



## **B.COM. – I YEAR**

### **DJC1A : MANAGERIAL ECONOMICS**

#### **SYLLABUS**

##### **Unit I**

Subject matter of economics – definition and meaning of business economics – basic concepts – importance and limitations of business economics – goods – types of goods – wants – law of diminishing utility – consumer surplus

##### **Unit II**

Demand analysis – meaning – kinds of demand – law of demand determination of demand – types of demand – elasticity of demand – meaning – price elasticity – income elasticity – cross elasticity – types – method of measuring elasticity of demand – demand forecasting

##### **Unit III**

Production analysis – meaning of production – factors of production – production function – isoquants – law of returns – law of variable proportions – returns to scale – economics and diseconomies – cost of production – short run and long run – cost curves – optimum firm

##### **Unit IV**

Pricing of the product – pricing in perfect competition – monopoly – meaning – monopolistic competition – oligopoly – imperfect competition – pricing policy objectives – factors influencing pricing policy – various pricing methods – pricing of new products

##### **Unit V**

Profit analysis – profit – functions of profit – profit policy – meaning – break even analysis – break even point – assumption – limitations – uses – profit forecasting – methods

##### **Reference Books**

1. Managerial Economics – R.L. Varshney & K.L. Maheswary - Sultan Chand, Publications, New Delhi
2. Economic Analysis – K.P.M. Sundaram & E.N. Sundaram – Sultan Chand, Publications, New Delhi
3. Business Economics by Bani Mazumdar & V.G. Mankar – Himalaya Publishing house, Bombay
4. Business Economics – A.R. Arya Sri, V.V. Ramamoorthy – Tata McGraw Hill Companies



## **UNIT I : MATTER OF ECONOMICS**

*Subject matter of economics – definition and meaning of business economics – basic concepts – importance and limitations of business economics – goods – types of goods – wants – law of diminishing utility – consumer surplus*

### **MATTER OF ECONOMICS**

#### **INTRODUCTION**

Economics deals with the day to day activities of human beings life. In all, human beings are gratified (or) enjoy the economic activities such as consumption, production, exchange and distribution. In simple terms economics is concerned with the aspects of human behaviour.

#### **ORIGIN OF ECONOMICS**

The term Economics is derived from the two Greek words ‘Oikos’ (means house) and ‘Nomos’ (means manage). If these two words are merged “Oikonomia” it gives the meaning household management.

In the earlier period, economics is linked with politics. So the earlier economist called economics as a “political economy”. This subject name was changed from ‘political economy’ to ‘economics’ by Alfred Marshall.

#### **DEFINITION OF ECONOMICS**

There are four important definitions of economics to understand the basic concept of economics. They are

Wealth Definition –Adam Smith

Welfare Definition – Alfred Marshall

Scarcity Definition- Lionel Robbins

Growth Definition – Paul. A. Samuelson.

Let us discuss these definitions in detail.

#### **WEALTH DEFINITIONS**

The classical economists defined economics as the science of wealth. Adam Smith in his famous book, “**An Enquiry into the Nature and Causes of the Wealth of Nations**”, which was published in 1776, described economics systematically.

#### **Definition**

“Economics is an enquiry into the nature and causes of the wealth of nations”.

**Adam Smith**



## **Features**

The wealth definitions have the following main features:

### **i) Study of wealth**

According to the wealth definitions of economics the only proper study of economics is wealth.

### **ii) Study of material goods only**

The term wealth has been used, only for material goods like table, chair, book, pen, etc. Non material goods like services of teachers, engineers, doctors have not been considered as wealth.

### **iii) Causes of wealth**

Economics is an enquiry into causes of increase in wealth.

### **iv) Much Emphasis on wealth**

For the economic development of any country, the classical economists give too much importance to wealth.

## **Criticism**

The wealth definitions have been criticized for giving too much importance to wealth. The definitions have been criticized on the following grounds:

### **i) Too much stress on wealth**

These definitions have assigned primary importance to wealth and secondary status to man.

### **ii) Neglect of man**

These definitions lay emphasis on earning and accumulation of wealth and man is not taken into consideration.

### **iii) Only material goods**

Adam smith and other classical economists included only material goods in wealth.

### **iv) Neglect of human welfare**

The classical economists had given undue importance to wealth but they did not give any importance to human welfare.

### **v) Concept of economic man**

In these definitions it has been observed that the basic objective of the economic man is to earn and collect wealth. But it is far from true.



#### **vi) Neglect of means**

These definitions do not explain which means should be adopted for earning and accumulation of wealth.

#### **vii) Static definitions**

These definitions have concentrated on the earning and collection of wealth. Therefore according to some economists these definitions are static.

### **WELFARE DEFINITIONS**

Neo-classical economists like Alfred Marshall, Cannan, A.C. Pigou have defined economics in terms of welfare. Therefore, their definitions are described as “**Welfare Definitions**”. Alfred Marshall in his famous book “**Principles of Economics**” published in 1980 laid stress on material welfare rather than wealth. He changed the very concept of economics.

#### **Definitions**

“Economics is a study of mankind in the ordinary business of life. It examines that part of individual and social actions which are most closely connected with the attainment and use of material requisites of well being.”

**Alfred Marshall**

#### **Features**

The main features of material welfare definitions are as follows

##### **i) Study of mankind**

According to the welfare economists, economics is a science which is related with the welfare of human beings.

##### **ii) Study of ordinary business of life**

Every person acts mainly to earn and collect wealth and spends those earnings to get the maximum enjoyment. Marshall called this activity the ordinary business of life.

##### **iii) Material requisites**

According to these definitions, economics studies only those activities of man which are related to material requisites.

##### **iv) Study of real man**

Economics studies the real man in the society who possesses several qualities to increase the welfare of the society.

##### **v) A Science and an art**

These definitions deal with economics both as a science and an art.



## **vi) Logical and scientific definitions**

Economics is not a science of wealth but a study of the means and approaches to increase the welfare of society.

### **Criticism**

Material welfare definitions of economics given by Marshall, Pigou and others have been criticized on the following grounds.

#### **i) Economics is a human science**

Economics studies both the persons living in the society and outside the society like monks, saints, and so on.

#### **ii) Narrow definitions**

These definitions include material goods only while non-material goods and services are ignored.

#### **iii) Non analytical definitions**

Instead of the classification of activities, economists should concentrate on scarce means.

#### **iv) Wrong classification of human activities**

According to Marshall human activities are classified into economic and non-economic activities. But Robbins has criticized this classification on the basis that every human activity is economic and related directly or indirectly with wealth.

#### **v) Impractical**

The definition of economics given by Marshall is theoretical in nature which is not applicable in practical life.

#### **vi) Unscientific**

Wealth definition given by Marshall is not analytical. The study of human behaviour given by Marshall makes economics variable, indefinite and uncertain.

#### **vii) Not concerned with ends**

Economics is the study of material welfare of society. According to Robbins, economics is a pure science which does not study good or bad, right or wrong, as these come under the purview of ethics.

#### **viii) 'Ordinary Business of life' is not clear**

According to Marshall, economics is a study of mankind in the ordinary business of life. The meaning of the words 'Ordinary Business of Life' is not clear.



## SCARCITY DEFINITIONS

In 1932, Lionel Robbins brought out his famous book entitled “**An Essay on the Nature and Significance of Economics science**” and introduced ‘the scarcity definition’ of economics. He has criticized the ‘Welfare definitions’ given by Marshall, Pigou and others. He has laid more emphasis on the scarcity of means rather than on the objectives or ends.

### Definitions

“Economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses”.

**Robbins**

Robbins’ definition is based on the following facts:

- i) Economics is a Science
- ii) Wants are unlimited
- iii) Means are scarce
- iv) Means have alternative uses.

### Features

The definition of economics given by Robbins has the following main features

#### **i) Economics is a science**

According to Robbins, economics is not an art or a normative science. It is a science which studies the causes of economic problems and does not study its merits and demerits.

#### **ii) Human behaviour**

According to Robbins, economics is a science which studies human behaviour. The behaviour of every person is studied in economics irrespective of the fact whether he lives in or out of society.

#### **iii) Unlimited ends**

Wants are unlimited. It is not possible to satisfy them all. If one want is satisfied, another crops up. In fact, there is no end to what a man may want.

#### **iv) Scarce means**

Though wants are unlimited, the means at the disposal to satisfy these wants are scarce or limited.

#### **v) Alternative uses of means**

Wants are unlimited but the means to satisfy them are scarce. Not only the means are scarce but can be put to a number of uses. This makes them all the more scarce.



## **vi) Problem of choice**

According to Robbins, economics is the science of choice-making because wants are unlimited and means to satisfy them are limited.

### **Criticism**

Many economists criticized the Robbins definition on the following grounds:

#### **i) More emphasis on scarcity**

Robbins gives too much importance to the economics of scarcity. Modern economics is growth oriented rather than scarcity oriented.

#### **ii) Too wide a definition**

According to Robbins economics is the study of all human activities which are related to the problem of choice. The problem of choice as such is faced not only by the social beings but also by the non-social beings like saints and smugglers.

#### **iii) Economic problems do not always arise from scarcity**

According to Robbins the economic problems arise due to scarcity of means in relation to wants. He gives main emphasis on the phenomenon of scarcity. But some critics are of the opinion that economic problems also arise from the abundance of goods.

#### **iv) Old wine is new bottles**

The famous economists like Beveridge and Fraser said that the definition given by Robbins is only old wine in new bottles. They assert that Robbins' does not say anything new which was not known to Marshall.

#### **v) Unethical definition**

Robbins' definition of economics ignores normative or ethical aspect of economic phenomena because it is neutral as regards its ends.

#### **vi) Lack of human touch**

Robbins' Definition lacks in human touch.

#### **vii) Growth theory overlooked**

The theory of economic growth has been become a very popular branch of modern economics. The theory explains how an economy grows and the factors which bring about increase in national income and productive capacity of the economy. But Robbins ignores this theory and takes only the resources as given and discusses only the scarcity and allocation of resources.



### **viii) More abstract and complex definition**

Robbins' definition of economics is an abstract, complex and difficult one. Hence, it loses its utility for the common man. The utility of economics lies in its being a concrete and realistic study.

### **ix) Inapplicable in rich countries**

Robbins' definition is concentrated on the scarcity of resources. This definition, therefore, is not applicable in highly rich countries which have abundance of resources.

### **x) Inapplicable in socialist economies**

Definition of economics is not applicable in socialist countries. In these countries, all the decisions regarding production and consumption are taken by the Government and the state is responsible for providing basic necessities of life to people.

## **GROWTH DEFINITION**

Modern economics is growth oriented. The growth economics is the major concern of all economic theories. The modern economists describe economics as follows:

### **Definitions**

“Economics is the study of how men and society end up choosing, with or without the use of money, to employ scarce productive resources that could have alternative uses, to produce various commodities and distribute them for consumption, now or in the future, among various persons and groups in society. It analyses the costs and benefits of improving patterns of resource allocation”

**Paul A. Samuelson**

### **Features**

The ‘Growth definitions’ given by modern economists have the following main features.

#### **i) Productive resources**

Like the scarcity economists, Samuelson also emphasizes the scarcity aspect of productive resources in the economic life of people in society. The resources are scarce but they have alternative uses in producing various goods for the satisfaction of human wants.

#### **ii) Theory of distribution and consumption**

The modern economics is concerned with the production of a variety of goods with scarce means. Apart from this it is concerned with the relative problems of distribution and consumption of these scarce resources.





