipated rate of growth;
- ✓ to improve the market share;
- ✓ to stabilise prices and profit margins for the regular flow of income.

## 4.3 Factors Involved In Pricing Policy

The executive's problems of private pricing policy involves many considerations and right advice from the professional business economist. The following are the important factors deserving special attention in determination of a pricing policy of any firm.

i) Costs;

ii) Demand and Consumer Psychology;

iii) Competition;

iv) Profit; and

v) Government policy.

**i) Costs**

Cost is an important element in price determination. Cost data serve as the base. Price has to be along cost. If price is below the cost of production it would mean losses. Thus, cost analysis is important. Along the total costs, average and marginal costs are to be determined.

- ✓ For business decisions in the short run, direct or variable costs have greater relevance. The firms seek to cover full allocated costs.
- ✓ Economy in cost is also important for setting a lower price for the product. A high cost of production obviously calls for a higher price.

**ii) Demand**

In pricing policy, demand can never be overlooked. Rather, demand is more important for the effective sales. Demand for a firm's product depends on consumer's preferences. So, the consumer psychology is very important. Through appropriate advertising and sales campaign consumers' psychology can be influenced and their preferences may be altered, thus, demand

can be manipulated.

A low or high price policy is to be set in view of the elasticity of demand. If demand for the product is highly inelastic, then only rising price policy would be a paying proposition to the businessman.

Further, in all cases demand is not price elastic. In some cases, especially, consumer durables, *e.g.*, TV set, car, etc., demand is income elastic. Thus, when income of the buyers rises, the firm can expect to sell more such goods even at high prices.

In case of elastic demand for the goods, a price cut would be beneficial in boosting the sale. However, consumers' psychology — their anticipation about the price change is also significant. If consumers anticipate a further price cut, then the price cut policy will result in

increasing the sale only marginally in the short-run. But, if they feel that the price cut is final, it will definitely improve the sale to a greater extent.

**iii) Competition**

The nature of pricing policy largely depends on the degree of competition prevailing in the market. Under perfect competition, there is a uniquely determined ruling price in the market, also the firm has no scope to design its own price policy. Under monopoly, oligopoly or monopolistic competition, the firm can determine its own price policy.

**iv) Profits**

In determining price policy, profit consideration is also significant. In practice, however, rarely is there a goal of profit maximisation. Usually, pricing policy is based on the goal of obtaining a reasonable profit. Further, most of the businessmen would prefer to hold constant price for their products rather than going for a price rise on a price cut, as far as possible. Thus, price rigidity may be the norm of the price policy. But, rigidity does not mean inflexibility. Price fluctuations do conform to cost changes.

**v) Government Policy**

Pricing policy of a firm is also affected by the government policy. If the government resorts to price control, the firm has to adopt the price as per the formula and ceiling prescribed by the government, then there is little scope to pursue its own pricing. For instance, in India we have drug price control, etc.

## 4.4 Methods of Pricing

Pricing method is a technique that a company apply to evaluate the cost of their products. This process is the most challenging challenge encountered by a company, as the price should match the current market structure and also compliment the expenses of a company and gain profits. Also, it has to take the competitor's product pricing into consideration so, choosing the correct pricing method is essential.

**Types of Pricing Methods**

The pricing methods are broadly classified into two categories: **Cost-Oriented Pricing Methods** and **Market-Oriented Pricing Methods.** The Cost-Oriented Pricing Methods include Cost-Plus Pricing, Markup Pricing, and Target Return Pricing. However, the Market-Oriented Pricing Methods include Perceived Value Pricing, Value Pricing, Going Rate Pricing, Differential Pricing, and Auction Type Pricing.

**I. Cost-Oriented Pricing Methods**

**1. Cost-Plus Pricing**

Cost-plus pricing is the easiest and most basic method of pricing. Under this method, the seller adds a pre-specified percentage on the cost of producing one unit. This pre-specified percentage, also known as **Markup Percentage**, is used to determine the selling price. The markup; thus, is the profit percentage implied on the cost of production. Cost-plus pricing ensures the desired rate of return. Price determination under cost-oriented pricing is calculated as follows:

Total Cost = Fixed Costs + Variable Costs

$$Unit\ cost = \frac{Total\ cost}{Number\ of\ units}$$

Markup Price = Unit cost x Markup Percentage

Selling Price = Unit cost + Markup Price

**For example,** Assume that the cost of production of product A is ₹1,000 with a markup of 50% on the total cost, then the selling price will be calculated as:

Markup Price = Unit cost x Markup Percentage = ₹1,000 x 50% = ₹500

Selling Price = Unit cost + Markup Price = ₹1,000 + ₹500

**Selling Price = ₹1,500**

**2. Markup Pricing**

Markup Pricing is the method where markup is calculated on the selling price of the product. In other words, it is the method of adding a profit percentage to the selling price of the product. Prices under markup pricing are considered as:

$$Marked\ Price = \frac{Unit\ Cost}{1 - Desired\ return\ on\ sale}$$

**For example,** Assume that the cost of production of product A is ₹1,000 and the seller wants to earn a profit of 20% on sales, then the markup price will be calculated as:

$$\text{Marked-up Price} = \frac{Unit\ Cost}{1 - Desired\ Return\ on\ Sale}$$

$$= \frac{1000}{1 - 0.20}$$

**Marked-up Price = ₹1,250**

**3. Target Return Pricing**

Target Return Pricing is the method under which the firm decides to set up the prices of products according to the pre-specified required rate of Return on Investment (ROI).

$$Target\ Return\ Price = Unit\ Cost + \frac{Desired\ Return \times Capital\ Invested}{Unit\ Sales}$$

**For example,** Assume that the manufacturer has invested ₹10,000 in business and is expecting an ROI of 20% i.e., ₹2,000, given that the unit price is ₹50 and the target sales is 100 units, then the target return price is given by

$$Target\ Return\ Price = Unit\ Cost + \frac{Desired\ Return \times Capital\ Invested}{Unit\ Sales}$$

$$= 50+\frac{0.20\times{10,000}}{100}$$

**Target Return Price = ₹70**

**II. Market-Oriented Pricing Methods**

**1. Perceived Value Pricing**

Under this pricing method, the manufacturer undertakes the customers' perception of goods and services. The customer's expectation of the price of the product plays an important role in deciding the price of the product. **For Example,**

- ✓ Starbucks charges high prices for its coffee as compared to other coffee brands, relying on the perception of a unique coffee experience and ambience.
- ✓ Organic food products are often priced higher than non-organic food products, leveraging the perception of healthier and more sustainable options.

**2. Value Pricing**

Under this method of pricing, re-engineering is done to reduce the cost of production as well as maintain the high-end quality. The cost of product/services are thus low with better quality. **For example,**

- ✓ Walmart is known for its value pricing strategy, offering a wide range of products at lower prices than many of its competitors. This attracts budget-conscious consumers who prioritise affordability.
- ✓ McDonald's offers a value-priced menu with items prices at low prices, catering to customers looking for affordable meal options.

**3. Going Rate Pricing**

Under this method of pricing, the firm undertakes the prices of rival firms and sets its prices accordingly. Generally, to end the price wars among the firms, the prices of all firms in an industry remain more or less the same when they adopt the going-rate pricing method. Oligopolistic firms like steel, fertilizers, paper, etc., practice going rate pricing. **For example,**

- ✓ Telecommunication firms like Jio, Airtel, and Vodaphone charge almost the same rates under the going rate pricing method.
- ✓ Ride-sharing companies like Uber and Lyft use dynamic pricing, adjusting fares based on factors like demand and supply.

**4. Differential Pricing**

Differential pricing is practiced under price discrimination where the sellers charge different prices from different buyers. The prices can also vary from age, gender, location, customer standard, etc. **For example,**

- ✓ The price of Mineral Water charged is different in different places, hotels, restaurants, general stores, etc.
- ✓ Movie Theaters often use differential pricing based on factors like age, time of the day, and special occasions.

**5. Auction Type Pricing**

This type of pricing method came into existence with the increased usage of the internet. Websites like OLX, Quikr, eBay, etc., practice auction-type pricing. There are three types of auctions:

- ✓ **English Auctions:** English Auctions consist of one seller and multiple buyers. The sellers tend to increase the price until the product reaches the best bid.
- ✓ **Dutch Auctions:** Under Dutch auctions, there may be one seller and many buyers or many sellers and one buyer. The former type consists of setting up the best price and adjusting it according to the capacity of bidders and the latter type undertakes the bidder asking for the product and multiple sellers offering reasonable prices.
- ✓ **Sealed-Bid Auctions:** Government and industrial purchases generally follow this method of pricing. Under this, potential buyers communicate their prices with suppliers only and do not disclose them to anyone else.

## 4.5 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 refers to two types of prices for a commodity, viz., (i) controlled price, and (ii) market price. Controlled price of the product is directly, fixed up by the government for a certain portion of the total output. Its market price is the freely determined market price for the remaining quantity of output. Dual pricing involves the following considerations:

- ✓ Determining a certain proportion of the output of a commodity which is to be procured by the government at a fixed rate called levy rate.
- ✓ Fixing the procurement or levy price.
- ✓ Arranging for the distribution of the procured quantity of output to specified categories
- ✓ of consumers/users called beneficiaries.
- ✓ Determining the issue price, *i.e.*, the price payable by the beneficiaries.
- ✓ Permitting the rest of the stock to be sold by the producers in the open market. It is referred to as 'free sale quantity' which is sold at freely determined market price through market mechanism.

Thus, the major problems associated with dual price system are:

- ✓ Identification of the commodity to be brought under the system of dual pricing.
- ✓ Determination of a considerate levy rate or procurement price.
- ✓ Determination of a reasonable levy price or issue price for the beneficiaries.
- ✓ Organisation of efficient distribution system.

The following are the main merits of dual pricing:

- ✓ It is easier and less expensive to administer.
- ✓ It legitimises the existence of two prices for the product as well as price discrimination among two groups of buyers.
- ✓ It permits restricting the benefits of price control to the deserving sections of buyers only on priority consideration.
- ✓ It reduces the pressure on the government budget to provide for subsidies and incentives for the production of a particular commodity.
- ✓ It also obviates the need for higher taxation.

The major drawbacks of dual pricing are as follows:

- ✓ There is a problem of leakages in administering the system of 'dual pricing.' This problem occurs when there is a vast difference between the 'issue price' and 'open market price' of the product. The leakage means transfer of levy quantity for the sale in open market by the producers.
- ✓ It may lead to black marketing.
- ✓ It may induce/intensify corruption.
- ✓ It may involve deterioration of quality of the output released for procurement.
- ✓ It increases the financial burden for the government in organising distribution system.

- ✓ It may put the government into an embarrassing position when over a period there is a tremendous expansion of output causing a 'surplus' in the economy so that at a time free market price tends to be lower than the levy price.

## 4.6 Price Discrimination

A monopoly firm which adopts the policy of price discrimination is referred to as a discriminating monopoly. Price discrimination implies the act of selling the output of the same product at different prices in different markets or to different buyers. In a broad sense, price discrimination occurs in two ways: *(i)* by charging different prices for the same product, and *(ii)* by not setting prices of different varieties of products or different products in relation to their cost differences. In the theory of discriminating monopolies, however, for the sake of simplicity and convenience, the meaning of price discrimination is basically confined to the former notion, *i.e.,* charging of different prices for the same product to different buyers or in different markets. Indeed, the conclusion arrived at from this simple variation of price discrimination can be extended to a more complicated version.

**Forms of Price Discrimination**

Price discrimination may take many forms and guises. The common forms of price discrimination may be stated as under:

**i) Personal discrimination**

Generally, depending upon the economic status of buyers, different prices may be charged to different buyers in providing similar services. For example, a surgeon may charge a high operation fee to a rich patient and a lower fee to a poor one. Similarly, lawyers may charge different fees to different types of clients depending on theirincome status. A teacher also discriminates between rich and poor students as regards his private tuition fees.

**ii) Age discrimination**

Price discrimination may be based on the basis of age of the buyers. Usually, buyers are grouped into children and adults. Thus, for instance, a barber may charge lower rates for children's haircuts than those for adults. In railways and bus transport services, it is a commonly adopted form of price discrimination that persons below 12 years of age are charged at half the rates.

**iii) Sex discrimination**

In selling certain goods, producers may discriminate between male and female buyers by charging low prices to females. For instance, a tour organising firm may provide seats to

ladies at concessional rates. In certain cinema houses in small towns, a *Zenana* show may be arranged at concessional rates for ladies only.

**iv) Locational or territorial discrimination**

When a monopolist charges different prices in different markets located at different places, it is called locational or geographical discrimination. For instance, a film producer may sell distribution rights to different film distributors in different territories at different prices. Similarly, a firm may discriminate between domestic markets and export markets for its products.

**v) Size discrimination**

On the basis of size or quantity of the product, different prices may be charged. For instance, an economy size toothpaste tube is relatively cheaper than a small size tube. Similarly, a product is sold in the retail market at a higher price than in the wholesale market by the producer.