### **iii) Dynamic and wider definition**

The definition given by Samuelson is dynamic in content and wider in scope. It pertains not only to the present but also the future production and distribution aspects of the economic activities of the society.

### **iv) Adequate allocation of resources**

The main focus of the modern economists is to increase the economic growth of the economy. This can be done only with the adequate allocation of resources between competing ends.

### **v) Proper utilization of resources**

The focus of modern economics is not only on the allocation of resources but on proper utilization of resources. It also points out that the cost benefit analysis is very important in dealing with development programmes and proper utilization of the resources in the country.

## **SUBJECT-MATTER OF ECONOMICS**

The subject-matter of economics has been a subject of wide controversy. So wide ranging is the divergence of opinion in this regard that it led various economists differs vastly about the subject matter of economics. The classical economists like Adam Smith and others considered production and distribution of wealth as the material welfare of human being as the subject matter of economics. Marshall and his followers considered material welfare of human being as the subject matter of economics. He said that economics is the study of human activities which promote material welfare.

### **a) Economic circle**

According to Lionel Robbins, wants are unlimited but means to satisfy them are limited. So man makes efforts to earn money or income and by spending money he satisfies his wants. The satisfaction of one want gives birth to another. For the satisfaction of these wants man again makes efforts, earns money and again obtains satisfaction by spending it on the required goods. In this way, the endless economic circle of wants→Efforts→Wealth→Satisfaction starts and goes on forever and that is what constitutes the subject matter of economics.



## **b) Economic activities**

Economic activities are those activities of human beings which are performed mainly to earn income. The income is not earned just for the purpose of earning but to buy goods and services to satisfy human wants.

Boulding has classified the economic activities relating to the subject matter of economics into the following four groups:

- i) Consumption;
- ii) Production;
- iii) Exchange ; and
- iv) Distribution

### **i) Consumption**

Consumption is the beginning and the end of all the economic activities. It is the cause of production. Consumption is a process through which human wants are satisfied by the use of goods and services. Consumption means deriving utility from goods.

### **ii) Production**

Production is the creation of utilities. Production is centre of all economic activities. An entrepreneur engages land, labour and capital to produce goods and services to satisfy human wants.

### **iii) Exchange**

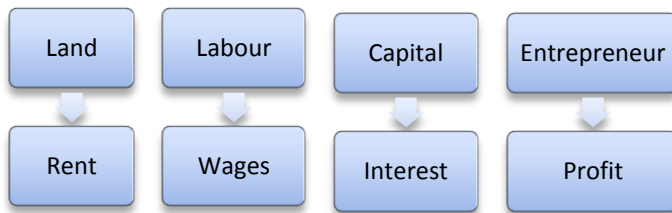
Modern age is the age of specialization. Nobody can produce all the goods he needs himself and every producer produces much more of a commodity than he wants for himself. Hence, there is a need for exchange.

### **iv) Distribution**

The national product is produced by four factors of production i.e. land, labour, capital and enterprise. The nation income is distributed among these factors of production in



the form of rent, wages, interest and profit. The factors of production get their reward as show below:



### c) Parts of Economics

Some economics like Ragnar Frisch have classified the subject matter of economics into the following two parts

#### i) Microeconomics

Microeconomics is the study of individual events. In microeconomics, we study the individual economic activities. Product pricing, factor pricing and theory of economic welfare are to be studied in this branch of economics.

#### ii) Macroeconomics

Macroeconomics is the study of aggregates. The subject matter of macroeconomics covers the analysis and behaviour of the whole economic system in its totality. It deals with national income, employment level, price level, money, banking, economic development, and so on.

### Definition of Business Economics

Business Economics now-a-days is defined as “the integration of economic theory with business practices for the purpose of facilitating decision-making and forward planning by management”.

According to McNair and Meriam, Business Economics, or Managerial Economics, “consists of the use of economic modes of thought to analyze business situation.

Business Economics is, thus, that part of economics that can be conveniently used to analyze business problems to arrive at rational business decisions.

### Basic Concept of Economics

- i) Utility
- ii) Value
- iii) Price
- iv) Wealth
- v) Goods



### **i) Utility**

Utility is the want satisfying quality of goods. The forms of utility are natural utility, form utility, place utility, time utility and service utility.

### **ii) Value**

Value is the economic aspect of a commodity. It is the purchasing power of a commodity in terms of other commodities and services or in terms of money. There are two kinds of value – value in use and value in exchange. Free goods have no value in exchange. To have some exchange value, a good must possess the following attributes:

- i) It must possess utility.
- ii) It must be scarce.
- iii) It must be transferable.

### **iii) Price**

Value expressed in terms of money is called price. Value and price are two different concepts. They are not interchangeable.

### **iv) Wealth**

In economics, anything which has value is called wealth.

- (i) Wealth possesses utility.
- (ii) It is scarce
- (iii) It is transferable.

Individual wealth, public wealth, national wealth, international wealth, potential wealth representative wealth and negative wealth are the main types of wealth.

### **v) Goods**

All things that satisfy human wants are called 'goods' in economics. Goods refer to the tangible or visible items which provide utility to a person. Services are intangible or invisible goods which meet some wants. For example, the services of a teacher, doctor, advocate, carpenter, tax advisor, painter, domestic servant, office peon, etc., provide us utility by meeting some of our wants.

Tangible items like table, chair, pen, car, bread, fan, soap, gas, wine, rice, butter, apple, jam, carpet, wall hanging are some examples of goods. In other words goods both tangible and intangible are those things which satisfy human wants and provide utility.

A simple classification of goods is as follows:



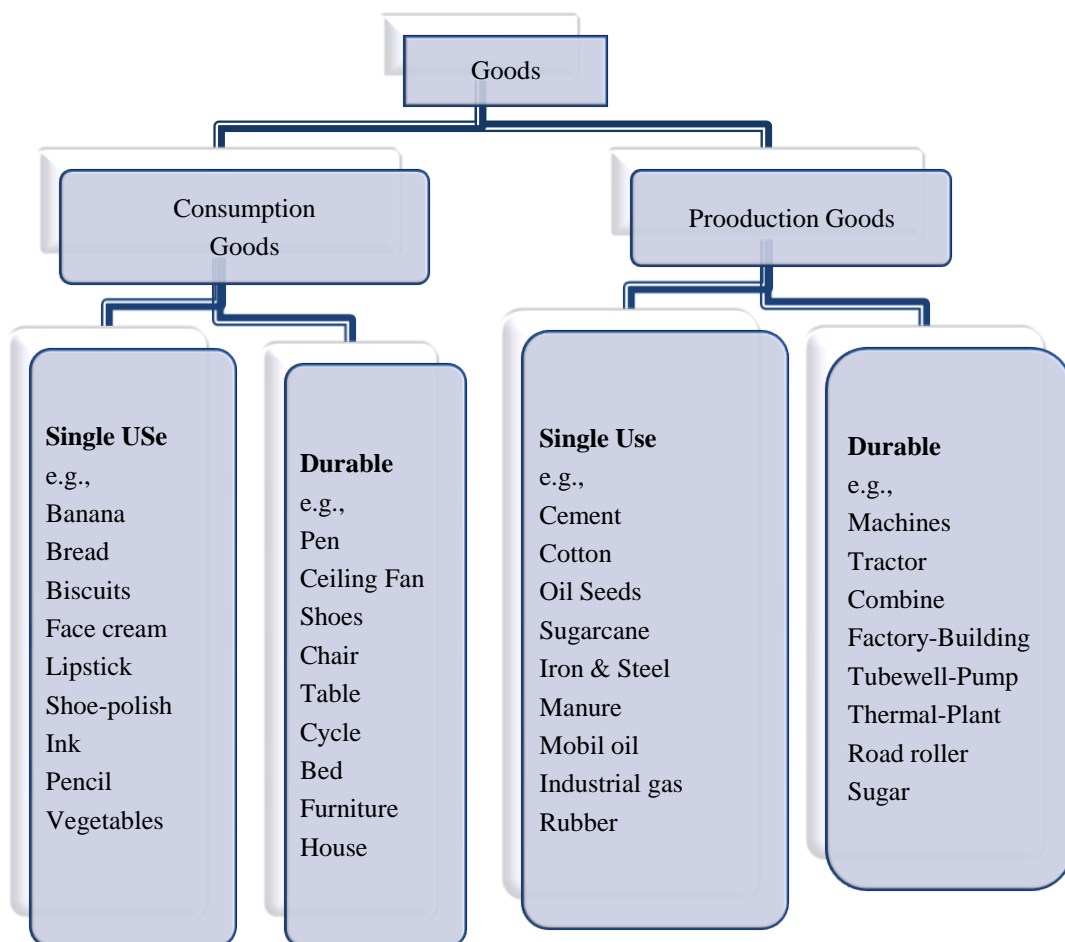
## TYPES OF GOODS

### i) Free goods

Free goods are the gifts of nature. These are not produced by man. Man need not to pay for them. Their supply is perfectly elastic and they are available in plenty. Air, Sunshine, Sea water are free good provided by nature.

### ii) Economic goods

All the goods which are made by man, are scarce in supply and can be had by payment or have value in exchange are called economic goods e.g., a pen, a car, a chair, petrol, milk, butter, wheat, electricity, paper, shoes, socks, cloth, iron etc. are economic goods.



### iii) Consumer goods

Consumer goods are those goods which are consumed directly. They only serve the purpose of direct consumption and yield utility or satisfaction. For example, food, pen, household items, ink, fruits, vegetables, bread, biscuits are frequently used consumer goods.



#### **iv) Producer goods**

Producer goods are those goods which are not consumed directly. They are used to produce other goods. Machines, tools, factory buildings are some examples of producer goods.

#### **v) Material goods**

Goods which are tangible or visible are material goods. The examples of material goods are a table, a chair, a black board, buildings, roads, a pen, a bed, land, cash, books, a mirror, a wash basin, etc.

#### **vi) Non-material goods**

These are various types of services rendered by specialists. They are not tangible. They cannot be seen and cannot be touched. They do not have a particular shape. The services of doctors, advocates, teachers, pilots, drivers, electricians, nurses, peons, officials, unskilled workers, skilled workers and various other specialists fall in this category.

#### **vii) Transferable Goods**

This classification is based on the basis of ownership of goods. The ownership of most of the material goods can be changed. These can be moved from one place to another, can be transferred from one person to another and from one use to another.

#### **viii) Non-transferable goods**

Some attributes or qualities like intelligence, skill, ability, adventure, and dynamism cannot be transferred from person to another. These are personal qualities.

#### **ix) Durable goods**

Goods which are useful for a long period of time are called durable goods. For examples, a fan, a table, a house, a road, a railway line, a pen, a bed and a chair are durable goods.

#### **x) Perishable goods**

Those goods the utility of which cannot be preserved for long and which get rotten very soon are called perishable goods. These are consumed once and they provide utility at the time of consumption only i.e. once only, for example, fruits, vegetables, milk, butter, curd, eggs, etc.

#### **xi) Private goods**

These are goods which are the property of private individuals. They give utility to the person who owns them. Most of the goods in society are private goods. Our houses, shops,



farms, household items, hotels, showrooms, factories, private buses, taxies are a few example of private goods.

### **xii) Public goods**

Public goods are owned by the society collectively. Their ownership lies with the local, state or central authorities. They can be used by all persons. Government hospitals, colleges, schools, roads, railways, public parks, bridges and Government buses are examples of public goods. In socialist countries, most of the goods are public goods.

### **IMPORTANCE OF BUSINESS ECONOMICS**

1. Business economics helps in analyzing economic activities.
2. It helps in deciding the degree of risk.
3. It decreases the uncertainty.
4. It helps in demand and sales forecasting.
5. It helps in planning business activities.
6. It helps in formulating business policies.
7. It helps the organization by enabling division of work.
8. It helps in producer equilibrium.
9. It helps in consumer equilibrium.
10. It helps in profit maximization.
11. It helps in operation of firms by helping in planning, organizing, control and evaluation.

### **LIMITATIONS OF BUSINESS ECONOMICS**

1. Business economics is narrow in its scope. It does not deal with all the sub-divisions of economics. It is micro economic in character.
2. It deals with individual firms alone. Macro economic analysis is not supported.
3. Business economics is normative in nature. Business economics deals with the application of economic theory in business practices. But such application is good or bad is not explained by it.
4. Business economics is based on unrealistic assumptions.
5. Break-even analysis is one of the tools of business economist which is static in nature.

### **HUMAN WANTS**

#### **Meaning of human wants**

A want is that desire which man has the power to satisfy and which he is ready to satisfy.



Man has a bundle of desires. For a common man, there is not much difference between a 'desire' and a 'want' but in economics there is a lot of difference between these two concepts. In economics, every desire cannot be a want. If a poor man desires to have a car, his desire cannot be called a want because he has not sufficient money to purchase a car. In fact wants signify three things:

- i) The desire to possess a thing,
- ii) The means to purchase it, and
- iii) The willingness to use the means for this purpose.

Thus, 'desire' followed by 'means' and the 'willingness' to part with those means constitutes human want. According to Pensions, "All those desires for the satisfaction of which a man has the 'means' and the 'willingness' to use those means for their satisfaction are called wants".

### **Characteristics of wants**

Human wants have certain characteristics or features which are explained below:

#### **i) Wants are unlimited**

Human wants are unlimited. Marshall said that human wants and desires are countless in number and various in kind. As one want is satisfied, another takes its place and so on.

#### **ii) Any Particular want is satiable**

Though one cannot satisfy all one's wants, it is possible to satisfy a particular want. For instance, if a man wants a car, he can have it and he will be satisfied. If he is hungry, he takes food and the want is satisfied. Thus a particular want can be satisfied provided one has enough means for the purpose.

#### **iii) Wants are competitive**

Our wants are unlimited but the means to satisfy them are limited. We cannot satisfy all our wants. When all the wants seek satisfaction at the same time, they become competitive to each other. Therefore, we have to make a choice regarding the satisfaction of wants keeping in view the money available for maximum satisfaction. Thus wants are competitive.

#### **iv) Certain wants are complementary**

In many cases, the act of satisfaction of a particular want at a time requires the use of more than one thing. The wants for such goods are regarded as complementary in nature.





**v) Wants are alternative**

There are several alternative to satisfy a single want. Thirst can be satisfied with water or cold drink etc. There are different alternatives open to us. The final choice depends upon their relative prices and the means at our disposal.

**vi) Wants are variable**

Human wants vary from individual to individual, place to place and from time to time. For example, for the satisfaction of hunger, one man wants vegetarian meals whereas another wants non-vegetarian ones.

**vii) Wants turn into habits**

When a want is satisfied repeatedly and continuously over a period of time, it becomes a habit. For example, the repeated and regular satisfaction of wants for tobacco or cigarettes becomes habit.

**viii) Wants are immediate and remote**

Some human wants are immediate and some are remote. A want for medicine for a patient is an immediate want, whereas a want for money to purchase a car for him is a remote one.

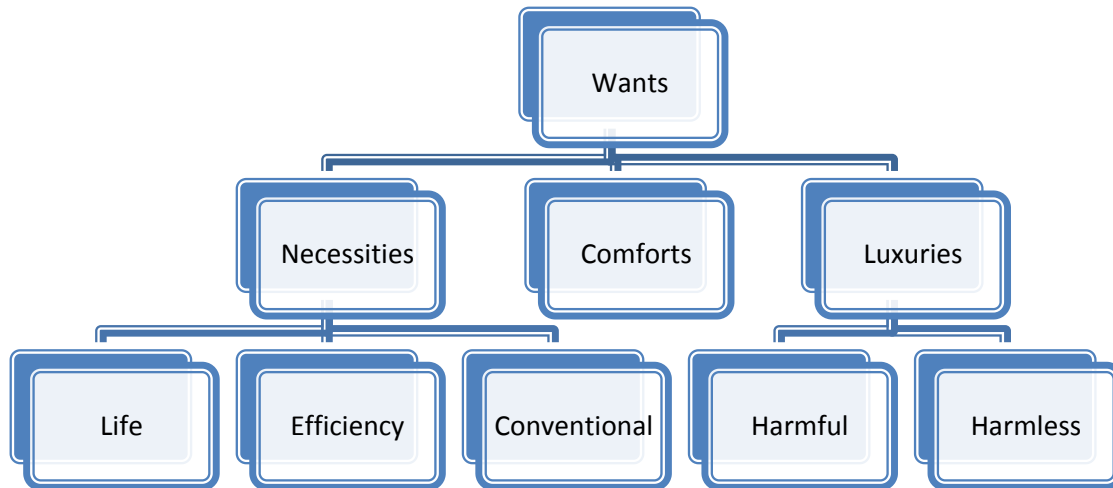
**ix) Wants are permanent and temporary**

Some human wants are permanent, whereas some are temporary. Wants for food, clothes and shelter are permanent wants, whereas that for medicine is a temporary one because medicine is required only when a person is sick.

**CLASSIFICATION OF WANTS**

Penson has classified human wants into the following three categories

- I) Necessities
- II) Comforts
- III) Luxuries



## **I) Necessities**

Necessities are the basic wants of man. The survival of human beings is quite impossible without the satisfaction of these wants. Necessities can further be classified into three sub-divisions.

### **i) Necessities of life**

Simple food, minimum clothing and shelter are the necessities of life. The survival of human life is not possible without the satisfaction of these necessities of life.

### **ii) Necessities of efficiency**

Those goods which are essential to increase our efficiency are called “necessities of efficiency”. For example a balanced diet is essential to maintain a person’s stamina and energy. Similarly, a sewing machine is a necessity for a tailor. Simple tools are a necessity for farmers and laborers.

### **iii) Conventional necessities**

Man, being a social animal, has to fulfill some social or conventional needs. Marriage celebrations, death functions and festival celebrations are examples of conventional necessities.

## **II) Comforts**

Comforts refer to the satisfaction of those wants which makes our life easy and comfortable. They give extra facilities and pleasure to life or to work. These wants are called secondary wants. Comforts also improve the standard of living. A table and chair for a student, the use of a cooler in the summer make life comfortable and increase efficiency. These are called comforts.



### III) Luxuries

Luxuries are those things, the satisfaction of which does not increase efficiency, but it increases social status. According to Chapman, “Luxuries are things which when consumed do not appreciably add to and may even detract from a person’s efficiency”. Drinking, costly furniture, prestige goods at home, luxurious car etc. are a few examples of luxuries. Luxuries can be further divided into two groups:

#### i) Harmful luxuries

Those goods which are harmful for the human body and mind and for society, are called harmful luxuries. For example, all intoxicants like opium, tobacco, drinks etc., are harmful luxuries.

#### ii) Harmless luxuries

Those good which neither decrease the efficiency nor destroy the health are called harmless luxuries. Costly jewellery, costly garments, an air-conditioner, a car and a palatial house are a few examples of harmless luxuries.

### LAW OF DIMINISHING MARGINAL UTILITY

Law of diminishing marginal utility is the most important law in economics. It was first of all given by French engineer, Gossen. Therefore, this law is also called Gossen’s First Law. This law explains the mode of consumer’s satisfaction from consuming a commodity. It is drawn from the simple law of diminishing utility which indicates that, **“as the stock of goods for consumption increases the utility derived from it decreases or diminishes”**. It is our natural tendency that the more of a thing we have, the less we want it. In fact, this law is based on the satiability characteristic of human wants which means that any particular want taken separately at a time can be fully satisfied.

The law states that, other things being constant, where an individual goes on consuming a commodity. The marginal utility obtained from its additional units goes on diminishing. For example, when you consume the first glass of mango shake in summer, you get the maximum utility. The second glass of mango shake gives less utility than the first because the first has already quenched your thirst to some extent. From the third glass, the utility derived will be still less. If this process goes on, the stage will come when the addition utility from another glass will become zero. If you still go on consuming, it will even become negative.



According to Marshall, “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.”

### **Assumptions**

#### **i) Rational consumer**

The consumer is rational and he wants to take maximum satisfaction from his given money income.

#### **ii) Cardinal measurement of utility**

Utility is a cardinal concept. It can be measured in quantitative numbers like 1,2,3...

#### **iii) Independent Utility**

The utility of a thing depends on its own quantity is not influenced by the quantities of other commodities.

#### **iv) Continuous consumption**

There is no time lag during the consumption of the commodities.

#### **v) Homogeneous units**

All the units of the commodity are homogeneous in every respect that is, in size, colour, taste and so on.

#### **vi) Constant prices**

There is no change in the income of the price of the commodity and its related goods.

#### **vii) Constant income**

There is no change in the income of the consumer.

#### **viii) Constant taste, customs and fashions**

There is no change in the tastes, habits, customs and fashions of the consumer.

### **Explanation of the law**

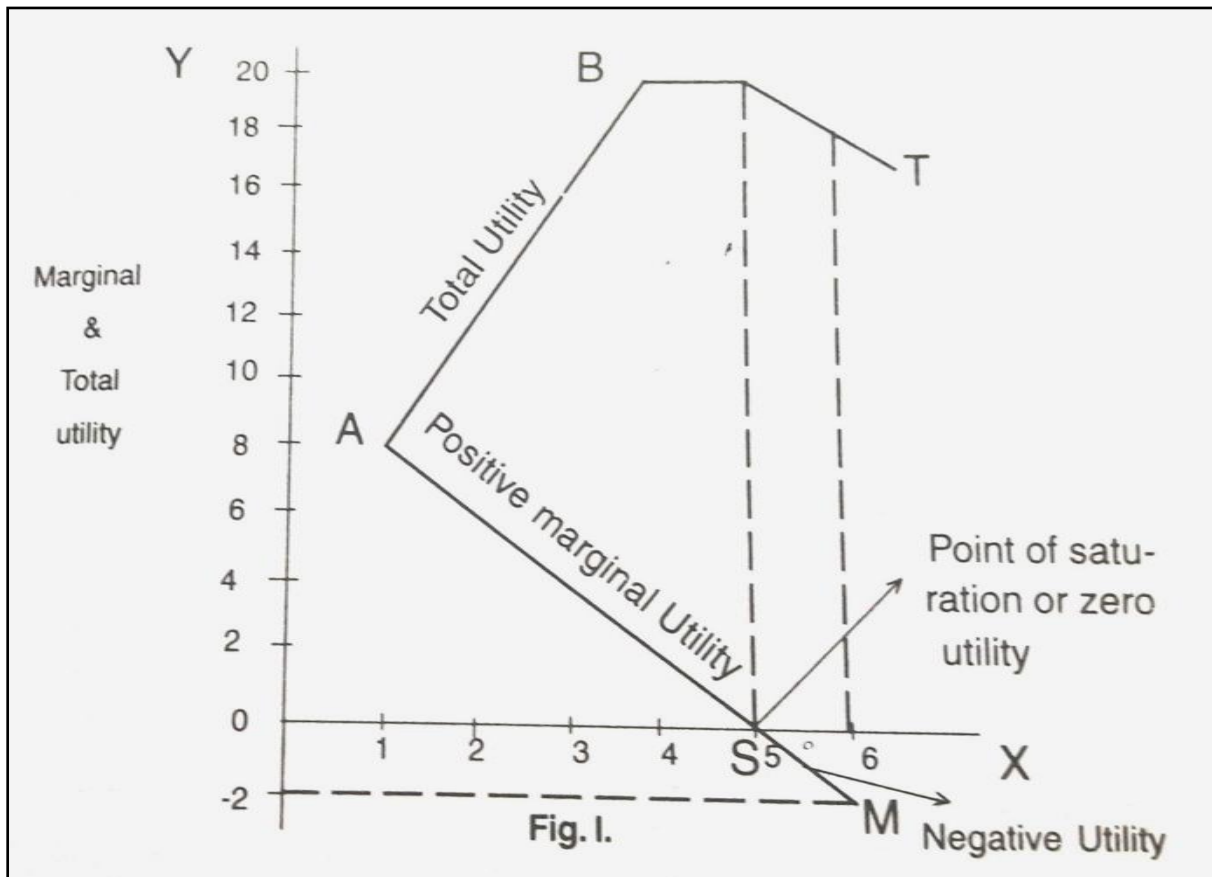
The law of diminishing marginal utility can be demonstrated with the help of the table and diagram given below:

<b>No. of Bananas</b>	<b>Marginal Utility</b>	<b>Total Utility</b>
1	8	8
2	6	14
3	4	18
4	2	20
5	0	20
6	-2	18



The table clearly shows that:

- a) As the number of bananas goes on increasing, the marginal utility goes on diminishing. Upto the consumption of the 4<sup>th</sup> unit, the marginal utility is positive and total utility is increasing but at a decreasing rate.
- b) With the consumption of the 5<sup>th</sup> unit of banana, the marginal utility becomes zero and the total utility is maximum that is 20 units.



- c) As the 6<sup>th</sup> unit of bananas is consumed, the marginal utility becomes negative and total utility decreases to 18 units.

In the above figure AM is the marginal utility is positive and ABT is the total utility curve. Upto the 4<sup>th</sup> unit the marginal utility is positive and total utility curve AB rises upward. At the 5<sup>th</sup> unit and at point S, AM touches the x-axis and ABT reaches its peak. It means that the marginal utility is zero and total utility is at maximum. It is also known as the point of saturation. When the 6<sup>th</sup> unit of Bananas are consumed, AM goes down the x-axis and ABT starts falling. Here marginal utility has become negative and total utility starts decreasing.



## **Limitations or exceptions of the law**

The law of diminishing marginal utility is only applicable where all the assumptions of this law are fully met. But in practical life it is not so. There are some exceptions or limitations of this law which are given below:

### **i) Unique and rare things**

It is said that this law is not applicable in the case of certain unique and rare things like stamps, coins, rare paintings and so on. The marginal utility of these things goes on increasing with the increase in their stock.

### **ii) Good books and music**

Prof. Taussing said that more and more satisfaction is obtained from reading of good books and listening to good music or songs again and again. This is an exception of the law.

### **iii) Drunkards**

This law is not applicable in the case of drunkards. A drunkard always goes on demanding more and more wine. But this again is not a valid limitation because the drunkard does not remain in his senses and can no longer be considered a normal person. And every law of economics is applicable to only normal persons.

### **iv) Misers**

It is stated that as the stock of money with a miser increases, the greed for acquiring more and more money increases. Every addition to the stock gives him more and more pleasure. Hence, the marginal utility of money does not diminish for him with more and more money.

### **v) Distinction goods**

This law is not applicable to the goods of distinction such as ornaments, diamonds, jewellery and other prestigious goods. With the increase in the stock of these things, one desire to get more and more of them.

### **vi) Small increments**

This law is not applicable if the units are too small. If a thirsty man is offered water in a tea spoon, the utility he gets from the second teaspoonful of water will surely be greater than that from the first one.



## UNIT II : DEMAND ANALYSIS

*Demand analysis – meaning – kinds of demand – law of demand determination of demand – types of demand – elasticity of demand – meaning – price elasticity – income elasticity – cross elasticity – types – method of measuring elasticity of demand – demand forecasting*

### DEMAND ANALYSIS

Demand is the willingness to buy a commodity or service which is backed by necessary resources. Demand is an effective desire. It is a desire backed by power to buy and willingness to buy. In economics demand has the following three attributes.

- i) Desire to possess or use a commodity or service.
- ii) Willingness to possess it.
- iii) Capacity to buy it.

Both willingness and ability to pay are essential to convert a desire into a demand. If a person is willing to buy a car but he doesn't have the resources to buy it, it is not demand. If he is in a position to buy a car but is not willing to buy, again, it is not demand.

“By demand we mean the various quantities of a given commodity or service which consumers would buy in one market in a given period of time at various prices, or at various incomes, or at various prices of related goods.”

#### **Bober**

Demand is meaningless without reference to price; demand is always at a price. Suppose a person is willing to buy a car when its price is Rs.2 lakhs. He is in a position to pay this price. It is demand for a car. But if the price of the car goes up to Rs.3 lakhs, he may not afford to buy it. Or he may not think it worthwhile to spend so much money on it. It is no longer a demand. So, demand is always expressed with reference to price.

Similarly, demand is always used with reference to a certain period of time. Demand for woolen clothes is higher in winter than in summer. Demand for water coolers is higher in summer than during winter.

The demand for any commodity or service at a certain price is the quantity or amount of it which will be bought at that price during a given period of time. Without reference to price and time, demand has no meaning.



## **TYPES OF DEMAND**

### **i) Joint demand**

When a number of goods and services are demanded for a joint purpose, it is called joint demand. For example, for the construction of a house, several items like cement, sand bricks, iron, wood and labour are required. This is a case of joint demand.

### **ii) Direct demand**

Direct demand is the demand for direct use or consumption. It is the demand for the ultimate object. For example, demand for a car, a house, or a piece of cloth.

### **iii) Derived demand**

The demand for various goods and services to manufacture goods to meet the ultimate or direct demand of purchasers is called derived demand.

### **iv) Composite demand**

The demand for a goods or services which can be put to several uses is called composite demand. For example, milk is demanded demand to prepare tea, coffee, butter, ghee, sweets, curd, paneer and also for direct consumption.

### **v) Complementary demand**

When two or more than two goods are demanded because, they complement each other's role. It is called complementary demand. For example, pen and ink, bread and butter, car and petrol are some examples of complementary demand.

### **vi) Competitive demand**

A large number of goods compete with each other as substitutes to fulfill the same need. For example, tea and coffee, roadways and railways, wheat and rice, vegetable oil and pure ghee are substitutes or near substitutes of each other. Demand for them is called competitive demand.

## **LAW OF DEMAND**

Law of demand explains the relationship between the price of a commodity and its quantity demanded over a certain period of time. According to this law, other things remaining the same, there is an inverse relationship between the price of a commodity and its quantity demanded.

“The amount demanded increases with a fall in price and diminishes with a rise in prices”.

**Marshall**





The law of demand states that other things being constant, there is an inverse relationship between the price of various commodities and their quantity demanded over a certain period of time. In other words, with the increase in the price of a commodity, there is a fall in its demand and with the decrease in its price, there is a rise in its demand.

### **Assumptions of the law of demand**

- i) Income of the consumer remains unchanged.
- ii) Prices of other related goods remain constant.
- iii) Tastes of the consumers remain unchanged during the period of time.
- iv) The consumers, expectations about future prices are neutral.
- v) The effect of advertising is ruled out.
- vi) Other relevant factors like the size of the population, seasonal and climatic factors, habits of the people and all other factors influencing demand remain unchanged.

### **An Individual's demand schedule**

An individual's demand schedule presents the preference scales of a person for a commodity at its different price levels.

“A demand schedule is a table showing how the quantity demanded of some product during a specified period of time changes as the price of that product changes, holding all other determinants of quantity demanded constant”.

### **Baumol**

In other words, a demand schedule indicates how much a consumer is willing and able to buy at different price levels during a certain period of time.

<b>Individual Demand Schedule</b>	
<b>Price of X (Rs.per kg)</b>	<b>Quantity demanded (kgs per month)</b>
0	10
1	9
2	8
3	7
4	6
5	5
6	4



7	3
8	2
9	1
10	0

Demand schedule of a person for commodity X shows an inverse relationship between the price of X( $P_x$ ) and its quantity demanded.

When the price of X is zero rupees per kilogram i.e. the commodity X has no price, its demand is 10 kilogram per month. With the rise in its price, its demand starts falling.

The inverse relationship also holds good if we start moving upward from below, the price of X being 20 rupees per kilogram, its demand is zero. In other words, the consumer is not willing to buy the commodity at all. But when its price starts falling, the quantity demanded begins to increase.

### **DEMAND CURVE**

An individual's demand curve is a graphic representation of his demand schedule. It shows how the quantity demanded of commodity changes with the changes in its price.

“The picturisation of the demand schedule is called the demand curve”.

**Samuelson**

### **An Individual's demand curve**

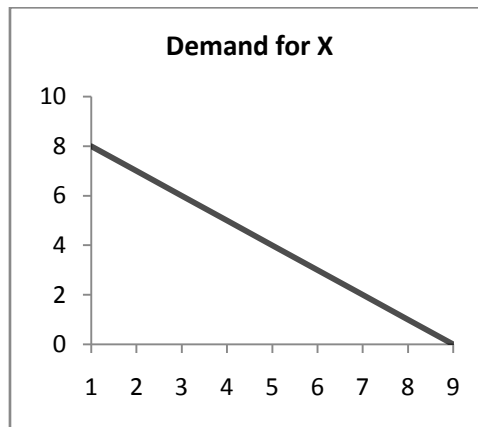
An individual's demand curve is the graphical depiction of the quantity demanded by him at different levels of price. It is the graphical representation of an individual's demand schedule.

<b>Price of x (Rs. Per kg)</b>	<b>Demand for X (kgs per month)</b>
0	8
1	7
2	6
3	5
4	4
5	3
6	2
7	1
8	0



The information contained in the above table can be presented in a graph like figure, which is called demand curve.

In the diagram below, quantity demanded is measured on X axis and price of the commodity is measured on Y axis. Plotting each pair of values i.e. price and commodity as a point on the graph and joining the points, we get the individuals demand curve for commodity X.



### MARKET DEMAND SCHEDULE

Market demand schedule for a commodity is the sum of the demand schedules of the individual consumers. In other words, the market demand schedule represents the preference scale of all the consumers taken together. It shows how much quantity is demanded at different price levels by the society.

Price of X	A's demand (QA)	B's demand (QB)	C's demand (QC)	Total Demand (QDX)
5	0	0	0	0
4	1	2	3	6
3	2	4	6	12
2	3	6	9	18
1	4	8	12	24
0	5	10	15	30

Fig II shows the demand curve of A.

Fig III shows the demand curve of B.

Fig iv shows the demand curve of C.



The horizontal summation of all the individual demand curves will produce the market demand curve. Therefore, the market demand for X is the Sum of all the individual demands in the economy.