**vi) Quality variation discrimination**

On the basis of some qualitative differences, different prices may be charged for the same product. For instance, a publisher may sell a deluxe edition of the same book at a higher price than its paperback edition. Quality variation may be in the form of material used, the nature of packing, colour, style, etc. Thus, jellies packed in tins are sold at a lower price than in bottles. A tailor charges higher stitching charges for a safari bush shirt than for an ordinary shirt. A particular print or colour saree may be priced higher than other sarees of the same cloth.

**vii) Special service or comforts**

Price discrimination may also be resorted to on the basis of special facilities or comforts. Railways, for instance, charge different fares for the first class and second class travel. Similarly, cinema houses keep different admission rates for stalls, upper stalls, dress circle and balcony. Likewise, restaurants charge different rates for special rooms and general tables. In a hospital also, charges for special wards and general wards are different.

**viii) Use discrimination**

Sometimes, depending on the kind of use of the product, different rates may be charged. For instance, an electricity distribution company may charge low rates for domestic consumption of electricity while still lower rates for industrial use as compared to the higher rates for light and fan.

**ix) Time discrimination**

On the basis of the time of service, different rates may be charged. For instance, cinema houses charge lower rates of admission for morning and matinee shows than for regular shows. Similarly, the telephone company charges half-rates for trunk-calls at night.

**x) Nature of commodity discrimination**

Sometimes, because of the nature of a commodity, price discrimination may be made, for instance, freight charges by the railways are different for coal and iron for the same distance.

**The Ingredients for Discriminating Monopoly: Conditions Essential for Price Discrimination**

The following are the essential conditions enabling the firm to resort to price discrimination:

**i) Monopoly**

Monopoly is a prerequisite of price discrimination. Undoubtedly, price discrimination is incompatible with perfect competition, because, as there are many sellers selling a homogeneous product, if one seller quotes a higher price to a group of buyers, who know the ruling market price, it is quite likely that they will go to other sellers. Under a monopoly, price discrimination is possible because even though different buyers would know that they are differently charged, they have no alternative source of buying the product. Monopoly is a necessary but a sufficient condition to engage in price discrimination. Other ingredients for price discrimination are as follows:

**ii) Segmentation of the market**

The monopolist should be in a position to segment the market by classifying the buyers into separate groups. When total market is divided into submarkets, each submarket acquires a separate identity so that one submarket has no connection with the others. Again, consumers have no inclination to move from a high priced market to a low priced one, either due to ignorance or absence of inertia.

**iii) Apparent product differentiation**

Through artificial differences in the same product, such as differences in packing, brand name, etc., an apparent product differentiation may be created, so that it can be sold to the poor and the rich consumers at different prices. Price discrimination, with product differentiation, is tolerated by buyers.

**iv) Buyers' illusion**

When consumers have an irrational attitude that high priced goods are always highly qualitative, a monopolist can resort to price discrimination. Obviously, there is hardly any

difference in viewing a film from the last row of the stalls and from the front row in the upper stall seats, yet a purchaser of an upper stall seat derives greater pleasure or place utility of occupying a high priced seat.

**v) Prevention of resale or re-exchange of goods**

Goods of discriminating monopoly, sold in different markets, should not be re-exchangeable between buyers of a low priced market and a high priced market. Wide geographical distance, high cost of transport, national frontiers (in case of internationally traded goods) and tariffs, effectively prevent re-exchange.

**vi) Non-transferability characteristics of goods**

There are some goods which, by their very nature, are non-transferable between one buyer and another. In direct personal services, therefore, price discrimination is easily resorted to because of this non transferability characteristic. Obviously, a poor person cannot go on behalf of the rich to get medical treatment from a doctor. Similarly, haircuts, private tuitions, etc., are non-transferable services by their very nature.

**vii) Let-go attitude of buyers**

When price differences between two markets are very small, the consumers do not think it worthwhile to consider such discrimination. For instance, in the distribution of Dalda Vanaspati (cooking medium), there is a zonal price differential which is a marginal one, so that we hardly pay any attention to such differences of 5 to 10 paise per kilogram in different zones.

**viii) Legal sanction**

When, in some cases, price discrimination is legally sanctioned, the transfer of use of the produce is legally prohibited in order to make it effective. For instance, if electricity, for domestic purposes is used for commercial purposes, the customer is liable to penalties.

**When Is Price Discrimination Profitable?**

Even though circumstances may favour price discrimination, it may not be always profitable for the monopolist. Price discrimination is possible when there are different separate markets. But, the profitability aspect of price discrimination basically depends on the nature of elasticity of demand in these markets. Thus, the basic conditions of profitable price discrimination are:

1. Elasticity of demand differs in each market.
2. The cost-differential of supplying output in different markets should not be large in relation to the price-differential based on elasticity-differential.

Indeed, the elasticity-differential in different markets is a very vital condition. If the degrees of elasticity of demand at each price in different markets have the same numerical coefficient, price discrimination cannot be profitably adopted. Thus, markets with identical elasticities of demand will be treated as one by the monopolist from the price policy point of view. Because, in order to maximise profit, the monopolist follows the rule of equating marginal cost with marginal revenue. When the monopolist considers separate markets, he takes the combined marginal revenue (*CMR*) by aggregating the marginal revenue of different markets and distributes equilibrium total output in different markets so that marginal revenues in each market are the same.

Now, if the monopolist faces iso-elastic demand curves in two markets, he will not resort to price discrimination, because he finds that it cannot improve upon his total revenue; so it cannot add to his profits. When at a single price, elasticities of demand are equal in two markets, their average revenue are equal, so their marginal revenues too are equal. This is apparent from the formula:

MR = P (e – 1) /e

Now, when *P* and *e* are the same in two markets, it follows that *MR* in the two markets is the same. Hence, if any amount of output is transferred from one market to the other and different prices are charged, the aggregate total revenue from the two markets will remain the same as before. This means, that the gain realised in one market is lost in the other. Hence, the purpose of price discrimination, *i.e.*, to maximise profit, is not served. The monopoly profit, whether in simple monopoly or discriminating monopoly in this situation, remains the same. So, the monopolist will not resort to price discrimination and displease his buyers for no material gain.

It follows that if elasticities of demand in two markets at a single monopoly price are different, it would be profitable to adopt price discrimination. Because when elasticity differs in two markets at a given price, the marginal revenue in the two markets will not be identical. To clarify the point, let us assume two markets I and II, and the single monopoly price Rs. 10; say, elasticity of demand in market I, $e1 = 2$, while in market II, $e2 = 4$.

Thus,

In market I, $MR_1 = P\left(\frac{e-1}{e}\right) = 10\left(\frac{2-1}{2}\right) = 5$

While, in market II, $MR_2 = 10\left(\frac{4-1}{4}\right) = 7.5$

Again, *MR* is high in market II, having a higher elasticity of demand. Hence, if output is transferred from the low elasticity market to the high elasticity one, marginal gain will be more than marginal loss. For instance, if one more unit is sold in market II, the gain will be Rs. 7.50 while the loss in market I is Rs. 5. Hence, net gain is Rs. 2.50. But on account of the downward sloping demand curve, the price will have to be lowered in market II in order to sell more.

Suppose the price is lowered to Rs. 9. Then, $MR2 = 9 \times (4 - 1)/4 = 6.75$.

Correspondingly, due to lesser output supplied in market I, the price may rise there, to say Rs. 11. Then, $MR1 = 11 \times (2-1)/2 = 5.50$. This means, by resorting to price discrimination, *MR* of inelastic demand market is also improved, and consequent rise in average and total revenue leads to a rise in total profit.

It may, therefore, be concluded that price discrimination is a profitable proposition to a monopolist only when he deals with different markets with different elasticities of demand.

**Check Your Progress**

**Choose the Correct Answer:**

1. **Pricing refers to**

   a) Fixing the value of a product in money terms

   b) Producing goods

   c) Advertising goods

   d) Distributing goods

   **Answer: a) Fixing the value of a product in money terms**

2. **The main objective of pricing is**

   a) Profit maximization

   b) Sales maximization

   c) Market share increase

   d) All of the above

   **Answer: d) All of the above**

3. **Which of the following is a factor affecting pricing?**

   a) Cost of production

b) Demand for the product

c) Competition

d) All of the above

**Answer: d) All of the above**

4. **Cost-plus pricing method is based on**

a) Adding a profit margin to cost

b) Market demand only

c) Consumer income

d) Government policy

**Answer: a) Adding a profit margin to cost**

5. **Dual pricing means**

a) Charging the same price everywhere

b) Fixing two different prices for the same product

c) Charging a single price

d) Reducing the price regularly

**Answer: b) Fixing two different prices for the same product**

6. **Price discrimination refers to**

a) Charging different prices to different customers for the same product

b) Charging the same price to all customers

c) Selling goods at a loss

d) Fixing high prices only

**Answer: a) Charging different prices to different customers for the same product**

7. **Penetration pricing strategy means**

a) Fixing a low price to enter the market

b) Fixing a high price

c) Fixing an average price

d) Fixing a seasonal price

**Answer: a) Fixing a low price to enter the market**

8. **Skimming pricing strategy means**

a) Charging a very low price

b) Charging a high price initially

c) Charging a uniform price

d) Charging a seasonal price

**Answer: b) Charging a high price initially**

9. **Competition-based pricing mainly considers**

a) Competitors' prices

b) Production cost

c) Government policy

d) Employee wages

**Answer: a) Competitors' prices**

10. **Price discrimination is possible when**

a) Markets are separated

b) No resale is possible

c) Demand differs in markets

d) All of the above

**Answer: d) All of the above**

**Small Questions – LOCF Mapping Table**

| S.No | Small Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | What is pricing? | CO1 | Remember | PO1 |
| 2 | What are the objectives of pricing? | CO1 | Understand | PO2 |
| 3 | What is dual pricing? | CO2 | Remember | PO2 |
| 4 | What is price discrimination? | CO2 | Understand | PO3 |
| 5 | List any two factors affecting pricing decisions. | CO3 | Understand | PO3 |

**Big Questions – LOCF Mapping Table**

| S.No | Big Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | Explain the objectives and factors influencing pricing decisions. | CO1 | Understand | PO1 |
| 2 | Discuss the general considerations of pricing in business. | CO2 | Analyze | PO2 |
| 3 | Explain the various methods of pricing with examples. | CO2 | Understand | PO3 |
| 4 | Discuss the concept and importance of dual pricing. | CO3 | Analyze | PO4 |
| 5 | Explain the concept and types of price discrimination. | CO3 | Evaluate | PO5 |

# UNIT – V

## Structure:


## 5.1 Introduction

## 5.2 Perfect Competition

## 5.3 Monopoly

## 5.4 Monopolistic Competition

## 5.5 Duopoly

## 5.6 Oligopoly


## 5.1 Introduction

The concept of a market is central to the understanding of the determination of price and quantity of output of a commodity under consideration. In ordinary language, the term market refers to a public place in which goods and services are bought and sold. In economics, it has a different meaning. Different economists have tried to define market in different ways. Cournot defines market as, "not any particular market place in which things are bought and sold, but the whole of any region in which buyers and sellers are in such free intercourse with each other that the prices of the same goods tend to equality easily and quickly". To Ely, "Market means the general field within which, the force determining the price of particular product operate". Stonier and Hague explain the term market as "any organisation whereby buyers and sellers of a good are kept in close touch with each other".

**Meaning of Market**

A **Market** is a place where the exchange of goods takes place. In other words, a place where the purchase and sale of goods take place is a market. The market is the nervous system of modern economic life where producers and consumers carry out the sale and purchase transactions. The market has a different and wider meaning in Economics, as it does not refer to a specific place. In **Economics,** a Market is a region where the buyers and sellers don't have to assemble at a specific place for the sale and purchase of goods. Instead, they have to be in contact with each other through any communication means, such as the internet, letter, mail, telephone, etc.

**Basic Components of Market**

**Buyers:** There should be buyers of the product. If a country consists of people who are very poor, there can hardly be market for luxuries like cars, VCR etc.

**Seller:** A commodity should be offered for sale in the market. Otherwise there is no question of buying the commodity. Therefore, existence of sellers is a necessity for any market.

**Contact:** Buyers and sellers should have close contact with each other.

**Price:** There should be a price for the commodity. The exchange of commodities between buyers and sellers occurs at a particular price which is mutually agreeable to both the buyers and sellers.

This is because, in a modern economy, most of the production does not take place for self-consumption by the producers themselves. Thus, by the term market of a good, it should not be taken to mean a place where the buyers and sellers meet each other and conduct purchase and sale transactions. The market consists of two components;

- ✓ A Firm
- ✓ An Industry

**A Firm**

A firm is a business unit engaged in the task of producing and selling of goods or services. It is identified by the fact that it is only one unit of entrepreneurship. The entrepreneurship may not be provided by a single individual. It may be exercised jointly by a board or a group of individuals in some defined manner. However, the firm has a unified and coordinated authority of decision making. In essence, these decisions relate to the objectives (such as, profit maximisation, or sales maximisation, etc.) and other policy decisions (such as, what to produce) of the business unit.

**An Industry**

An industry is a set of firms which are conceptually closely associated in the sense of having some common type(s) of activities. A good example of an industry is a set of firms which are producing a certain type of a manufactured good or providing a certain type of service. The good supplied by the firms of the industry may be homogenous in the sense that the buyers believe that products of all firms are perfect substitutes of each other.

A consignment of the good, by itself, does not provide the identity of the supplier. The buyers, therefore, are indifferent between the sources of supply. Instead, they select between alternative supplier firms by comparing the prices being asked by them. In contrast, the industry may also comprise those firms which are producing differentiated products. This means that the product of one firm can be distinguished from that of the other. The buyers do not consider the products of different firms as perfect substitutes. However, if the firms are to belong to one industry, then their products must be close substitutes of each other. There is no pre-determined number of firms which an industry must have. Their number can vary

according to the structure of the market. At one extreme, it may have only one firm in which case it is called a monopoly or a

one-firm industry. At the other extreme, an industry may have such a large number of firms that each of them accounts for an extremely small portion of the total supply of the industry and is not able to influence the price of the product. Between these two extremes, there can be several other possibilities. There are various kinds of markets prevailing in the economy. From the point of view of syllabus the following are covered.

- ✓ Perfect Competition
- ✓ Monopoly
- ✓ Monopolistic Competition

**Essential or Characteristics of a Market**

**i) Area**

In economics, a market is not related to a specific place, instead, it spreads over an area that becomes the point of contact between the producers/sellers and consumers/buyers. With the advancement of technology and modern means of communication, the market area of a product has become wide.

**ii) Commodity**

In economics, a market is not related to a specific place but to a specific product. It means that a market can exist if there is one commodity that will be purchased and sold among the buyers/consumers and sellers/producers.

**iii) Buyers and Sellers**

Another characteristic of a market is the presence of buyers and sellers. The buyers and sellers must contact each other in the market. However, it does not mean that they should meet physically, the contact can be through modern means of communication, like the internet, mail, telephone, etc.

**iv) Competition**

For a market to exist, it is necessary that there is free competition amongst the buyers and sellers. The absence of competition in the market results in the charging of different prices for the homogeneous commodity by the sellers.

**Basis for Classification of the Market Structure**

The factors determining the market structure are as follows:

**i) Number of Buyers and Sellers**

The volume/number of buyers and sellers in the market of a commodity exercises a great influence on the price of a commodity. If there are a large number of buyers and

sellers in the market, then a single buyer or seller cannot influence the price of a commodity. However, if there is one seller of a commodity, such as Railways, then the seller has great control over its price.

**ii) Nature of the Commodity**

The nature of the commodity has a great impact on the price of the commodity. If a commodity is homogeneous in nature (identical goods such as pen, paper, etc.), then it is sold at a uniform price in the market. If a commodity is heterogeneous in nature (non-identical, totally different goods, such as different toothpaste brands, etc.), then it may be sold at different prices. However, commodities with no close substitutes, such as Railways can charge a higher price from the buyers.

**iii) Freedom of Movement of Firms**

Freedom in entry and exit of firms results in price stability in the market. However, restrictions on the entry of new firms or exit of the existing ones can lead to the firms influencing the price of goods and services, as they have no fear of competition from other existing or new firms.

**iv) Knowledge of Market Conditions**

If the buyers and sellers are aware of the market conditions and have full knowledge about them, then the uniform price of goods and services prevails in the market. Whereas, if the buyers and sellers are unaware of the market conditions, then sellers are in a position to charge their customers different prices.

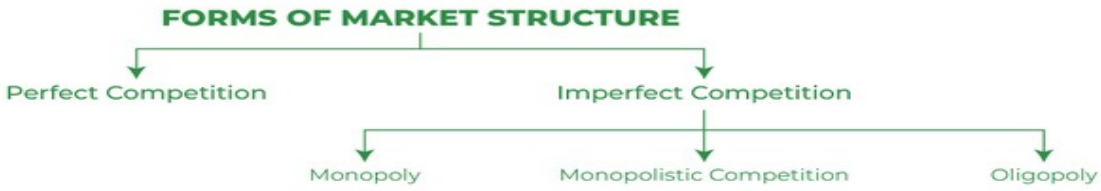
**v) Mobility of Goods and Factors of Production**

Free movement of factors of production from one place to another results in a uniform price in the market. However, if the movement of factors of production is not free, then the prices may differ from each other.

**Forms of Market Structure**

**Figure 5.1**

**Forms of Market Structure**




The different forms of market structure are Perfect Competition and Imperfect Competition (Monopoly, Monopolistic Competition, and Oligopoly).

**i) Perfect Competition**

A market situation where a large number of buyers and sellers deal in a homogeneous product at a fixed price set by the market is known as **Perfect Competition.** Homogeneous goods are goods of similar shape, size, quality, etc. In other words, in a perfect competitive market, the sellers sell homogeneous products at a fixed price determined by the industry, not by a single firm. In the real world, the situation of perfect competition does not exist; however, the closest **example** of a perfect competition market is agricultural goods sold by the farmers. Goods like wheat, sugarcane, etc., are homogeneous in nature and their price is influenced by the market.

**ii) Monopoly**

Monopoly is a completely opposite form of market and is derived from two Greek words, Monos (meaning single) and Polus (Meaning seller). A market situation where there is only one seller in the market selling a product with no close substitutes is known as **Monopoly. For example,** Indian Railways. In a monopoly market, there are various restrictions on the entry of new firms and exit of the existing firms. Also, there are chances of Price Discrimination in a Monopoly market.

**iii) Monopolistic Competition**

A Monopolistic Competition Market consists of the features of both Perfect Competition and a Monopoly Market. A market situation in which there is a large number of firms selling closely related products that can be differentiated is known as **Monopolistic Competition.** The products of monopolistic competition include toothpaste, shampoo, soap, etc. **For example,** the market for soap enjoys full competition from different brands and has freedom of entry showing the features of a perfect competition market. However, every soap has its own different feature, which allows the firms to charge a different price for them. It shows the features of a Monopoly Market.

**iv) Oligopoly**

A market situation where the number of big sellers of a commodity is less and the number of buyers is more is known as **Oligopoly Market.** As the number of sellers in this market is less, the price and output decision of one seller impacts the price and output decision of other sellers in the market. In other words, the interdependence among the sellers of a commodity is high. **For example,** luxury car producers like BMW, Audi, Ford, etc., come under Oligopoly Market, as the number of sellers of luxury cars is less and its buyers are more.

## 5.2 Perfect Competition

Perfect competition refers to the market structures where competition among the sellers and buyers prevails in its most perfect form. In the perfectly competitive market, a single market price prevails for the commodity, which is determined by the forces of total demand and total supply in the market. Under perfect competition, every participant (whether a seller or a buyer) is a price-taker. Everyone has to accept the prevailing market price as individually no one is in a position to influence it.

Perfect Competition in economic theory has a meaning diametrically opposite to the everyday use of the term. In practice, businessmen use the word competition as synonymous to rivalry. In theory, Perfect Competition implies no rivalry among firms. Perfect Competition, therefore, can be defined as a market structure characterized by complete absence of rivalry among the individual firms. That is to say perfect competition is a market structure where there is a perfect degree of competition and single price prevails. Perfect Competition Market is a hypothetical market structure where in every seller takes the market prices as the price of his own product, firms are incapable of influencing the market price either by acting singly or in a group.

**Main Features**

**i) Homogeneous Product**

In a perfect competition, it is not possible to distinguish between the products of individual firms. There are no distinctive features of the product associated with any specific firm. The product, in that sense, is homogeneous and undifferentiated. To the buyer, product supplied by one firm is a perfect substitute of that supplied by another.

**ii) Large Number of Sellers**

Perfect competition is characterized by a large number of firms. Here, the term large denotes the fact that no individual firm is in a position to significantly influence the total supply of the industry and thereby affects the price of the product. Every firm in the industry is thus, a price taker. It can sell any quantity of its own product at the going price. For it, the demand for its product is perfectly elastic. It, of course, must be remembered that the maximum quantity, which this firm can supply, is insignificantly small when viewed in relation to the aggregate supply of the industry as a whole.

**iii) Large Number of Buyer**

Perfect competition is also characterized by a large number of buyers who are in competition with each other for the available supply. Their number is so large that any single

buyer may change the quantity purchased without significantly affecting the total demand in the market and affecting the price of the product. Like an individual firm, an individual buyer is also a price taker. He can buy any quantity of the product he likes at going price. To him, the product has perfect elasticity of supply.

**iv) Full Knowledge of Market**

It is assumed that in perfect competition, every buyer and seller has full knowledge of the prevailing price of the product, as also the prices being asked by the sellers and being offered by the buyers. This 'perfect knowledge' enables every buyer and seller to make use of any opportunity that may exist to strike a better bargain.

**v) Economic Rationality**

Economic rationality is another feature of perfect competition. It means that every buyer and seller is motivated by his own economic interest in his decisions to buy or sell. This, coupled with the assumption of perfect knowledge, ensures that a uniform price prevails in the market.

**vi) No Transportation Cost**

It is assumed that there is no transaction cost to be incurred by buyers and sellers in their activities. The price paid by a buyer is exactly equal to the price received by the seller. There is no resource cost in terms of time or other expenses to be incurred i.e. there are no transaction costs. In particular, a seller has no need to incur any selling expenses (say, in the form of advertisements) because his product is not differentiated from the products supplied by other sellers.

**vii) Free Entry and Exit**

Perfect competition is also characterized by free entry and exit. Basically, the terms entry and exist apply to the suppliers, though their coverage can be extended to buyers also. It means that, given enough time, any existing firm can close down and leave the industry or any new firm can enter the industry. There is no legal, institutional, or technical hurdle in doing so. It is only estimated economic benefits or losses that guide the firms in these decisions. Similarly, any existing buyer of the product can increase his purchases, cut them or reduce them to zero. New buyers can also enter the market and offer to buy any quantity they like.

**Conditions or Characteristics of Perfect Competition**

The following conditions must exist for a market structure to be perfectly competitive. These are also the distinct features or distinguishing marks of perfect competition:

**i) Large Number of Sellers**

A perfectly competitive market structure is basically formed by a large number of actual and potential firms and sellers. Their number is sufficiently large and as the size of each firm is relatively small, so the individual seller's or firm's supply is just a fraction of the market supply. Consequently, any variation in individual supply has a negligible effect on the total supply. Thus, an individual firm or seller cannot exert any influence on the ruling market price. In a perfectly competitive market, thus, a firm is a price-taker.

**ii) Large Number of Buyers**

There are a very large number of actual and potential buyers so that each individual buyer's demand constitutes just a fraction of the total market demand. Hence, no individual buyer is in a position to exert his influence on the prevailing price of the product. From the above two conditions, it follows that though an individual buyer or seller cannot affect the price, all firms together or all buyers together can change the market supply or demand as a whole, so that the market price will be affected.

**iii) Product Homogeneity**

The commodity supplied by each firm in a perfectly competitive market is homogeneous. That means, the product of each seller is virtually standardised, *i.e.*, there is no identification of the product of each seller, as there is no product differentiation. Since each firm produces an identical product, their products can be readily substituted for each other. Hence, the buyer has no specific preference to buy from a particular seller only. He purchase from any particular seller is a matter of chance and not of choice, on account of the homogeneity of goods.

**iv) Free Entry and Exit of Firms**

There is free entry of new firms into the market. There is no legal, technological, economic, financial or any other barrier to their entry. Similarly, existing firms are free to quit the market. Thus, the mobility of firms ensures that whenever there is scope in the business, new entry will take place and competition will remain always stiff. Due to the natural stiffness of competition, inefficient firms would have to eventually quit the industry.

**v) Perfect Knowledge of Market Conditions**

Perfect competition requires that all the buyers and sellers must possess perfect knowledge about the existing market conditions, especially regarding the market price, quantities and sources of supply. When there is such perfect knowledge, no buyer could be charged a price different from the market price. Similarly, no seller would unnecessarily lose by selling at a lower price than the prevailing market price. This way, perfect knowledge ensures transactions at a uniform price.

**vi) Perfect Mobility of Factors of Production**

A necessary assumption of perfect competition is that factors of production are perfectly mobile. Perfect mobility of factors alone can ensure easy entry or exit of the firms. Again it also ensures that the factor costs are the same for all firms.

**vii) Government Non-intervention**

Perfect competition also implies that there is no government intervention in the working of market economy. That is to say, there are no tariffs, subsidies, rationing of goods, control on supply of raw materials, licensing policy or other government interference. Government non-intervention is essential to permit free entry of firms and for automatic adjustment of demand and supply through the market mechanism.

**viii) Absence of Transport Costs Element**

It is essential that competitive position of no firm is adversely affected by the transport cost differences. It is thus assumed that there is absence of transport cost as all firms are closer to the market or there is equal transport cost faced by all, as all firms are supposed to be equally far away from the market.

**Equilibrium of the Firm under Perfect Competition**

Under perfect competition, the firms are unable to alter the price of the product by changing the quantity of its own output. The prices of the input are given; therefore, cost conditions are also given. In other words, under perfect competition, it can only decide to alter the quantity of its output without changing price of the product.