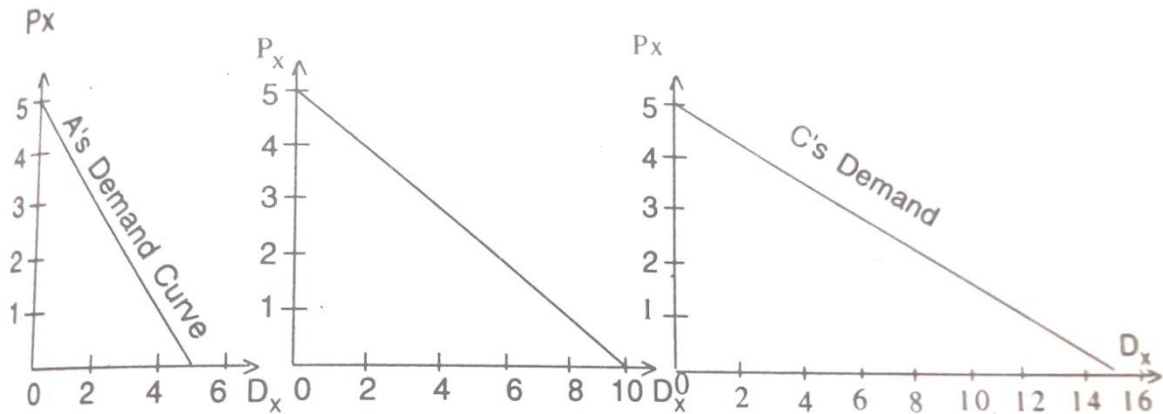


Fig.II

Fig.III

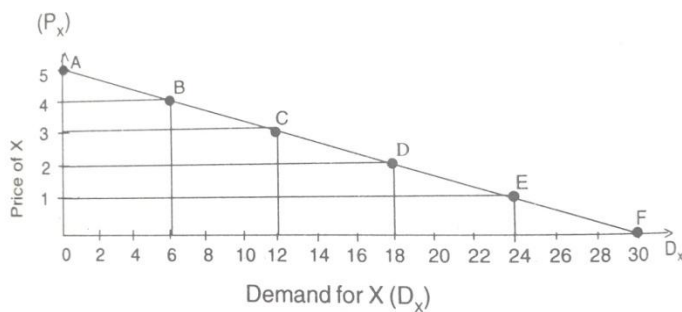
Fig.IV

Table above shows the horizontal summation of the quantity demanded of X by persons A, B and C. By plotting different aggregate points of the quantity demanded and the respective price levels, we can draw the market demand curve. Here the aggregate form of above table is reproduced.

**Total demand (DX) = A's demand + B's demand + C's demand**

P <sub>x</sub>	D <sub>x</sub>
5	0
4	6
3	12
2	18
1	24
0	30

**MARKET DEMAND CURVE**





Above figure depicts the market demand curve on the basis of the market demand schedule shown in table above. It is the summation of individual's demand schedule in horizontal form.

The different point on the market demand curve show the willingness of the society to buy a particular quantity of the commodity X at its different price levels.

### **WHY DEMAND CURVES SLOPE DOWNWARDS?**

The following specific factors are responsible for the downward slope of a demand curve.

- i) With the fall in the price/prices of commodity or commodities, the value of a unit of money increases. The same unit of money can buy more goods at lower prices than at higher prices.
- ii) Rise in real income takes place with the fall in the price of a commodity. Most probably, a part of the rise in the real income is spent on the same commodity the price of which has fallen.
- iii) It is observed that a large number of goods are substitutes of several goods in some ways or the other. With the fall in the price of a commodity, the cheaper commodity is preferred to the commodities whose prices have not changed.
- iv) A commodity is put to several uses when it becomes cheaper. For example when tomatoes become cheaper, tomato sauce is prepared by the housewives.
- v) The fall in the price of a commodity has a psychological effect also. People like and enjoy buying more, which they were unable to do at higher prices.

### **FACTORS AFFECTING DEMAND**

Some of the important factors which influence the demand for goods and services are listed in the following paragraphs.

#### **i) Income of the household**

The income is a decisive variable which greatly influences the volume of quantity demanded as well as its quality. An increase or decrease in income increases or decreases the demand for a commodity.

#### **ii) Prices of other commodities**

Many goods have a definite relationship with each other. Some are substitutes of and some are complementary to other goods. Even, goods which are not substitutes in the strict economic sense are competitive in some way or the other.



Any rise or fall in the prices of substitutes of a commodity will affect its demand and shift the demand curve to the right or the left. For example, the rise in the price of tea will expand the demand for coffee.

### **iii) Tastes and preferences**

Tastes and preferences of people highly influence the demand for goods. The tastes, habits and preferences of the people vary from area to area and from time to time. The varying social, religious, economic and environmental conditions of different people influence their choice of food, clothing, living conditions, houses, entertainment and what not.

### **iv) Advertising**

Modern ages are the age of advertising and the media - both print and visual - are highly affecting the life style of people. An aggressive advertising campaign tends to shift the demand curve of a particular commodity to the right.

### **v) Product life-cycle**

The product life-cycle model states that demand pattern for a commodity undergoes some typical changes at different stages of the life-cycle. The life-cycle concept is very relevant in case of durable goods like TVs, cars and computers.

### **vi) Size and composition of population**

The size of population of a country determines the level of demand for all goods and services. The larger the population of a country, the larger the quantity of goods and services demanded by it. If there are many to be fed, clothed and housed, demand is supposed to be high.

### **vii) Distribution of income**

Uneven distribution of income and wealth greatly squeezes the demand level in an economy. It is a common fact that the rich sections of society have a low propensity to consume. Their demand pattern encourages the demand for comforts and luxuries.

### **viii) Scientific and technological development**

Science and technology are there to revolutionize the life style of people. Almost all economic activities are being speeded up by scientific discoveries and inventions. Thousands of new products are entering our daily life. New wants are emerging. Daily arrival of new products, new machines and new services had greatly influenced the demand pattern of the society.



### **ix) State of the economy**

The state of economy i.e. whether it is developed or under developed, experiencing inflation or deflation also influences the demand for goods and very services. The people of developed countries enjoy a very high standard of living. Their size of demand is very high, as compared to the people of under developed world.

### **x) Changes in money supply**

Increase in money supply raises the money income of people. People get enhanced purchasing power. The increase in money supply which is generally the outcome of increased economic activities of the state puts a lot of money in the hands of the people. Their demand level increase day by day.

### **xi) Miscellaneous factors**

- **Changes in fashion** raise the demand for the goods which are in vogue. Goods which are out of fashion are not purchased by people even at lower prices.
- **Changing weather** and climatic conditions also influence the demand for several goods. Demand for woolen clothes increases during winter. Eggs are more in demand during winter as compared to summer.
- **Changing habits** also alter the demand conditions in an economy. Increasing demand for tea, coffee, cold drinks, eggs, non-vegetarian food items, snacks and ice creams is being witnessed because of changing habit and tastes of the people.
- **A system of progressive taxation**, particularly income and wealth taxes, reduces the disposable income of the high income group. Demand for comforts and luxuries are greatly affected by it.
- **Religious and social factors** have their own role to play in influencing the demand for goods and services. Demand for sweets increases considerably on every Tuesday because the Hindus offer 'parsad' in temples on that day.

### **MEANING OF ELASTICITY OF DEMAND**

The word 'elasticity' is a technical term which stands for the sensitivity or responsiveness of a dependent variable to the changes in independent variables. The elasticity of demand is the responsiveness of demand to the changes in the price of a commodity, income of the consumers and the prices of related goods.

### **PRICE ELASTICITY OF DEAMAND**

A proportionate change in quantity demanded brought by a proportionate change in price is called the price elasticity of demand.



The price elasticity of demand is a measure of responsiveness of the quantity demanded to a change in the price of a good, ceteris paribus.

“Elasticity of demand may be defined as “the percentage change in the quantity demanded by the percentage change in price.”

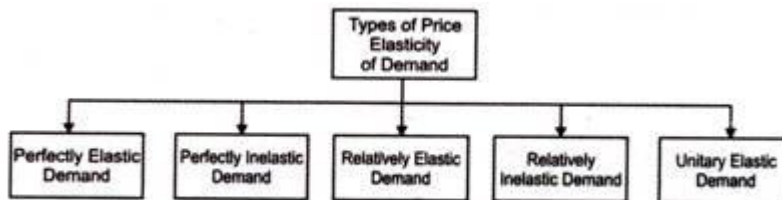
**Alfred Marshall**

$$Ed = (-) \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

### Types of Price Elasticity of Demand

The extent of responsiveness of demand with change in the price is not always the same. The demand for a product can be elastic or inelastic, depending on the rate of change in the demand with respect to change in price of a product. Elastic demand is the one when the response of demand is greater with a small proportionate change in the price. On the other hand, inelastic demand is the one when there is relatively a less change in the demand with a greater change in the price.

For better understanding the concepts of elastic and inelastic demand, the price elasticity of demand has been divided into five types, which are shown in Figure-1:

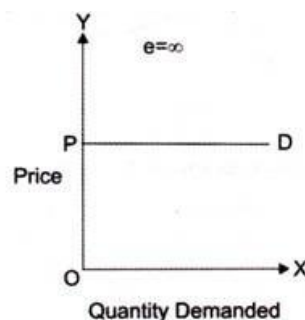


**Figure-1: Different Types of Price Elasticity of Demand**

Let us discuss the different types of price elasticity of demand (as shown in Figure-1).

#### 1. Perfectly Elastic Demand:

When no change in price of a product causes a major change in its demand, it is said to be perfectly elastic demand. In perfectly elastic demand, a no change in price causes increase in demand to infinity. In perfectly elastic demand, the demand curve is represented as a horizontal straight line, which is shown in Figure-2:



**Figure-2: Perfectly Elastic Demand**

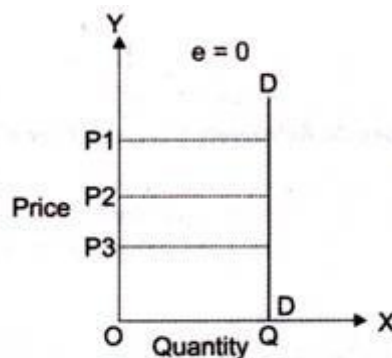




From Figure-2 it can be interpreted that at price OP, demand is infinite; It can also be interpreted from Figure-2 that at price P consumers are ready to buy as much quantity of the product as they want.