A firm is said to be in equilibrium when its profits are maximum, which in lieu depends on the cost and revenue conditions of the firm. The concepts of cost and revenue vary in short run and long run. Thus a competitive firm has four equilibrium states differing on the basis of period of operation as follows:

i) Short Run equilibrium of a Competitive Firm
ii) Long Run equilibrium of a Competitive Firm
iii) Short Run equilibrium of a Competitive Industry
iv) Long Run equilibrium of a Competitive Industry

**i) Short Run Equilibrium of a Competitive Firm**

Under the short run period, the following are the major assumptions;

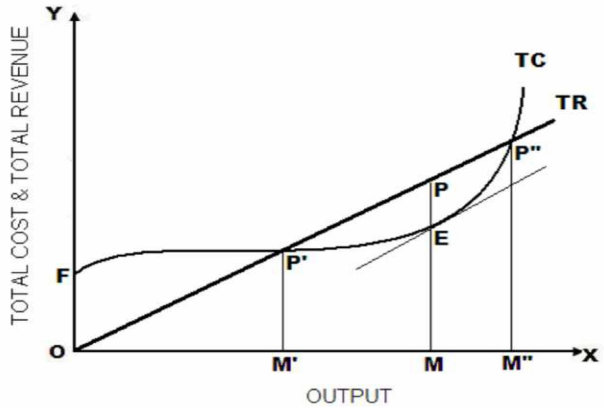
- ✓ Price of product is given in the market at which a firm can sell any quantity
- ✓ Plant size of firm is given(constant)
- ✓ Firm is facing given short run cost curves

The equilibrium conditions in such a case are similar as stated in previous unit. There are two approaches to deriving the maximum profit i.e. $\pi$ = TR less TC or at a point where MR equates MC.

Since a perfectly competitive firm is a price taker, it is faced with a straight line demand curve i.e. AR is parallel to X axis as its Marginal Revenue (MR). It can also be seen that, given the assumption of profit maximisation by the firm, it will be in equilibrium when there is no scope for either increasing its profit income or reducing its loss by changing the quantity of output. It cannot improve its economic position by changing the output.

**Figure 5.2**

**Equilibrium of a Firm using TR and TC Curves**




In the Fig. 5.2, X axis shows levels of output and Y axis shows costs and revenues. TR is Total Revenue Curve TC is Total Cost Curve P is Equilibrium Point, where the distance between TR and TC is maximum A general case of this equilibrium of the firm, in the short run and under perfect competition, is illustrated in Fig 5.2.

The equilibrium point is attained when,

$\pi$ = TR – TC

is maximum; where TR = P x Q (P is given as constant) and TC is total cost.

Therefore, in short run since prices are given, the TR curve is a straight line through the origin O as shown in the figure. Its slope is positive and equal to the price of the product and Average Revenue (AR). In the short run, a firm has to incur both fixed and variable costs. Fixed costs are there even when the output is reduced to zero. As a result, total cost (TC) curve starts from Y-axis at a positive distance from origin O. Assuming that fixed costs are OF, the TC curve starts from point F on the Y-axis. The short run average cost curve (SAC) is U-Shaped. The total cost curve in the figure is represented by TC.

**Before point P', TC > TR $\Rightarrow$ Total Loss**

**From P' to P", TC < TR $\Rightarrow$ Normal Profit**

**At P,** **PE** **⇒ Maximum Profit**

**After P",** **TC > TR** **⇒ Total Loss**

Thus, OM is the equilibrium output of the firm in the short run under perfect competition. At any other output, its total profit is less than PE. It is also noted that if the output is reduced to OM' or increased to OM", the profit of the firm is reduced to zero. Further, for output less than OM' or greater than OM", TC exceeds TR and results in a loss for the firm.

The conditions of profit maximisation (or loss minimization) can be translated into what are known as marginal conditions. Thus profit,

$\pi$ = TR - TC is maximized if

- ✓ its first derivative is zero
- ✓ second derivative is negative

**Differentiating $\pi$ = TR – TC with respect to Q;**

$d\pi = dTR/dQ - dTC/dQ$

$\Rightarrow d\pi/dQ = 0$

$\Rightarrow dTR/dQ - dTC/dQ = 0$

$\Rightarrow dTR/dQ = dTC/dQ$

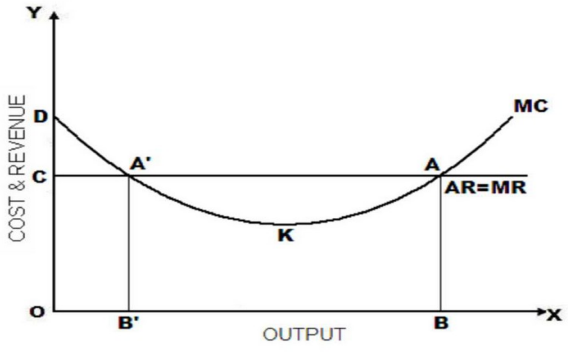
MC= MR; this is the first marginal condition.

$d2\pi//dQ2 < 0$; this is the second marginal condition

Graphically, this condition states that for equilibrium of the firm, MC curve should intersect MR curve from below and, after intersection, lie above MR curve. If we translate this condition in ordinary words, it means the following. The firm should keep on adding to its output as long as MR > MC because additional output adds more to its revenue than to its cost and thus its profit income increases. Furthermore, if its MC is equal to MR but the firm finds that by adding to its output, MC becomes smaller than MR, then the firm should decide to increase its output.

**Figure 5.3**

**Equilibrium of a Firm using MC and MR Curves**



On account of perfect competition, the demand for the product of the firm is perfectly elastic. The firm can sell all its output at the going price in the market. Accordingly, its demand curve (AR curve) runs parallel to X-axis throughout its length and its MR curve coincides with AR curve.

As regards the supply side, we should recall the set of four cost curves of the firm, namely, the AFC, the AVC, the MC and the ATC. Out of these, the supply curve of the firm is that portion of the MC curve which lies above AVC curve and is upward sloping. The actual equilibrium of the firm is determined by the intersection of its supply and demand curves. An explanation of this phenomenon is provided below.

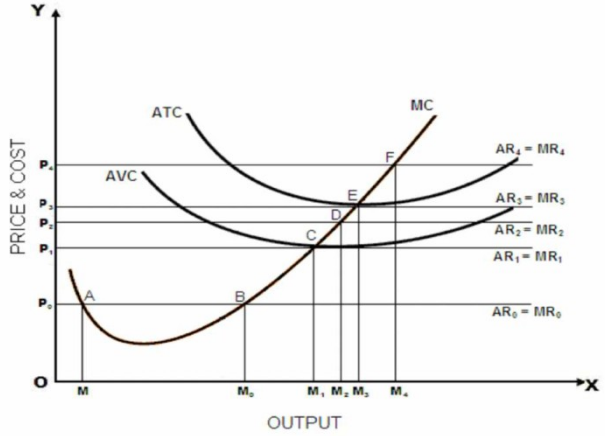
To begin with we note that, in the short run, the firm cannot avoid fixed costs. They have to be incurred even if production is reduced to zero. However, the variable costs are directly related to the quantity of output. The implication is that, in the short run, the firm cannot avoid losses by not producing. Therefore, it decides to continue production even at a loss, provided the loss does not exceed its fixed costs. It means that the firm would decide to produce if its average price (that is, per unit price of the good) equals or exceeds its AVC.

On account of the law of variable proportions, the average variable cost curve is U-shaped. Let us also recall that marginal cost represents a change in the total cost so that it is related only to the variable costs and not fixed costs. And since AVC curve is U-shaped, MC curve is also U-shaped. It lies below AVC curve when the latter is downward sloping. However, MC curve starts rising when the rate of fall in AVC curves slows down, intersects it at its lowest point, and rises above it. We have also seen above that a firm attains its best possible position (that is, the position of maximum profit or minimum loss) when its MC curve cuts its MR curve from below. At the same time, price per unit of the product must be able to recover at least the average variable cost. When the price exceeds AVC, the firm is able to recover a part of its fixed costs also with a resultant reduction in its losses. In case the price equals the average of total cost, the firm is able to recover its full costs (including the component of 'normal profit'). And if the price is still higher, it earns an abnormal profit. Thus, in determination of short term equilibrium of the firm, two conditions should be satisfied:

- ✓ MC must equal MR and cut it from below
- ✓ AR must equal or exceed AVC

**Figure 5.4**

**Equilibrium of a Competitive Firm in Short Run**




In Figure 5.4, we consider five different prices to illustrate the supply behaviour and associated equilibrium of the firm. There is an average revenue curve corresponding to each price. It runs parallel to X-axis and the MR curve also coincides with it.

- ✓ When the price is OP0, the corresponding MR0 curve cuts MC curve at two points, A and B. At point A, none of the above-stated two conditions of equilibrium is satisfied. At point B, MC curve cuts MR0 curve from below but the second condition is not satisfied. AR is still less than AVC. Therefore, the firm incurs a loss greater than its fixed cost if it decides to produce when the price is OP0. The firm, therefore, decides to close down but it cannot leave the industry.
- ✓ If the price happens to be higher and equal to OP1 (that is, equal to the least possible average variable cost), the firm decides to produce. In this case, not only MC curve cuts MR1 curve from below (a point C); AR1 is also equal to AVC. Thus, we find that either the firm does not produce at all, or it produces at least equal to OM1.
- ✓ In the third case, price (OP2) exceeds AVC but is still less than ATC. MR2 and MC curves intersect each other at point D. The firm produces OM2. It still incurs a loss but less than its fixed costs because it is able to recover a portion of the latter.
- ✓ In case the price rises to OP3, the firm is able to recover its full cost including fixed costs. Its MC curve cuts MR3 curve from below at point E and AR3 = ATC. All the conditions of its equilibrium are satisfied. It produces OM3.
- ✓ If the price rises even further, say, P4, the point of intersection of MR4 and MC curves moves to F. The firm is able to recover not only its total cost but is able to earn an abnormal profit also. It produces OM4.

It should be noted from above that in the short run, existing firms can close down but they cannot leave the industry and new ones cannot enter it. Therefore, when our firm is incurring a loss, it continues production so long, its' loses do not exceed fixed costs. Similarly, if it earns an abnormal profit, they are not wiped out by new firms entering the industry.

**Long Run Equilibrium of a Competitive Firm**

Long term is defined as that period in which the firm has the opportunity of varying all its inputs. There are no fixed costs and therefore average fixed cost curve vanishes. The average cost (AC) curve denotes average total cost (ATC) curve. More precisely, in the long run the firm can decide to go in for any of the alternative plants of different scales.

We have seen earlier that in the long run, the average cost (AC or LRAC) curve of the firm formed by its short run average cost curves (that is, plant curves) is also U-shaped. Up to a certain scale, there are increasing returns and LRAC curve slopes downwards. This is followed by the phase of constant returns in which LRAC curve is neither rising nor falling. And the third phase is that of diminishing returns to scale in which LRAC curve slopes upwards. We have also seen that corresponding to the U-shaped LRAC curve, long term marginal cost (LRMC) curve is also U-shaped and that it cuts LRAC from below at the lowest point of the latter.

Since the firm can vary all its inputs in the long run, it follows that it has the option to close down and leave the industry.

Similarly, new firms can also enter the industry. This condition, termed 'free entry and exit of firms' has two implications.

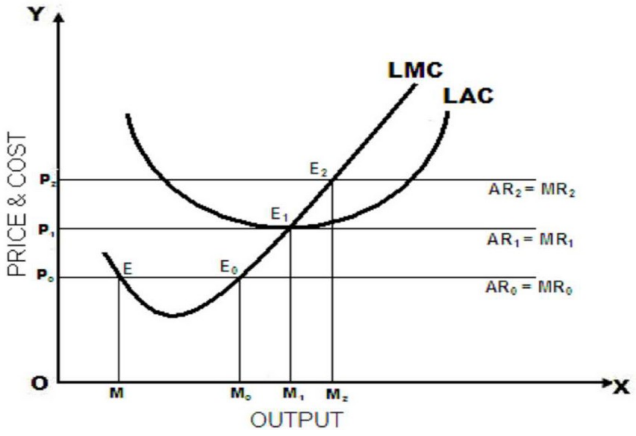
- ✓ The firm is not compelled to operate when incurring a loss. It can leave the industry.
- ✓ No firm is able to earn an abnormal profit (that is, a profit in excess of the 'normal'one). It can only earn 'normal profit' which forms a part of its costs and is incorporated in its LRAC curve. This happens because abnormal profit earned by existing firms attracts new firms. And as they enter the industry, supply increases, price comes down and abnormal profit is wiped out.

At this stage, let us specifically note that two conditions have to be satisfied for the firm to be in state of long run equilibrium.

- ✓ MC curve must intersect MR curve from below
- ✓ AR ≥ AC, so that the firm does not incur a loss and close down. In practice, however, on account of free entry and exit of firms, AR cannot exceed AC and is equal to the latter

**Figure 5.5**

**Long Run Equilibrium of a Competitive Firm**




Determination of long run equilibrium of the firm under perfect competition is explained in Figure 5.5 in which output is measured along X-axis and costs are measured along Y-axis. The firm is a price taker. For it the price of its product is given and fixed. It can sell any quantity it can produce at the going price. Its AR curve runs parallel to X-axis and MR curve coincides with it.

For the purpose of explaining the determination of firm's equilibrium, we are considering three alternative prices given to the firm by the industry.

- ✓ Let us assume that the price in the market is below the optimum cost of the firm, say, OP0 from which we get corresponding average revenue (AR0) and marginal revenue (MR0) curves. Now MR0 curve cuts LMC curve at two points, E and E0, but none of these is a long term equilibrium position of the firm. At point E, LMC curve cuts MR0 curve from above. At E0, LMC curve cuts MR0 curve from below, but the second condition of equilibrium is not satisfied. AR0 < LAC and the firm incurs a loss.
- ✓ Similarly, if the price of the firm's product is more than the optimum cost (least possible average cost) of the firm, the firm cannot be in stable equilibrium (even though both conditions of equilibrium are satisfied). Thus, let the price be OP2 with average revenue curve (AR2) and marginal revenue curve (MR2). LMC curve is intersecting MR2 curve from below at point E2 and AR2 > LAC. But the firm is not allowed to enjoy the abnormal profit. New firm enters the industry, supply increases and price falls till no firm can earn abnormal profit.
- ✓ Long run stable equilibrium of the firm is attained at a point where when price of the product is equal to its optimum cost of production. In Figure 5.5, this equilibrium

price is OP1. In this case, marginal revenue curve (MR1) cuts LMC curve from below at lowest point of LAC (E1). At the same time, AR1 is equal to LAC, so that the firm does not incur a loss or earn an abnormal profit. At this stage, there is no incentive for existing firms to leave the industry or new ones to join it. The corresponding equilibrium output is OM1.

In conclusion, we may also note that in long run equilibrium, the firm produces an 'optimum' output at the least possible average cost. It is this position where the firm is operating under 'constant returns' to scale. Consequently, its MC = AC. At the same time, MC = MR and AR = AC , so that we get AC = AR = MC = MR.

**Equilibrium of Industry under Perfect Competition**

An industry comprises all the firms which are producing goods which the buyers consider substitutes of each other. As such the determination of price of such a product is the result of interaction between total demand for the output of all the firms taken together and their supply.

On the demand side, the important fact to be noted is that a change in its supply affects the price of the product also. The industry is not a price taker. Though the contribution of an individual firm in total supply is so insignificant that it cannot make any noticeable difference to the price of the product, this is not so with the industry. The change in supply made by the firms taken together alters the aggregate supply to such an extent that it cannot sell more without lowering the price. This results in a downward sloping demand curve for the industry.

The fact of a negatively sloped demand curve for the industry can also be understood as follows. A firm can sell more of its output by attracting customers from its competing firms. In the process, the total sales of the industry need not increase. But an industry can sell more when the existing buyers buy more of its product and/or new buyers enter the market and buy its product. Now it follows that existing buyers are already equating their marginal utility with the price. They would buy more only if price falls. Similarly, for the new buyers, the existing price is higher than the marginal utility of the product. And, therefore, they would also buy more of the good only if the price is reduced. Accordingly, the demand curve for the product of the firm must have a negative slope indicating that more of the product can be sold only by reducing its price.

The exact location and slope of the demand curve varies from product to product and also for the same product from one time interval to the other. There can also be several reasons on account of which its demand curve may shift in its slope and location. However,

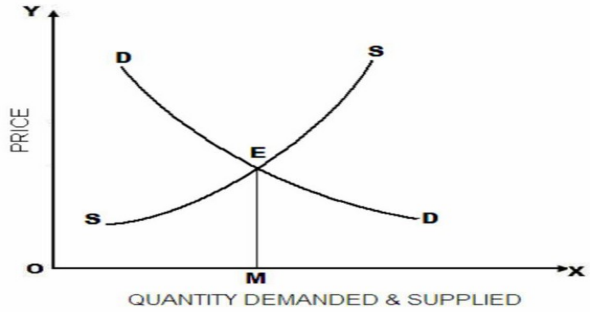
there is no theoretical basis for predicting these changes. Therefore, even while recognising that demand curve for a product can and often does shift over time, the economists assume that it retains its position when we move from short term to long term. In other words, demand curve for the industry is always drawn with a negative slope without specifically providing for a change in either its exact slope or its exact location.

**Short Run Equilibrium of a Competitive Industry**

We have noted above that when an industry changes the quantity of its supply, there is a corresponding change in the price of its product also. It follows, therefore, that when it is in equilibrium, there is no tendency on its part to change the quantity of its output. We also know that the price of the industry's product is determined by intersection of its demand and supply curves. Having seen the nature of industry's demand curve, we may look into the nature of its supply curve which is obviously the summation of individual supply curves of the firms constituting it. That is to say, we get the industry's supply curve by adding the quantities which its firms are ready to sell at alternative prices. Since the supply curve of a firm, in the short run, is that upward sloping portion of its marginal cost curve which lies above its average variable cost curve, therefore, the supply curve of the industry also is upward sloping.

**Figure 5.6**

**Short Run Equilibrium of a Competitive Industry**




In figure 5.6 DD is demand curve and SS is supply curve. The intersection of both curves at E is the equilibrium of a competitive industry.

Short term equilibrium of the industry, which is determined by the intersection of its demand and supply curves, is illustrated in Figure 5.6, in which quantities demanded and supplied are measured along X-axis and price perunit is measured along Y-axis. While the demand curve is downward sloping, the supply curve has a positive slope. In Figure 5.6, short term demand and supply curves of the industry intersect at point E. The equilibrium price and output of the industry are, therefore, EM And OM respectively. It is noteworthy that in case the industry happens to be in a non-equilibrium position, it automatically gets adjusted to its

equilibrium position This is because, in such a case, there is either an excess of supply or an excess of demand at the existing price. In case of excess supply, the firms are left with unsold stocks which they try to dispose off by reducing price. And in case of excess demand, some customers are not able to buy the quantities they wanted to. They, therefore, bid up price in competition with each other.

**Long Run Equilibrium of a Competitive Industry**

The slope of the demand curve of industry remains negative even in the long run, implying that it can sell more of the product only by reducing the price and vice versa.

However, the long run supply curve of the industry cannot be derived by horizontal summation of the supply curves of the individual firms. The reason is that in the long run, existing firms can leave the industry and new ones can join it. Moreover, it is possible that due to various reasons, the industry may suffer from some internal/ external diseconomies or enjoy some economies. These factors can shift the position of the long term supply curve of the industry. Another fact which complicates the derivation of long run supply curve of the industry is that while in the short run, individual firms may incur losses or enjoy abnormal profit, in the long run, these possibilities tend to be wiped out. When the industry is in equilibrium, its individual firms are also simultaneously in such equilibrium that they neither make an abnormal profit nor incur a loss.

Thus, long run supply curve of the industry is derived by taking into account all these determining variables. It is not derived by adding those portions of the MC curves of the individual firms which lie above the AC curves of the firms. Instead it is the locus of the pairs of those points which represent quantities of its output and the least average cost at which its firms can produce it.

Economists believe that the factors at work in the long run may result in one of the three situations, namely, that of diminishing, constant, and increasing returns, indicating the shift in the average cost of its firms.

## 5.3 Monopoly

The term monopoly means a single seller. In economics, this term refers to a firm the product of which has no close substitute in the market. It is, in that sense, a single firm industry.

Moreover, irrespective of the profit income of the existing producer firm, new firms cannot enter the industry. Hurdles to their entry may be on account of various reasons. There may be legal barriers, or the producer may own a technology or a naturally occurring substance which others cannot avail of. It is also possible that the size of the market may be too small and no new firm may find it economically worthwhile to enter it.

In the absence of a substitute product, the monopolist is free to fix a price of his choice. He can refuse to sell his product for a price below the one decided by him. However, he cannot determine the demand for his product. He cannot force the buyers to buy his product at a price of his choice. A buyer will buy it only if its price does not exceed its marginal utility to him.

Therefore, if the monopolist wants to increase his sales, he has to reduce the price of his product so as to induce

- ✓ existing buyers to buy more
- ✓ new buyers to enter the market

Therefore, the demand conditions for his product are not the ones which are associated with a firm under competitive conditions. Instead, the demand conditions faced by him are similar to the ones which are faced by the industry as a whole. In other words, a monopoly firm faces a negatively sloped demand curve for his product. In the long run, the demand curve can shift both in its slope and location. However, there is no theoretical basis for determining the direction and extent of this shift.

As regards his cost of production, it may be assumed that a monopoly firm faces a given technology. Moreover, the monopolist faces conditions similar to those faced by a single firm under competitive conditions. He is not the sole buyer of the inputs used by his firm, but only one in the entire market. He has no control over the prices of the inputs used by him.

We have seen earlier that when a firm aims at maximising its profit, it attains its equilibrium when

- ✓ its MC curve cuts its MR curve from below
- ✓ its AR > AC

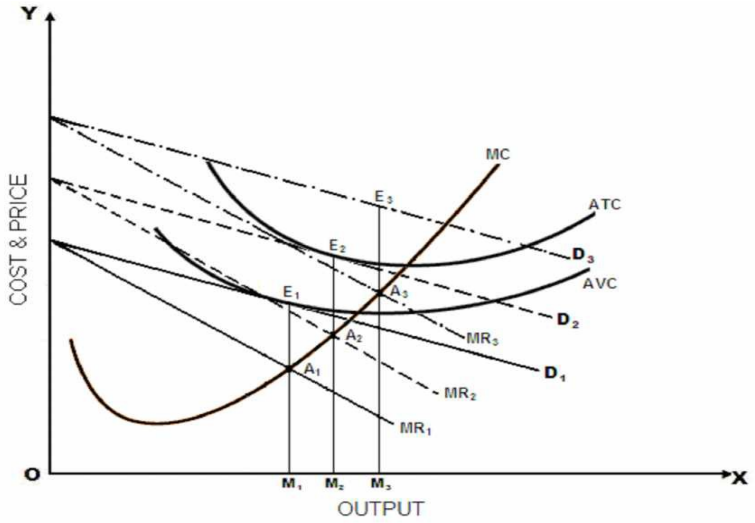
**Short Run Equilibrium of a Monopolist**

In the short run, by definition, the monopolist firm cannot vary all its factors of production. Its short run cost curves are similar to the ones faced by a firm operating in the short run and under perfect competition. It is also noteworthy that, in the short run, the monopolist may incur a loss but it will shut down the plant only if the loss exceeds its fixed

costs. On the other hand, if the demand for its product is quite strong, it may make an extra profit.

**Figure 5.7**

**Short Run Equilibrium of a Monopolist**




Determination of short run equilibrium of a monopoly is depicted in Figure 5.7 with quantity of output measured along X-axis. Correspondingly, price and cost of production are measured along Y-axis. We have drawn three cost curves of the monopoly, namely, average variable cost curve, average total cost curve and marginal cost curve. Similarly, three alternative demand curves have been drawn to explain alternative possible positions of equilibrium.

- ✓ Demand curve labeled D1 is tangent to AVC curve at point E1. Its corresponding marginal cost curve MC intersects MR1 curve from below at point A1. Thus, we note that while the first condition of equilibrium of the firm is satisfied, the monopolist is not able to recover his full cost of production. However, the loss which is equal to fixed costs cannot be reduced by closing down the plant. In this situation, therefore, the monopolist decides to produce OM1 quantity of output, sell it at price E1M1 and suffer a loss equal to fixed costs. Note that there would be no production if the demand curve lies to the left of its position of D1. In that case the monopolist would have added to his losses by operating his plant. Consequently, his best option would have been to close down the plant and minimize the loss to fixed costs.
- ✓ If the demand curve lies to the right of D1, the monopolist is able to recover a part of his fixed cost also. He is able to recover his full cost of production if the demand curve happens to be tangent to ATC curve (such as D2). With D2 as the demand curve, equilibrium position of the monopolist is given by the intersection of MC curve

with MR2 curve at A2which corresponds to the point of tangency (E2) of D2with ATC curve. In this case not only MC curve cuts MR2 curve from below but, at the same time, AR = ATC. The monopolist makes a normal profit by producing OM2 and selling it at price E2M2.

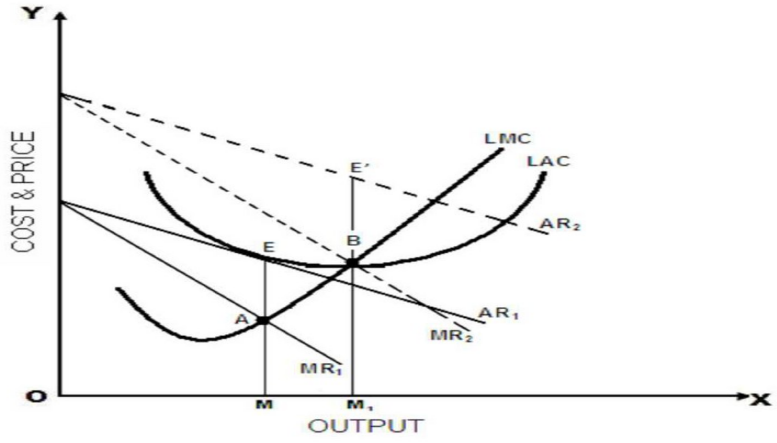
- ✓ The monopolist may earn an abnormal profit if the demand curve lies further to the right of D2 (such as D3). As before, the equilibrium position of the monopolist is determined with reference to the point of intersection between MC curve and MR3 curve at A3. The monopolist decides to produce OM3 and is able to sell it at price E3M3.