## 2. Perfectly Inelastic Demand:

A perfectly inelastic demand is one when there is no change produced in the demand of a product with change in its price. The numerical value for perfectly inelastic demand is zero ( $e_p=0$ ). In case of perfectly inelastic demand, demand curve is represented as a straight vertical line, which is shown in Figure-3:

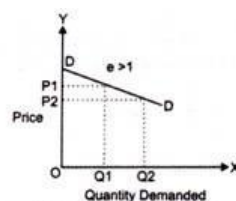


**Figure-3: Perfectly Inelastic Demand**

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

## 3. Relatively Elastic Demand:

Relatively elastic demand refers to the demand when the proportionate change produced in demand is greater than the proportionate change in price of a product. The numerical value of relatively elastic demand ranges between one to infinity. Mathematically, relatively elastic demand is known as more than unit elastic demand ( $e_p>1$ ). For example, if the price of a product increases by 20% and the demand of the product decreases by 25%, then the demand would be relatively elastic. The demand curve of relatively elastic demand is gradually sloping, as shown in Figure-4:



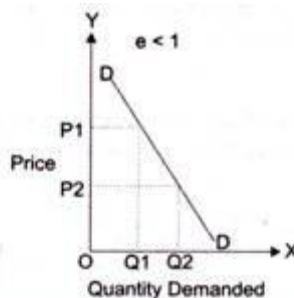
**Figure-4: Relatively Elastic Demand**



It can be interpreted from Figure-4 that the proportionate change in demand from OQ1 to OQ2 is relatively larger than the proportionate change in price from OP1 to OP2. Relatively elastic demand has a practical application as demand for many of products respond in the same manner with respect to change in their prices. For example, the price of a particular brand of cold drink increases from Rs. 15 to Rs. 20. In such a case, consumers may switch to another brand of cold drink. However, some of the consumers still consume the same brand. Therefore, a small change in price produces a larger change in demand of the product.

#### 4. Relatively Inelastic Demand:

Relatively inelastic demand is one when the percentage change produced in demand is less than the percentage change in the price of a product. For example, if the price of a product increases by 30% and the demand for the product decreases only by 10%, then the demand would be called relatively inelastic. The numerical value of relatively elastic demand ranges between zero to one ( $e_p < 1$ ). Marshall has termed relatively inelastic demand as elasticity being less than unity. The demand curve of relatively inelastic demand is rapidly sloping, as shown in Figure-5:

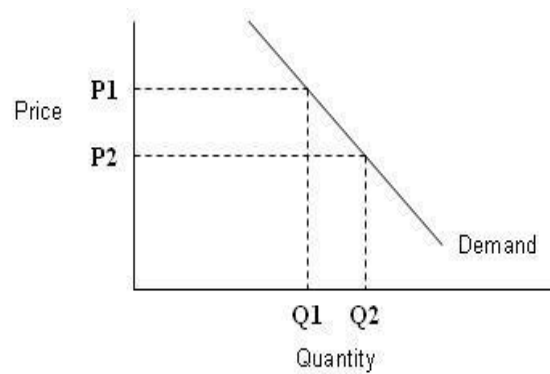


**Figure-5: Relatively Inelastic Demand**

It can be interpreted from Figure-5 that the proportionate change in demand from OQ1 to OQ2 is relatively smaller than the proportionate change in price from OP1 to OP2. Relatively inelastic demand has a practical application as demand for many of products respond in the same manner with respect to change in their prices.

#### 5. Unitary Elastic Demand:

In the case of unitary elastic demand, changes in the quantity demanded take place in the same percentage or proportion as in the price. In other words, the proportionate changes in quantity demanded are exactly the same as the proportionate changes in price. This type of behaviour is exhibited by the demand of most of the goods of daily use. Goods of this type fall in between the necessities of life and luxury goods.



The above figure depicts a demand curve which exhibits the unity elasticity of price ( $E_d = 1$ ). In this case, the changes in price cause equi-proportionate changes in quantity in the opposite direction.

### **INCOME ELASTICITY OF DEMAND**

The income elasticity of demand measures the responsiveness of the quantity demanded to a change in income. The analysis of the response of demand to changes in income both personal and national, is extremely important for planners, business people and industrialists. All round economic development increases the income level of the people. As income rises, people increase their demand for goods and services.

In simple words, the income elasticity of demand measures the response of the quantity demanded to the changes in income.

$$E_{dy} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in income}}$$

### **CROSS ELASTICITY OF DEMAND**

The cross elasticity of demand measures the responsiveness of quantity demanded to a change in the prices of the related goods. A large number of goods are related to each other either in the form of substitutes or as complements. For example, tea and coffee, butter and margarine, fuel wood and cooking gas, refined oil and vanaspati ghee are substitutes of each other. A fountain pen and ink, a car and petrol are complementary goods. Now a day, a large number of brands of a commodity are entering the markets daily. They are competing with one another for a larger share of the market. In a broader sense, they are very near substitutes of one another.



The cross elasticity of demand refers to the responsiveness of demand for a commodity to changes in the prices of other related goods (substitutes or complements).

$$E_{xy} = \frac{\text{Proportionate change in demand for commodity X}}{\text{Proportionate change in price of commodity Y}}$$

## MEASUREMENT OF ELASTICITY OF DEMAND

The following are the methods used to calculate elasticity of demand

- i) Proportionate method.
- ii) Point method.
- iii) Arc method.
- iv) Expenditure method.
- v) Revenue method.

### i) Proportionate method

The price elasticity of demand is defined as the proportionate change in the quantity demanded in response to a change in price. This method can also be used by converting our data into percentage form because the elasticity of demand is also defined as a percentage change in quantity demanded due to a percentage change in price.

$$\text{Elasticity of Demand (ED)} = \frac{\text{Proportionate Change in Demand}}{\text{Proportionate Change in Price}}$$

### ii) Point Method

The point price elasticity of demand is the measurement of price elasticity of demand at a particular point on the demand curve.

“Elasticity computed at a single point on the curve for an infinitely small change in price, is point elasticity.”

#### Leftwitch

For a straight line demand curve, point elasticity can be found by using of the following formula.

$$Ed = -\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

### iii) Arc elasticity or arc method

The arc elasticity of demand measures the price elasticity of demand between two points on a demand curve.

According to Leftwitch, “when elasticity is computed between two separate points on a demand curve, the concept is called arc elasticity.”



Arc elasticity is the price elasticity of demand between two points on a demand curve. It can be computed both for linear and non-linear demand curves. Arc elasticity of demand can be computed with the use of the following formula:

$$Ed = (-) \frac{\frac{\Delta Q}{(Q_1 + Q_2)/2}}{\frac{\Delta P}{(P_1 + P_2)/2}}$$

#### iv) Expenditure method

The expenditure incurred by the consumer while buying a commodity and the revenue received by the sellers while selling the commodity are the two sides of the same coin. These two figures always remain equal. There is a clear cut relationship between the expenditure on a commodity and its price changes. There is also a meaningful co-relation between the price changes and the total revenue receipts of the sellers.

Here we are more interested in knowing the behaviour of the total expenditure due to changes in price. With a fall in the price of a commodity, its quantity demanded increases. But what happens to the total expenditure, it depends upon the change in the quantity demanded in response total given price cut.

There are three possibilities of the change in the total expenditure due to a rise or fall in price. It may rise, it may fall or it may remain unchanged.

The elasticity of demand and the total expenditure have the following relationship.

- i) If a fall in price increases the total expenditure and a rise in price reduces it, the elasticity of demand is more than unity i.e.,  $Ed > 1$
- ii) If a fall in price reduces total expenditure and a rise in price increases it, the elasticity of demand is less than unity i.e.,  $Ed < 1$
- iii) If a rise or fall in price does not affect the total expenditure, the elasticity of demand is unity i.e.,  $Ed = 1$

#### v) Revenue method

Average revenue, marginal revenue and the elasticity of demand have a definite relationship which is presented in the following form:

$$Ed = \frac{\text{Average Revenue}}{\text{Average Revenue} - \text{Marginal Revenue}}$$

This is also written in the following form

$$Ed = \frac{P}{P - M}$$



Since Price (P)=Average Revenue(A)

$$\text{Average Revenue} = \frac{\text{Total revenue}}{\text{Units of goods sold}}$$

Marginal revenue = Net revenue received by selling one more unit of a good.

- When  $AR > MR$  and  $MR$  is positive, the demand is more elastic.
- When  $AR$  is positive but  $MR$  is equal to zero the demand is unity elastic.
- When  $AR$  is positive and  $MR$  is negative, the demand is less elastic.
- When  $AR$  is zero, elasticity of demand is also zero.

## DEMAND FORECASTING

Demand forecasting is an estimate of the future demand and it is based on the statistical data about past behaviour and the relationship of the various determinants. As the future is uncertain, the forecasting of demand cannot be accurate. However, forecasting gives a reliable approximation of future demand.

### Kinds of Demand Forecasting

Demand forecasting may be undertaken at three different levels, viz., firm level, industry level and macro level, i.e., at the level of the economy as a whole.

**Micro level or at the level of firm:** This refers to the demand forecasting by the firm for its product. This is the type of forecasting in which the management of a firm is really interested.

**Industry level:** Forecasting of demand for the product of an industry as a whole may be done by the association of all the firms composing the industry, or by a trade association.

**Macro level:** Estimating industry demand for the economy as a whole will be based on national income and national expenditure, the index of industrial production, and so on.

## PURPOSES OF DEMAND FORECASTING

### Purposes of Short-term Forecasting

The purposes of demand forecasting will depend upon the periods for which it is made. Short-term demand forecasting helps the management to take decisions on current business operations with a given production capacity of the firm.

- (a) **Suitable production policy.** In the short run, the firm should anticipate, as correctly as possible, seasonal variations in demand and produce accordingly. Otherwise, the firm runs the risk of producing more and burdened with unsold stocks. Short-term demand forecasting helps to formulate a proper production policy to avoid fluctuations in production.



- (b) **Suitable purchase policy.** The short-term demand forecasting helps not only to determine the volume of production but also in determining the volume of raw materials and other inputs to be purchased and to control the volume of inventory stocks. This helps to avoid unnecessary purchases and stocking of inputs and helps to reduce costs of production.
- (c) **Suitable price policy.** Short-term demand forecasting helps the company to determine a suitable price policy depending upon the anticipation of the market conditions. The firm can fix a higher or lower price, as the case may be.
- (d) **Fix sales targets.** Short-term demand forecasting helps the company to set realistic sales targets for each individual salesman and for the company as a whole. In the absence of demand forecasting, the company will be forced to have unrealistic sales targets, which may be either too high or too low.
- (e) **Fix short-term financial plans.** Short-term demand forecasts help the company to plan not only sales and production but also plan for the finances required for achieving the production and sales targets.

Thus, short-term demand forecasts are useful for determining sales quotas, inventory control, production schedules and budgeting and planning cash flows.

### **Purposes of Long-term Forecasting**

Long-term forecasting of probable demand for a product of a company is generally for a period of 3 to 5 years, but in certain cases, it can even be for periods up to 10 years (and in special cases, even up to 20 years). Such forecasting may be carried out for the three reasons

- (i) **Business Planning.** When a firm is planning for long-term investment, that is, when it is deciding about the expansion of its existing capacity and its scale of production or when it is adding a new unit of production, it has to know the nature of demand for its product over a number of years.
- (ii) **Financial Planning.** On the basis of long-term demand and sales and, therefore, of production, the firm estimates its long-term requirements of finance and make arrangements to raise necessary funds and at concessional rates of interest.
- (iii) **Man-power Planning.** Long-term business growth and expansion and financial planning will have to be accompanied by long-term man – power panning. For, training and personnel development take considerable time to complete. Naturally, long-term demand forecasting is useful for manpower planning.



A careful analysis of the above three purposes of long-term demand forecasting will show that they flow out from the first, viz., business planning. Long-term demand forecasting is useful in determining capital expenditure (i.e., planning long-term investment), in planning raw material requirements, financial requirement and determine the size and scope of research and development programmes.

## **METHODS OF DEMAND FORECASTING**

The various methods used for demand forecasting can be broadly classified into survey of buyers' intentions, opinion surveys, controlled market experiments, trend projections, and regression analysis of economic indicators. We shall explain each one of these methods here.