**Long Run Equilibrium of a Monopolist**

In the long run, by definition, the monopolist can vary all the inputs. Therefore, the determination of equilibrium of the firm can be analyzed with the help of only two cost curves, namely, AC and MC. Moreover, the monopolist would not stay in the market if he is to operate at a loss. By implication, therefore, the demand curve must be tangent to the AC curve or must lie to the right and intersect it twice.

**Figure 5.8**

**Long Run Equilibrium of a Monopolist**




In Figure 5.8, long term AC and MC curves of the monopolist are drawn U-shaped. The reasons for their being U-shaped have been discussed earlier. As before, equilibrium of the firm is that its MC curve should cut MR curve from below and its AR should be greater than or equal to AC. In Figure 5.8, we depict two alternative cases of the determination of equilibrium of the monopolist, namely, (i) with normal profit, and (ii) with abnormal profit. Remember that the monopolist will not operate in the long run if there is a loss.

In the first case, demand curve (AR) of the monopolist is AR1 and it is tangent to AC or LAC curve at point E. It should be noted that if demand curve lies to the left of AC curve,

the monopoly is not able to recover its AC at any output and, therefore, it closes down and leaves the market. However, when AR curve is tangent to AC curve, the monopoly is able to recover its average cost (including normal profit) and is; therefore, ready to stay in the market and produce. Further, it should be noted that, by the very nature of relationship between MR and AR on the one hand and between MC and AC on the other, (i) the perpendicular drawn from point E to X-axis, (ii) the MC curve and (iii) MR curve are concurrent (at point A). As a result, all the conditions of equilibrium of monopoly are satisfied. Thus, at point A, MC curve of the firm cuts MR curve from below. At the same time, AR is equal to AC at point E. Accordingly; the monopoly produces OM and sells it a price EM per unit which covers its average cost including normal profit.

In the second case, the monopolist is able to make an abnormal profit. Its marginal revenue curve is MR2 which cuts its MC curve from below at point B. The corresponding height of its average revenue curve (AR2) is E'M1. Accordingly, the monopolist produces OM1 and is able to sell it at E'M1 per unit with an extra profit of E'B per unit. Moreover, this extra profit is not competed away because there is no substitute good in the market and no new firm can enter the market and produce it.

**Discriminating Monopoly**

Since a monopolist can fix the price of his product, it is possible that he may find it profitable not to charge a uniform price for his entire output but sell it at varying prices. The term used to denote this phenomenon is 'price discrimination' and the monopoly practicing it known as 'discriminating monopoly'. Thus, price discrimination is the absence of a policy of uniform price for the entire output. Instead, the monopolist sells portions of it at two or more prices. And this happens even when the product is homogeneous and one unit of it cannot be distinguished from the other. Professor Pigou mentions three types of price discrimination.

- ✓ The monopolist may charge a separate price for each unit sold by him. This is known as the price discrimination of first degree.
- ✓ The monopolist may sell his output in 'batches' or 'lots', charging a separate price for each batch or lot. This is known as price discrimination of second degree.
- ✓ The monopolist may split up the market for his product on the basis of the buyers, He may divide buyers into two or more categories and charge from each category a different price. This is known as price discrimination of third degree.

**Reasons for Price Discrimination**

There are three main reasons for price discrimination viz.

- ✓ Monopoly awareness of consumer ignorance for the cost of product

- ✓ There are two different markets
- ✓ Charge of discriminating prices for the same product or services from the different customers

The monopolist is aware of consumer ignorance for the cost of product due to lack of knowledge and communication of proper information. In rendering professional services or personal services discriminating price can be charged by a monopolist from different customers. A doctor specialist having monopoly in his professional specialisation can charge higher fee from rich and lesser fee from poor clients. Such discrimination is possible when the service rendered or commodities cannot be resold.

Price discrimination may be practiced under the circumstances when cost difference might exist due to distance between one market or another, lower price in poorer market and higher prices in sophisticated market could be frontiers; cheaper commodity in one market may not be resold at dearer markets because of excessive cost of transportation. charged. Such price discrimination occurs when firm's different markets are separated by distance or by national frontiers; cheaper commodity in one market may not be resold at dearer markets because of excessive cost of transportation.

**Features of Monopoly**

The following are the main characteristics of a pure monopoly market:

- ✓ There exists only one seller but there are many buyers.
- ✓ The monopoly firm is the industry.
- ✓ There are many entry barriers such as natural, economic, technological or legal, which do not allow competitors to enter the market. The monopolist has, therefore, complete hold over the market supply and price determination.
- ✓ A monopoly firm is a "price-maker." In a monopoly market, the price is solely determined at the discretion of the monopolist, since he has control over the market supply.
- ✓ There are no closely competitive substitutes for the product of the monopolist. So the buyers have no alternative or choice. They have to either buy the product from the monopolist or go without it.
- ✓ Monopoly is a complete negation of competition.
- ✓ Since a monopolist has a complete control over the market supply in the absence of a close or remote substitute for his product, he can fix the price as well as quantity of output to be sold in the market. Though a monopolist is a price-maker, he has no unlimited power to charge a high price for his product in the market. This is because,

he cannot disregard demand situation in the market. If buyers refuse to buy at a very high price, he has to keep a lower price. He will produce that level of output which maximises the profits and charge only that price at which he is in a position to dispose of his entire output. Thus, the monopolist sets price for his product in relation to the demand position, and not just fix any price he likes.

**Types of Monopoly**

The following are the important types of monopoly:

**i) Pure Monopoly and Imperfect Monopoly**

Pure monopoly means a single firm which controls the supply of a commodity which has no substitutes, not even a remote one. It possesses absolute monopoly power. Such a monopoly is very rare. Imperfect monopoly means a limited degree of monopoly. It refers to a single firm which produces a commodity having no close substitutes. The degree of monopoly is less than perfect in this case and it relates to the availability of a close substitute. In practice, there are many cases of such imperfect monopoly. Pure monopoly is a complete negation of competition. Imperfect monopoly, however, does not totally rule out the possibility of competition. It implies a threat of competition from the rivals producing remote substitutes. Hence, imperfect monopoly lacks absolute monopoly power in deciding price and output policy. Pure monopoly is referred to as absolute monopoly, while imperfect monopoly is referred to as limited or relative monopoly.

**ii) Legal, Natural, Technological and Joint Monopolies**

On the basis of the sources of deriving monopoly power, monopolies may be classified as: (i) legal, (ii) natural, (iii) technological, and (iv) joint. Legal monopolies emerge on account of legal provisions like patents, trademarks, copyrights, etc. The law forbids the potential competitors to imitate the design and form of products registered under the given brand names, patents or trademarks. Natural advantages like good location, old-age establishment, involvement of huge investment, business reputation, etc., confer natural monopolies on many firms. Technological expertise, economies of large scale and efficiency of superior capital use and the process of mechanisation, etc., confer technological monopolies to big firms. Through business combinations like trusts, cartels, syndicates, etc., some firms may unite in a group and acquire joint monopolies in the market.

**iii) Simple Monopoly and Discriminating Monopoly**

A simple monopoly firm charges a uniform price for its product to all the buyers. A discriminating monopoly firm charges different prices for the same product to different

buyers. A simple monopoly operates in a single market. A discriminating monopoly operates in more than one market.

**iv) Private Monopoly and Public or Social Monopoly**

Considering the nature of ownership, monopolies may be grouped into: (i) private monopolies, and (ii) public or social monopolies. When an individual or a private body controls a monopoly firm, it is regarded as a private monopoly. When production is solely owned, controlled and operated by the state, it is regarded as a social or public monopoly. Public monopolies are confined to nationalised industries.

## 5.4 Monopolistic Competition

At the end of the lesson, you will be able to:

- ✓ Understand the characteristics of the monopolistic competition
- ✓ Understand the concept of product differentiation and its significance under the monopolistic competition.
- ✓ Analyze the equilibrium of a firm under the monopolistic competition.

The types of market under which we discussed the determination of equilibrium of a firm/industry in the foregoing portions do not exist in reality. They are all hypothetical and only help us in analyzing the real markets in a logical and systematic manner. The case of a monopolistic competition is one such market which we shall discuss below.

A monopolistic competition is defined as that market structure in which each seller produces a ‘differentiated product’. The concept of product differentiation means that the product marketed by one seller can be distinguished from the products marketed by other sellers in some form or other. Some of the important methods of product differentiation include: trademarks, brand names size packing or color etc. of the item and technical specifications etc.

Thus, in this market structure, each seller is a monopolist of his differentiated product. The buyers can get it only from him and from none else. At the same time, however, the products offered by different sellers are close substitutes of each other. The buyers are always comparing the prices of their products together with the perceived ‘quality’ of each. In other words, there is also an intense competition between suppliers for a share in the market. For this reason, it is a market structure in which there is a competition between a group of firms while each firm is a monopolist of its own product. It is, therefore, termed as monopolistic competition.

However, defining a monopolistic competition in this manner, though very realistic, poses certain problems of its own.

- ✓ Since the products supplied by the competing firms are not homogeneous, therefore, we cannot define the concept of a 'market demand for the product' precisely, that is, it is not possible to determine the average revenue curve of the 'industry' as a whole.
- ✓ Not only that, it is very difficult to even define an industry in a precise manner for the reason that its constituent firms are not supplying the same product. At the most, we may think of a 'group' of firms selling close substitutes of each other.
- ✓ It is not possible to have a satisfactory definition of even a 'group'. This is because the 'product group' (such as scooters, or motor cycles) under consideration is itself in competition with other 'product groups'.

Given these limitations, let us mention some of the salient features of the monopolistic competition.

**Monopolistic Competition**

- ✓ The first feature of monopolistic competition, as mentioned above, is product differentiation. A buyer can get a specific type of the 'product' only from one final source (may be, through the dealers and subdealers, etc.).
- ✓ Product differentiation necessitates incurring of selling expenses on the part of firms under market structure of monopolistic competition.
- ✓ Monopolistic competition is characterized by a large number of sellers. The demand and supply conditions of these sellers are inter-dependent. However, in spite of their large number, no individual seller becomes a price taker. He has the authority to demand a price of his choice, though he also considers the demand conditions for his product while exercising this authority. In other words, in spite of there being a large number of sellers, the demand curve for the product of an individual seller is downward sloping. Its demand is not perfectly elastic. It also has large number of buyers also.
- ✓ The fact that each firm produces a 'differentiated product' implies that it can distinguish it further by varying its 'quality'. An improvement in the 'quality' implies an increase in its average cost of production while deterioration in quality implies a reduction in average cost of production. Also an improvement in quality is expected to 'increase' the demand for the product so that, for each given quantity, the buyers are ready to pay a higher price.

- ✓ The firms under the monopolistic competition face a competitive market as regards the inputs used by them. They also have to operate within a given technological range. The result is that no firm is able to compete out its rival by producing a 'better quality' product at a lower average cost.
- ✓ It is assumed that each firm has an accurate knowledge of its demand and cost conditions. This feature implies that the firm is able to estimate the impact of any change in the quantity and/or quality of its product on both its cost of production and average revenue. This knowledge, therefore, enables the firm to maximize its expected profit income.
- ✓ Every existing firm can leave the 'group' of firms belonging to the 'product group' (sometimes inaccurately called the industry). Similarly, new firms can enter the group and produce close substitutes of the existing products in the group. This free entry and exit of firms ensures that, in the long run, no firm incurs a loss and no firm is able to earn abnormal profit.
- ✓ At the same time, every firm in monopolistic competition is assumed to pursue the goal of profit maximisation. Its aim is not to maximize sales proceeds, or an increase in the market share, etc.
- ✓ It is also assumed that in monopolistic competition all firms have identical cost and demand conditions. This simplifying assumption helps us in analyzing the determination of group equilibrium. It enables us to analyze the working of an individual firm and use it as the representative of the working of the entire group. In the absence of this assumption, we have to separately work out the determination of output, product quality, and price of each firm within the group.
- ✓ Product differentiation necessitates incurring of selling expenses on the part of firm under the monopolistic competition.

Since product differentiation and selling expenses form the foundation of monopolistic competition, let us explain them a little further.

**Evaluation of Monopolistic Competition**

**Merits**

- ✓ An important merit of monopolistic competition is that it is much closer to reality than several other models of market structure. Firstly, it incorporates the facts of product differentiation and selling costs. Secondly, it can be easily used for the analysis of duopoly and oligopoly.