### **1. Survey of Buyer's Intentions**

A direct method of demand forecasting for the short period is to find out what the consumers prefer and intend to buy. For this, a company may undertake surveys of what buyers plan to buy during a forthcoming period, say, a year.

If the product is one which is largely sold to a few large industrial buyers, the opinion survey can take the form of interview of these buyers. If the product is a consumer's durable, a sample survey may be taken to question a few representative consumers about what they are planning or intending to buy.

### **2. Collective Opinion Survey**

This is a variant of the survey method. The salesmen employed by a firm to canvass orders are closest to customers. They have the most intimate feel of the market and are in a position to assess the reaction of the consumers of the product of the firm. These salesmen estimate the expected sales of the product in their respective regions and territories. These estimates are added, reviewed and revised in the light of proposed changes in designs, selling prices, advertisement campaigns, expected changes in the policies of competitors, etc. In this exercise the opinions of all top executives and departmental heads, such as the production manager, sales manager, marketing manager, the managerial economist, etc., are also considered. Thus, the final sales forecast or demand forecast is the result of "collective opinion".

### **3. Survey of Experts' Opinions**

This is another variant of survey method. A company may engage experts in the field of market research and demand forecasting to analyze the past and present economic conditions, undertake sample surveys of the market, carry out opinion polls and then forecast





demand. When a number of marketing specialists take part in the exercise and if there are differences in their approach and conclusions, the differences are ironed out and a consensus is arrived at through mutual discussions. This is often referred to a Delphi method of demand forecasting.

#### **4. Market Experiments**

A company may conduct studies and experiments to find out the behaviour of consumers under actual or controlled market conditions. For instance, a company may select some representative markets having similar characteristics. Such as population, occupational distribution, income levels, consumers' preferences, etc. Then it conducts market experiments by varying separately certain determinants of demand such as price, advertisement expenditure, packaging, etc., and assuming others to remain constant. It may change the variables over time, either simultaneously in all the markets or in selected markets. It records the resultant changes in demand and calculates the respective elasticity coefficients. In this way, the company assesses the important demand determinants like price, advertisement expenditure, product design, etc., on sales.

#### **5. Trend projections**

Every company has accumulated data on the sales of its product for the past many years. The firm arranges such sales data chronologically and then prepares time series relating to sales to represent the pattern of effective demand for a particular product. The time series are used to prepare a trend line which is projected into the future. The trend of time series refers to the long-term persistent movement of data in one direction, either upward or downward. There are two methods used for trend projections-the method of moving averages and the method of least squares.

- (a) *The method of moving averages* is a simple method involving the calculation of moving averages for a 3-year period, or a 4-year period, to find out the trend.
- (b) *The method of least squares* is more scientific than the moving average method and is most commonly used. It uses the straight line equation  $y=a+bX$  in which Y is the demand for the product, as is the autonomous quantity demanded, X is the determinant or the variable on which Y depends.

#### **6. Regression Analysis of Economic Indicators**

This approach bases demand forecasting on certain economic indicators, as for example



- (a) Personal disposable income (i.e., total income minus direct taxes, such as income tax) for the demand for consumers' goods;
- (b) Farm incomes for the demand of agricultural implements such as tractors, pump sets, etc.;
- (c) Construction contracts for demand of building materials, such as cement, bricks, etc., and so on.

The managerial economist collects such information, attempts to establish the relationship between the demand for a product and the particular economic indicator through the method of least squares and derives the regression equation.



## **UNIT III : PRODUCTION ANALYSIS**

*Production analysis – meaning of production – factors of production – production function – isoquants – law of returns – law of variable proportions – returns to scale – economics and diseconomies – cost of production – short run and long run – cost curves – optimum firm*

### **PRODUCTION ANALYSIS**

#### **MEANING OF PRODUCTION**

Production is the creation of utilities for sale. The creation of all types of goods and services for sale is called production.

#### **Definition**

“Production may be defined as the creation of utilities i.e. wants satisfying power, in economic goods.”

**Raymond Bye**

#### **FACTORS OF PRODUCTION**

The purpose of production which makes use of producer goods and services in the economic activities is to create utilities by providing an endless flow of goods and service. In order to achieve the production of utilities, the resources available to mankind are mobilized. These resources are called factors of production.

The modern economics have classified the factors of production into four groups

- i) Land
- ii) Labour
- iii) Capital
- iv) Entrepreneur

#### **i) Land**

Land is the original and basic factor of production. In economics, the term ‘land’ is used in a broader sense. It includes all the natural resources or gifts of nature. It does not include only surface land but also forests, mountains, sea, climate, air and so on. The term land includes all the natural resources on the surface (soil, plots), below the surface (minerals) and above the surface (climate, air).

As compared to other factors of production, land has certain special characteristics like limited supply, being a free gift of nature, indestructibility and immobility. Land is the primary factor of production. No production is possible without land. Land is the basis of the primary sector (agriculture and allied), secondary sector (industries) and tertiary sector



(trade, transport and communication). It is also the basis of power and energy which play a key role in the economic development of a country.

### **ii) Labour**

Labour is an active agent of production. In economics, the term labour stand for all types of physical or mental work which is done in expectation of some reward in kind or cash. Labour is inseparable from the laborer. A labourer is unlike other commodities. In case of commodities other than labour, the ownership changes in the process of sale purchase. A labourer sells his labour power or capacity to work. Labour is perishable, mobile, differs in efficiency and has consciousness and power of judgments.

### **iii) Capital**

Capital is a very crucial factor of production. It enables labour to effectively utilize the gifts of nature. In modern times, because of scientific and technological developments which involve a lot of capital investment, the role of capital has increased further.

For an economist, capital is that form of wealth which helps in production. In other words, capital is that part of private or public wealth which further generates income or contributes to production.

Capital also includes human capital. Capital is produced by man; hence its supply is elastic. It is a mobile and transferable factor of production. Capital is a passive factor and labour activates it to work.

Capital is necessary for production. It increases the productivity and efficiency of workers. It plays a vital role in the economic development of a country and helps in creating employment opportunities.

### **iv) Entrepreneur**

In order to produce something in an organized manner on a sufficient scale, land, labour and capital have to be arranged. They are brought together and set to work. The person who initiates this process of organizing factors of production is usually called the entrepreneur. He stands for bearing those risks and uncertainties which are associated with the ownership of an industrial or business concern.

The entrepreneur conceives and initiates the project, takes production decisions, arranges finance, man and materials. He combines the other factors of production in the right proportion to produce goods and services. These days his main functions include marketing of the product and working as innovator.



## PRODUCTION FUNCTION

Production is the outcome of the combined efforts of land, labour, capital and entrepreneur. The entrepreneur arranges land, labour and capital, combines them in required proportions and sets them to work. Production function expresses the functional relationship between resources (inputs) and output (goods and services). In fact, given the state of technology, production function shows the technological-physical relationship between inputs and output.

It is observed that in the short-run some of the inputs are fixed. They are difficult to change in the short-run. The laws of returns deal with the short-run production function. Let us have a look at a simple production function which is given below

$$O = f(L, L_{ab}, K, T)$$

Where, O = Output, L = Land,  $L_{ab}$  = Labour, k = Capital T = Technology)

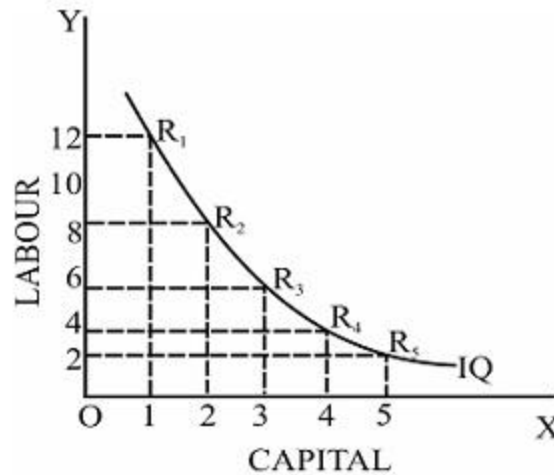
## PRODUCTION FUNCTION THROUGH ISO-QUANT CURVES

A firm has a number of alternative combinations of two or more factors which can be used to produce a given output. Any of the combinations can be chosen to produce that output; if one combination is chosen the other combinations may be ignored. Table below shows various hypothetical combinations of capital and labour which will enable a firm to produce 1,000 units of a product.

**Production with Two Variable Inputs**

Units of capital	Units of labour	Output in units
1	12	1,000
2	8	1,000
3	6	1,000
4	4	1,000
5	2	1,000

The hypothetical table shows clearly that an output of 1,000 units of commodity can be produced either by 1 units of capital and 12 units of labour, or 2 units of capital and 8 units of labour, or by any of the combinations mentioned above. All combinations are equally suitable, as all of them can produce the same output. Table is illustrated in the following figure.



In the above figure, the horizontal axis represents labour and the vertical axis represents capital. The curve IQ shows the different combinations that produce 1,000 units of output. Each of the points R1, R2, R3, R4 and R5 on the curve shows a capital-labour combination that can produce 1,000 units of output. For example, point R1 indicate a combination of 1 unit of capital and 12 units of labour, point R2 represents a combination of 2 units of capital and 8 units of labour, and so on. But all the combinations of inputs represent the same output and the firm can use any one of the combinations to produce the output of 1,000 units.

The indifference curve in above figure is known s an equal product curve or an iso-quant curve or an iso-quant curve (iso=equal; quant=quantity).

## LAW OF RETURNS

The law of return takes three forms:

- a) Law of diminishing return
- b) Law of constant returns
- c) Law of increasing returns

### a) LAW OF DIMINISHING RETURNS

The law of diminishing returns is one of the oldest and most controversial parts of economic theory. This law states that if the quantity of one factor, say land, is fixed and to increase output, more and more units of labour and capital are applied, increase in output will take place at a decreasing rate. In other words, the marginal increase in output will be comparatively smaller than the increase in labour and capital.

### Assumptions of the law

- i) The technique of production remains constant.
- ii) The co-efficients of production are variable, i.e., factor proportions are variable.



- iii) Some factors can be held constant.
- iv) The units of variable factor are homogeneous.

#### **b) LAW OF CONSTANT RETURNS**

The law of constant returns states that the increase in output or marginal physical product is that the same rate as that in the units of labour and capital. Additional units of labour and capital yield the same return. The per unit cost of production remains the same at all levels of output.

#### **c) LAW OF INCREASING RETURNS**

The law of increasing returns states that the marginal increase in output is proportionately higher than the increase in the units of labour and capital. When more and more units of labour and capital are applied, they bring increasing returns or raise total output at an increasing rate. The law of increasing returns is based on the assumption that there always remains ample scope for improvements in the techniques of production. The improvements in the methods of production, use of modern machines and increased division of labour raise the productivity. The theory also assumes that some of the factors or at least one factor is indivisible. Most of the remaining factors are divisible. The law of increasing returns states that an addition in units of inputs brings higher and higher levels of marginal output.

#### **LAW OF VARIABLE PROPORTION**

Law of variable proportions establishes the short run relationship between the changes in output and the changes in inputs. In the short period, some factors are fixed and some are variable. So in the short run, if we want to increase the output, we have to vary the variable factors only. The law is called the law of variable proportions because when in the short run, increasing doses of variable factors are applied upon some fixed factors, the factor proportion changes.