- ✓ Under monopolistic competition, it is possible to see that even when each individual firm produces under conditions of increasing returns, not only the firm under consideration but the entire group of firms can be in equilibrium.
- ✓ Moreover, monopolistic competition is able to show that even when each individual firm is producing under increasing returns, it still earns only normal profit in the long run. The theory of monopolistic competition helps us in bringing in the concept of market share of an individual firm. This opens up the possibility of considering those situations in which a firm may be pursuing a goal other than profit maximisation.
- ✓ In monopolistic competition we are able to consider the interaction between several interdependent variables on the basis of which a firm takes its decisions.

**Demerits**

- ✓ The biggest conceptual difficulty with monopolistic competition is the concept of a 'group' of firms. There is no standard theoretical foundation for deciding the boundaries of a group.
- ✓ Related with the concept of a group of firms, we face the difficulty of defining the meaning of a 'close substitute'. We are not told at what values of cross elasticity, two products become close substitutes of each other.
- ✓ The theory of monopolistic competition fails to take into account the fact that the demand by final consumers is largely influenced by the retail dealers because the consumers themselves are not fully aware of the technical qualities of the product.
- ✓ Similarly, the theory fails to fully account for the determination of equilibrium quantities and prices of goods like raw materials and other inputs. To a large extent, their demand is governed by a combination of the technical quality, price, and timely availability rather than by brand name, etc. Given the technical quality of an input, its demand is governed more by its price and availability than its brand name.

**Comparison between Perfect Competition, Monopoly and Monopolistic Competition**

There are certain common and non-common features among different form of markets exists in a system. Some of the major points of distinction among these markets are presented in the following table.

| **Features** | **Perfect Competition** | **Monopoly** | **Monopolistic Competition** |
|---|---|---|---|
| Number of selling firm | Large | Single | Varied but not too many |
| Number of buyers | Large | Large | Large |
| Size of the market | Very small | Large | Small |

| | | | |
|---|---|---|---|
| for each firm | | | |
| Entry and exit condition | Free | No entry | Free |
| Degree of monopoly power | Zero (NIL) | Full | Limited |
| Price Uniform and low | Very | High | Moderate |
| Price policy of firm | Price taker | Price Maker | Price Maker (some control over price depending on consumer brand loyalty) |
| Market knowledge | Information | Complete | Incomplete |
| Capacity Utilization | Optimum | Sub-optimum | Sub-optimum |
| Price Elasticity of Demand for individual firm | Perfectly elastic (Infinite) | Less elastic | High |
| AR and MR Curve | Equal | Different | Different |
| Selling Cost | Nil | Small | Large |
| Equilibrium Conditions | MR=MC Slope(MC)< Slope (MC) | MR=MC Slope < Slope of MR | MR=MC Slope (MC) < Slope (MC) |
| Nature of decision variable | Only output | Both price and output are within his control but at one time decision can be taken only about one of them. It faces a trade off between price and output | Nature and extent of product differentiation and hence the level of selling expenses. |

## 5.5 Duopoly

Duopoly is a special case of the theory of oligopoly in which there are only two sellers. Both the sellers are completely independent and no agreement exists between them. Even though they are independent, a change in the price and output of one will affect the other, and may set a chain of reactions. A seller may, however, assume that his rival is unaffected by what he does, in that case he takes only his own direct influence on the price.

If, on the other hand, each seller takes into account the effect of his policy on that of his rival and the reaction of the rival on himself again, then he considers both the direct and the indirect influences upon the price. Moreover, a rival seller's policy may remain unaltered either to the amount offered for sale or to the price at which he offers his product. Thus the duopoly problem can be considered as either ignoring mutual dependence or recognising it.

**Characteristics of Duopoly Market**

The duopoly market have some characteristics which is alike characteristics of oligopoly market. So the characteristics of duopoly market are as follows:

- ✓ Presence of monopoly element- products are differentiated and each product enjoy some amount of customer loyalty as a result firm enjoy some monopoly power.
- ✓ Price rigidity exists in this type of market structure. It means price of product in this market does not change immediately with change in demand and supply in market.
- ✓ In this type of market structure either advertising is done to increase its sales volume or by improving quality of its product.
- ✓ There is interdependency among firms as no firm can ignore the action and reaction of its rival firm.
- ✓ The demand curve is indeterminate, any step taken by rival firm will effect firms product demand.
- ✓ There exists a conflict attitude among a firm as they have two types of attitude on one hand they want to have joint venture to increase their profit and on the other hand they want to earn profit individually. So these both attitude have conflict among themselves.

**Monopolistic Competition**

- ✓ Monopolistic Competition refers to a situation where there are many sellers of a differentiated product.
- ✓ There is competition which is not perfect, between many firms making very similar products which are close but not perfect substitutes.
- ✓ Monopolistic market exhibits characteristic of both perfect competition and monopoly.

**Features of Monopolistic Competition**

**i) A large number of sellers**

In a market with monopolistic competition, there are a large number of sellers who have a small share of the market.

**ii) Product differentiation**

In a monopolistic competition, all brands try to create product differentiation to add an element of monopoly over the competing products. This ensures that the product offered by the brand does not have a perfect substitute. Therefore, the manufacturer can raise the price of the product without having to worry about losing all its customers to other brands. However, in such a market, while all brands are not perfect substitutes, they are close

substitutes for each other. Hence, the seller might lose at least some customers to his competitors.

**iii) Freedom of entry or exit**

Like in perfect competition, firms can enter and exit the market freely.

**iv) Non-price competition**

In a monopolistic competition, sellers compete on factors other than price. These factors include aggressive advertising, product development. better distribution, after sale services etc. Sellers don't cut the price of their products but incur high costs for the promotion of their goods. If the firms indulge in price-wars, which is the possibility under a perfect competition, some firms might get thrown out of the market.

**v) Selling Cost**

Another feature of the monopolistic competition is that every firm tries to promote its product by different types of expenditures. Advertisement is the most important constituent of the selling cost which affects demand as well as cost of the product. The main purpose of the monopolist is to earn maximum profits; therefore, he adjusts this type of expenditure accordingly.

**vi) Lack of Perfect Knowledge**

The buyers and sellers do not have perfect knowledge of the market. There are innumerable products each being a close substitute of the other. The buyers do not know about all these products, their qualities and prices. Therefore, so many buyers purchase a product out of a few varieties which are offered for sale near the home. Sometimes a buyer knows about a particular commodity where it is available at low price. But he is unable to go there due to lack of time or he is too lethargic to go or he is unable to find proper conveyance. Likewise, the seller does not know the exact preference of buyers and is, therefore, unable to get advantage out of the situation.

**vii) More Elastic Demand**

Under monopolistic competition, demand

**viii) Less Mobility**

Under monopolistic competition both the factors of production as well as goods and services are not perfectly mobile curve is more elastic. In order to sell more, the firms must reduce its price.

**Price Determination Under Monopolistic Competition**

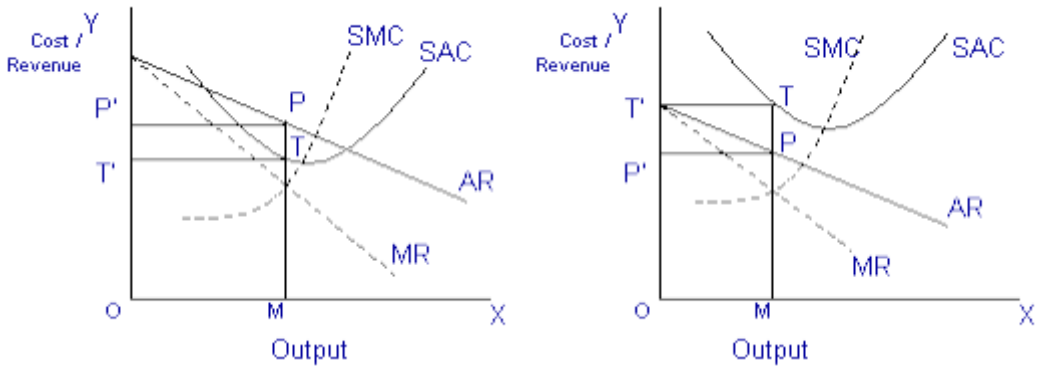
Under monopolistic competition, the firm will be in equilibrium position when marginal revenue is equal to marginal cost. So long the marginal revenue is greater than

marginal cost, the seller will find it profitable to expand his output, and if the MR is less than MC, it is obvious he will reduce his output where the MR is equal to MC. In short run, therefore, the firm will be in equilibrium when it is maximising profits, i.e., when MR = MC.

**(a) Short Run Equilibrium: Short run equilibrium is illustrated in the following diagram:**

**Figure 5.9**

**Monopolistic Competition Short Run Equilibrium**




**(a) Short Run Equilibrium With Profit** **(b) Short Run Equilibrium With Loss**

In the above diagram, the short run average cost is MT and short run average revenue is MP. Since the AR curve is above the AC curve, therefore, the profit is shown as PT. PT is the supernormal profit per unit of output. Total supernormal profit will be measured by multiplying the supernormal profit to the total output, i.e. PT × OM or PTT'P' as shown in figure (a). The firm may also incur losses in the short run if it is facing AR curve below the AC curve. In figure (b) MP is less than MT and TP is the loss per unit of output. Total loss will be measured by multiplying loss per unit of output to the total output, i.e., TP × OM or TPP'T'.

**(b) Long Run Equilibrium**

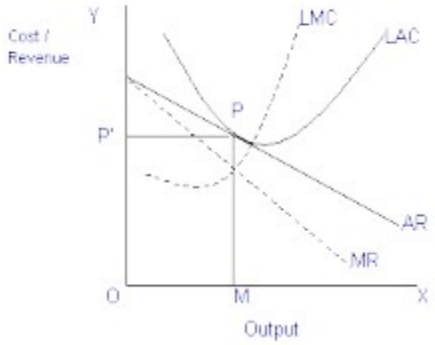
Under monopolistic competition, the supernormal profit in the long run is disappeared as new firms are entered into the industry. As the new firms are entered into the industry, the demand curve or AR curve will shift to the left, and therefore, the supernormal profit will be competed away and the firms will be earning normal profits. If in the short run firms are suffering from losses, then in the long run some firms will leave the industry so that remaining firms are earning normal profits.

The AR curve in the long run will be more elastic, since a large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is established when

firms are earning only normal profits. Now profits are normal only when AR = AC. It is further illustrated in the following diagram:

**Figure 5.10**

**Long Run Equilibrium in Monopolistic Competition**




## 5.6 Oligopoly

It is a market situation comprising only a few firms in a given line of production. Their products may be standardised or differentiated. The price and output policy of oligopolistic firms are interdependent. The oligopoly model fits well into such industries as automobile, manufacturing of electrical appliances, etc., in our country.

Feller defines oligopoly as "competition among the few." In an oligopolistic market, the firms may be producing either homogeneous products or may be having product differentiation in a given line of production.

The following are the distinguishing features of an oligopolistic market:

i) **Few Sellers.** There are a few sellers supplying either homogeneous products or differentiated products.

ii) **Homogeneous or Distinctive Product.** The oligopoly firm may be selling a homogeneous product. For example, steel/aluminium/copper. These can be a unique or distinctive product. For example, automobile-passenger cars.

iii) **Blockaded Entry and Exit.** Firms in the oligopoly market face strong restrictions on entry or exit.

iv) **Imperfect Dissemination of Information.** Detailed market information's relating to cost, price and product quality are usually not publicized.

v) **Interdependence.** The firms have a high degree of interdependence in their business policies about fixing of price and determination output.

vi) **High Cross Elasticities.** The firms under oligopoly have a high degree of cross elasticities of demand for their products, so there is always a fear of retaliation by

rivals. Each firm consciously considers the possible action and reaction of its competitors while making any change in the price or output.

vii) **Advertising.** Advertising and selling costs have strategic importance to oligopoly firms. "It is only under oligopoly that advertising comes fully into its own." Each firm tries to attract consumers towards its product by incurring excessive expenditure on advertisements.

viii) **Constant Struggle.** Competition is of unique type in an oligopolistic market. Here, competition consists of constant struggle of rivals against rivals.

ix) **Lack of Uniformity.** Lack of uniformity in the size of different oligopolies is also a remarkable characteristic.

x) **Lack of Certainty.** Lack of certainty is also an important feature. In oligopolistic competition, the firms have two conflicting motives: *(i)* to remain independent in decision-making, and *(ii)* to maximise profits, despite the fact that there is a high degree of independence among rivals in determining their course of business. To pursue these ends, they act and react to the price output variation of one another in an unending atmosphere of uncertainty.

xi) **Price Rigidity.** In an oligopolistic market, each firm sticks to its own price. This is because, it is in constant fear of retaliation from rivals if it reduces the price. It, therefore, resorts to advertisement competition rather than price cut. Hence, there is price rigidity in an oligopolistic market.

xii) **Kinked Demand Curve:** According to Paul Sweezy, firms in an oligopolistic market have a kinked demand curve for their products.

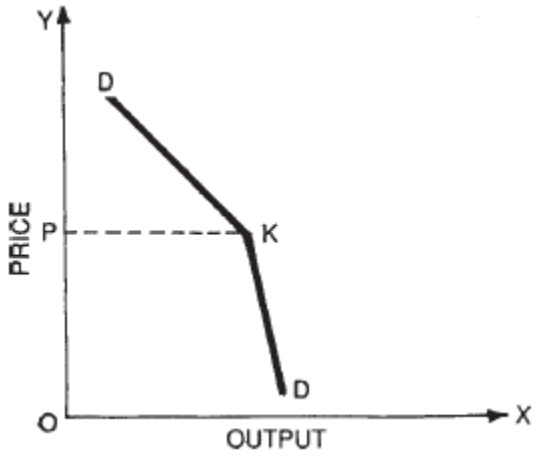
**Kinked Demand Curve**

The kinked demand curve or the average revenue curve is made of two segments: *(i)* the relatively elastic demand curve and *(ii)* relatively inelastic demand curve as shown in Figure 5.11.

In Figure 5.11 corresponding to the given price *OP*, there is a kink at point *K* on the demand curve *DD*. Thus, *DK* is the elastic segment and *KD* is the inelastic segment of the curve. Here, the kink implies an abrupt change in the slope of the demand curve. Before the kink point, the demand curve is flatter, after the kink it becomes steeper.

**Figure 5.11**

**Kinked Demand Curve**



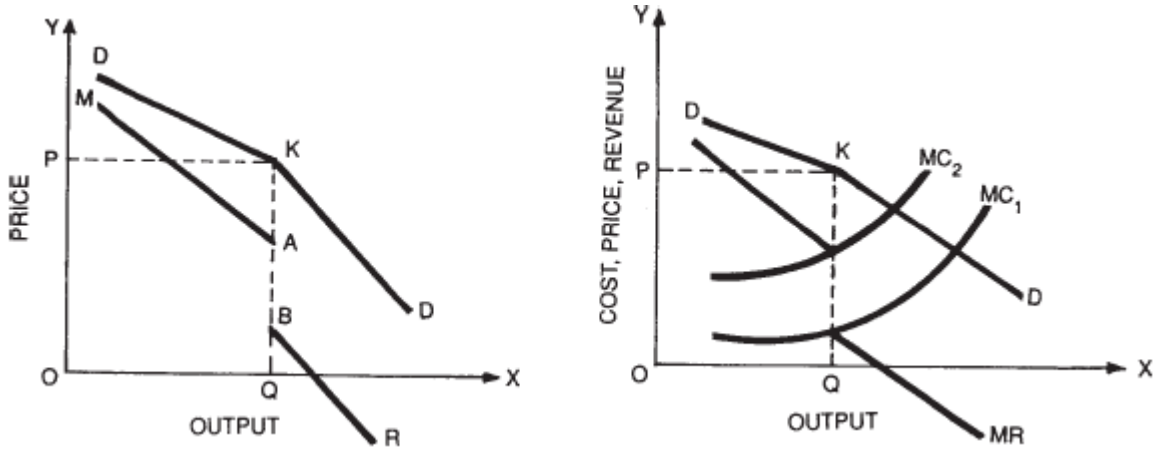

Above the kink at a given price, demand curve is more elastic and blow the kink less elastic.

The kink leads to indeterminateness of the course of demand for the product of the seller concerned. He thus, thinks it worthwhile to follow the prevailing price and not to make any change in it, because raising of price would contract sales as demand tends to be more elastic at this stage. There is also the fear of losing buyers to the rivals who would not raise their prices. On the other hand, a lowering of price would imply an immediate retaliation from the rivals on account of close interdependence of price output movement in the oligopolistic market. Hence, the seller will not expect much rise in his sale with price reduction.

**Kinked Demand Curve Theory of Oligopoly Prices**

An important point involved in kinked demand curve is that it accounts for the kinked average revenue curve to the oligopoly firm. The kinked average revenue curve, in turn, implies a discontinuous marginal revenue curve *MA-BR* (as shown in Figure 5.12). Thus, the kinky marginal revenue curve explains the phenomenon of price rigidity in the theory of oligopoly prices.

**Figure 5.12**




**Discontinuous Marginal Revenue Curve** **Oligopoly Price Rigidity**

Because of discontinuous marginal revenue curve (*MR*), there is no change in equilibrium output, even though marginal cost changes hence, there is price rigidity. *OP* does not change.

It is observed that quite often in oligopolistic markets, once a general price level is reached whether by collusion or by price leadership or through some formal agreement, it tends to remain unchanged over a period of time. This price rigidity is on account of conditions of price interdependence explained by the kinky demand curve. Discontinuity of the oligopoly firm's marginal revenue curve at the point of equilibrium price, the price output combination at the kink tends to remain unchanged even though marginal cost may change, as shown in Figure 5.12.

In the Fig 5.12, it can be seen that the firm's marginal cost curve can fluctuate between *MC*1 and *MC*2 within the range of the gap in the *MR* curve, without disturbing the equilibrium price and output position of the firm. Hence, the price remains at the same level *OP*, and output *OQ*, despite change in the marginal costs.

**Pattern of Behaviour in Oligopolistic Markets**

Haynes, Mote and Paul (1970) have enlisted the following important patterns of behaviour normally observed in oligopolistic markets:

**i) Price Leadership**

A traditional leader in the oligopoly market announces price changes from time to time which other competitors follow. The dominant firm may assume the price leadership. There is barometric price leadership when a smaller firm tries out a new price, which may or may not be recognised by the larger firms.

The price leadership of a firm depends on a number of factors, such as:

- ✓ Dominance in the Market. Dominating position in the market is achieved by the firm when it claims a substantial share of the market.
- ✓ Initiative. When the firm develops a product or a new sales territory.
- ✓ Aggressive Pricing. When the firm charges lower prices aggressively and captures a sizeable market.
- ✓ Reputation. When the firm acquires reputation for sound pricing policies and accurate decisions due to its longstanding in the business, the other firms may accept its leadership.

**ii) Price Wars**

Under cut-throat competition among the rivals, price wars may emerge in an oligopolistic market. Under price wars, firms tend to charge prices even below their variable cost. Price wars are never planned. They occur as a consequence of one firm cutting the prices and others following suit.

**iii) Price Cuts to Weed out Competition**

A financially strong firm may deliberately resort to price cuts to eliminate competitors from the market and secure its position.

**iv) Collusion**

Business syndicates or trusts may be formed by the competing firms and agree to charge a uniform price, thereby to eliminate price retaliation or price cut competition. Such business collusion implies conversion of an oligopoly into a monopoly. Business collusion is considered illegal under anti-trust laws, such as the Competition Act, 2002, in India.

**v) Secret Price Concessions**

Sometimes, oligopolists may offer secret price concessions for selected buyer instead of having an open price cut, which is likely to be retaliated by their rivals.

**vi) Non-Price Competition**

Owing to the danger of retaliation in price cut competition, the oligopolists may also resort to non-price competition by competing in sales promotion efforts, advertising, product improvement, etc. Here, too, the rivals do retaliate.

**Sources of Oligopoly**

The factors that give rise to oligopoly are broadly the same as those for monopoly. The main sources of oligopoly are described here briefly.

**i) Huge capital investment**

Some industries are by nature capital-intensive, e.g., manufacturing automobiles, aircraft, ships, TV sets, computers, mobile phones, refrigerators, steel and aluminium goods, etc. Such industries require huge initial investment. Therefore, only those firms which can make huge investment can enter these kinds of industries. In fact, a huge investment requirement works as a natural barrier to entry to the oligopolistic industries.

**ii) Economies of scale**

By virtue of huge investment and large scale production, the large units enjoy absolute cost advantage due to economies of scale in production, purchase of industrial inputs, market financing, and sales organization. This gives the existing firms a comparative advantage over new firms in price competition. This also works as a deterrent for the entry of new firms.

**iii) Patent rights**

In case of differentiated oligopoly, firms get their differentiated product patented which gives them an exclusive right to produce and market the patented commodity. This prevents other firms from producing the patented commodity. Therefore, unless new firms have something new to offer and can match the existing products in respect of quality and cost, they cannot enter the industry. This keeps the number of firms limited.

**iv) Control over certain raw materials**

Where a few firms acquire control over almost the entire supply of important inputs required to produce a certain commodity, new firms find it extremely difficult to enter the industry. For example, if a few firms acquire the right from the government to import certain raw materials, they control the entire input supply.

**v) Merger and takeover**

Merger of rival firms or takeover of rival firms by the bigger ones with a view to protecting their joint market share or to put an end to waste of competition is working, in modern times, as an important factor that gives rise to oligopolies and strengthens the oligopolistic tendency in modern industries. Mergers and takeovers have been one of the main features of recent trend in Indian industries.

**Features of Oligopoly Market**

**i) Few Sellers**

Under the Oligopoly market, the sellers are few, and the customers are many. Few firms dominating the market enjoy a considerable control over the price of the product.

**ii) Interdependence**

It is one of the most important features of an Oligopoly market, wherein, the seller has to be cautious with respect to any action taken by the competing firms. Since there are few sellers in the market, if any firm makes a change in the price or promotional scheme, all other firms in the industry have to comply with it to remain in the competition. Thus, every firm remains alert to the actions of others and plan their counterattack beforehand to escape the turmoil. Hence, there is a complete interdependence among the sellers with respect to their price-output policies.

**iii) Advertising**

Under Oligopoly market, every firm advertises their products on a frequent basis with the intention to reach more and more customers and increase their customer base. This advertising makes the competition intense. If any firm does a lot of advertisement while the other remained silent, then you will observe that his customers are going to the firm which is continuously promoting its product. Thus, in order to be in the race, each firm spends lots of money on advertisement activities.

**iv) Competition**

It is genuine that with a few players in the market, there will be an intense competition among the sellers. Any move by one firm will have a considerable impact on its rivals. Thus, every seller keeps an eye over its rivals and be ready with the counterattack.

**v) Entry and Exit Barriers**

The firms can easily exit the industry whenever they want, but has to face certain barriers to enter into it. These barriers could be Government license, Patent, large firm's economies of scale, high capital requirement, complex technology, etc. Also, sometimes the government regulations favour the existing large firms, thereby acting as a barrier for the new entrants.

**vi) Lack of Uniformity**

There is a lack of uniformity among the firms in terms of their size, some are big, and some are small. Since there are less number of firms, any action taken by one firm has a considerable effect on the other. Thus, every firm must keep a close eye on its counterpart and plan the promotional activities accordingly.

**Check Your Progress**

**Choose the Correct Answer:**

1. **Market classification is based on**

   a) Number of buyers and sellers

   b) Nature of products

   c) Degree of competition

   d) All of the above

   **Answer: d) All of the above**

2. **In perfect competition, the number of sellers is**

   a) One

   b) Few

   c) Many

   d) Two

   **Answer: c) Many**

3. **In perfect competition, products are**

   a) Differentiated

   b) Homogeneous

   c) Unique

   d) Branded

   **Answer: b) Homogeneous**

4. **Monopoly refers to a market with**

   a) One seller and many buyers

   b) Many sellers

   c) Two sellers

d) Few sellers

**Answer: a) One seller and many buyers**

5. **A monopolist is a**

a) Price taker

b) Price maker

c) Price follower

d) Price controller by government

**Answer: b) Price maker**

6. **Monopolistic competition is characterized by**

a) Homogeneous products

b) Product differentiation

c) One seller

d) No competition

**Answer: b) Product differentiation**

7. **Duopoly means**

a) Two sellers in the market

b) One seller

c) Many sellers

d) No sellers

**Answer: a) Two sellers in the market**

8. **Oligopoly refers to a market with**

a) One seller

b) Few sellers

c) Many sellers

d) No competition

**Answer: b) Few sellers**

9. **Examples of oligopoly markets include**

a) Automobile industry

b) Mobile network companies

c) Airline industry

d) All of the above

**Answer: d) All of the above**

10. **Which market structure has complete freedom of entry and exit?**

a) Monopoly

b) Perfect competition

c) Oligopoly

d) Duopoly

**Answer: b) Perfect competition**

**Small Questions – LOCF Mapping Table**

| S.No | Small Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | What is market classification? | CO1 | Remember | PO1 |
| 2 | What is perfect competition? | CO1 | Understand | PO1 |
| 3 | What is monopoly? | CO2 | Remember | PO2 |
| 4 | What is monopolistic competition? | CO2 | Understand | PO2 |
| 5 | What is oligopoly? | CO3 | Understand | PO3 |

**Big Questions – LOCF Mapping Table**

| S.No | Big Question | CO | Bloom's Level | PO |
|---|---|---|---|---|
| 1 | Explain the concept and classification of markets in economics. | CO1 | Understand | PO1 |
| 2 | Discuss the features of perfect competition. | CO1 | Analyze | PO2 |
| 3 | Explain the characteristics and price determination under monopoly. | CO2 | Analyze | PO3 |
| 4 | Describe the features of monopolistic competition with examples. | CO2 | Understand | PO4 |
| 5 | Explain the characteristics of duopoly and oligopoly market structures. | CO3 | Evaluate | PO5 |