The law of variable proportions which comprises three stages applies in all economic fields. Prof. Samuelson has stated that an increase in some inputs relative to other comparatively fixed inputs will cause output to increase; but after a point, the extra output resulting from the same additions of inputs will become less and less; this falling of extra returns is a consequence of the fact that the new doses of varying resources have less and less of the constant resources to work with.



The law of variable proportions comprises three stages. At the initial level when a variable factor is increased on some fixed factors, the factor proportion becomes favorable. It increases the marginal output at an increasing rate.

After some time, when the factor proportion becomes optimum, marginal output reaches the maximum level. For a while, the optimum level is not disturbed by an increase in variable inputs. So the marginal output remains constant for a few doses.

But when the variable factor is increased further, the optimum factor proportion is disturbed. It becomes unfavorable. The marginal output starts declining. At this stage the law of diminishing returns starts operating.

**The law of diminishing returns is based on the following assumptions:**

- (1) Only one factor is variable while others are held constant.
- (2) All units of the variable factor are homogeneous.
- (3) There is no change in technology.
- (4) It is possible to vary the proportions in which different inputs are combined.
- (5) It assumes a short-run situation, for in the long-run all factors are variable.
- (6) The product is measured in physical units, i.e., in quintals, tonnes, etc.

**Explanation of the law:**

Given these assumptions, let us illustrate the law with the help of Table 1, where on the fixed input land of 4 acres, units of the variable input labour are employed and the resultant output is obtained. The production function is revealed in the first two columns. The average product and marginal product columns are derived from the total product column. The average product per worker is obtained by dividing column (2) by a corresponding unit in column (1). The marginal product is the addition to total product by employing an extra worker. 3 workers produce 36 units and 4 produce 48 units. Thus the marginal product is 12 i.e., (48-36) units.



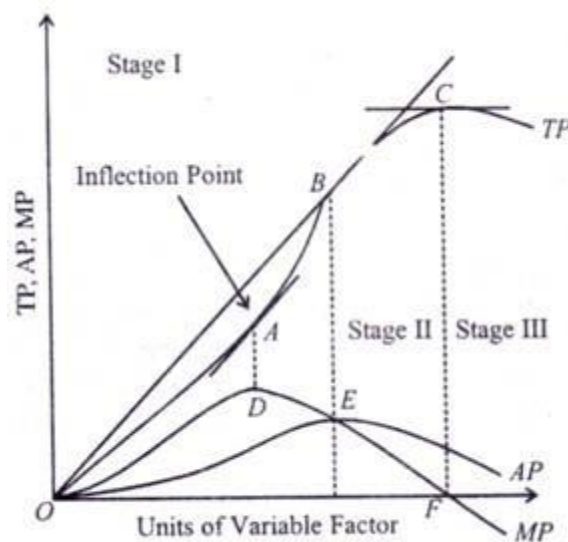


**Table. 1: Output of Wheat in Physical Units (Quintals)**

(1) <i>No. of Workers</i>	(2) <i>Total Product</i>	(3) <i>Average Product</i>	(4) <i>Marginal Product</i>	
1	8	8	8	} Stage I
2	20	10	12	
3	36	12	16	
4	48	12	12	} Stage II
5	55	11	7	
6	60	10	5	
7	60	8.6	0	} Stage III
8	56	7	-4	

An analysis of the Table shows that the total, average and marginal products increase at first, reach a maximum and then start declining. The total product reaches its maximum when 7 units of labour are used and then it declines. The average product continues to rise till the 4<sup>th</sup> unit while the marginal product reaches its maximum at the 3rd unit of labour, then they also fall. It should be noted that the point of falling output is not the same for total, average and marginal product.

The marginal product starts declining first, the average product following it and the total product is the last to fall. This observation points out that the tendency to diminishing returns is ultimately found in the three productivity concepts. The law of variable proportions is presented diagrammatically in Figure 4. The TP curve first rises at an increasing rate up to point A where its slope is the highest. From point A upwards, the total product increases at a diminishing rate till it reaches its highest point C and then it starts falling.



**Fig. 4**



Point A where the tangent touches the TP curve is called the inflection point up to which the total product increases at an increasing rate and from where it starts increasing at a diminishing rate. The marginal product curve (MP) and the average product curve (AP) also rise with TP. The MP curve reaches its maximum point D when the slope of the TP curve is the maximum at point A.

The maximum point on the AP curves is E where it coincides with the MP curve. This point also coincides with point B on TP curve from where the total product starts a gradual rise. When the TP curve reaches its maximum point C the MP curve becomes zero at point F. When TP starts declining, the MP curve becomes negative. It is only when the total product is zero that the average product also becomes zero. The rising, the falling and the negative phases of the total, marginal and average products are in fact the different stages of the law of variable proportions which are discussed below.

### **Three Stages of Production:**

#### **Stage-I: Increasing Returns:**

In stage I the average product reaches the maximum and equals the marginal product when 4 workers are employed, as shown in the Table 1. This stage is portrayed in the figure from the origin to point E where the MP curve reaches its maximum and the AP curve is still rising. In this stage, the TP curve also increases rapidly. Thus this stage relates to increasing returns. Here land is too much in relation to the workers employed. It is, therefore, profitable for a producer to increase more workers to produce more and more output. It becomes cheaper to produce the additional output. Consequently, it would be foolish to stop producing more in this stage. Thus the producer will always expand through this stage I.

#### **Causes of Increasing Returns:**

1. 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.
2. 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 operate.
3. 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 point towards the law of increasing returns.

### **Stage-II: Diminishing Returns:**

It is the most important stage of production. Stage II starts when at point E where the MP curve intersects the AP curve which is at the maximum. Then both continue to decline with AP above MP and the TP curve begins to increase at a decreasing rate till it reaches point C. At this point the MP curve becomes negative when the TP curve begins to decline, table 1 show this stage when the workers are increased from 4 to 7 to cultivate the given land.

In figure 1, it lies between BE and CF. Here land is scarce and is used intensively. More and more workers are employed in order to have larger output. Thus the total product increases at a diminishing rate and the average and marginal product decline. This is the only stage in which production is feasible and profitable because in this stage the marginal productivity of labour, though positive, is diminishing but is non-negative. Hence it is not correct to say that the law of variable proportions is another name for the law of diminishing returns. In fact, the law of diminishing returns is only one phase of the law of variable proportions. The law of diminishing returns in this sense has been defined by Prof. Benham thus: “As the proportion of one factor in a combination of factors is increased, after a point, the average and marginal product of that factor will diminish.”

### **Stage-III: Negative Marginal Returns:**

Production cannot take place in stage III either. For in this stage, total product starts declining and the marginal product becomes negative. The employment of the 8th worker actually causes a decrease in total output from 60 to 56 units and makes the marginal product minus 4. In the figure, this stage starts from the dotted line CF where the MP curve is below the A'-axis. Here the workers are too many in relation to the available land, making it absolutely impossible to cultivate it.

### **The Best Stage:**

In stage I, when production takes place to the left of point E, the fixed factor is excess in relation to the variable factors which cannot be used optimally. To the right of point F, the variable input is used excessively in Stage III. Therefore, no producer will produce in this stage because the marginal production is negative.

Thus the first and third stages are of economic absurdity or economic nonsense. So production will always take place in the second stage in which total output of the firm



increases at a diminishing rate and MP and AP are the maximum, then they start decreasing and production is optimum. This is the optimum and best stage of production.

## **LAW OF RETURNS TO SCALE**

In the long run, expansion of output can be achieved by variation in the use of all factors as all factors are variable. The laws of returns to scale refer to the effects of changes in the scale of production. In the long run, output can be increased by effecting a change in the use of all factors keeping the same proportion or by changes in different proportions.

### **Meaning**

The degree of responsiveness of output to a proportionate change in the quantity of all inputs is called returns to scale. There are three possibilities via; (a) constant returns to scale, (b) increasing returns to scale and (c) decreasing returns to scale.

### **Constant Returns to Scale**

In the case of constant returns to scale, when all factor of production are increased in a given proportion, the output would also increase in the same proportion. For example, if the quantity of labour and capital is increased by 10%, output also increases by 10%. If labour and capital are doubled, output also doubles. Similarly, if all inputs are reduced by a given proportion, output is reduced by the same proportion.

### **Increasing Returns to Scale**

In the case of increasing returns to scale, when all factors are increased in a given proportion, output increases by a greater proportion. For example, if the amount of labour and capital is increased by 10%, output increases by more than 10%. If the quantity of labour and capital doubles, output more than doubles.

### **Decreasing Returns to Scale**

In the case of decreasing returns to scale, output increases in a smaller proportion than the increase in all inputs, i.e., in this case as inputs are increased by a particular proportion, output increases less than proportionately. For example, if inputs are increased by 10% output increases by less than 10%. If inputs double, outputs will less than double.

## **Economics and Diseconomies of Scale**

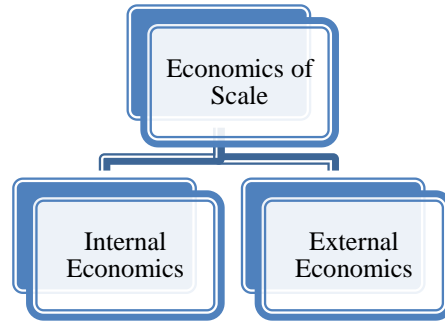
### **Economics of Scale**

A business firm expands its scale of production to earn profit. It derives many turn, help in lowering the cost of production and increasing its productive efficiency.



Such economics that occur to a firm in the course of expansion of its scale of operation by increasing all the factors or by increase in the number of firms in the industry are called as economics of scale.

The Economics of scale can be classified as under.



### **D) Internal Economics**

They are economic advantages, which enable a firm to get proportionately large output than increments in factor inputs. Some of the internal Economics are as follows.

#### **a) Specialization and Division of Labour**

As scale of Production expands, higher degree of specialization and division of labour becomes possible. Under division of work, production of a commodity is split up into several processes. Each worker specializes in one particular process due to which the skill of each worker is improved.

#### **b) Technical Economics**

These economics arise from the greater efficiency of large size of plants and capital equipments, which the large firm can afford to employ superior, more specialized and automatic machines can be installed by them.

#### **c) Production Economics**

The large firm is able to utilize all its waste materials for the development of by product industry. Thus, it enjoys the economy of the use of by-product. For example, the waste left over after manufacturing sugar from the sugarcane can be use for producing paper by installing a plant for this purpose.

#### **d) Managerial Economics**

These economics are due to better and more elaborate management, which only the large firm can afford. In a large firm, the owner can concentrate on fundamental problems of policy-making and business expansion, delegating the routine jobs and details to highly qualified subordinates.



### **e) Marketing Economics**

As the firm expands in its size, it is able to buy raw materials at cheaper rates as it buys regularly and in bulk quantities. It can secure concessions from railways and transport companies. It can also enjoy prompt delivery careful attention and considerate treatment from all intermediaries.

### **f) Financial Economics**

The large firm with a large asset base and goodwill in the market is able to secure the necessary funds either as block capital or for meeting the working capital needs of the enterprise.

### **g) Risk and Survival Economics**

Every firm has to face general and particular risks for its existence. While the former occur during general business depression due to insufficient demand, latter refers to market fluctuations for one product. Small firms cannot survive in the face of such risks and go into liquidation.

### **h) Economics of Employee welfare schemes**

A large firm with adequate resources can provide employee welfare facilities for its managerial and technical staff, both within and outside the factory. These measures enhance the motivation, morale and commitment of the employees of the firm and its objectives. It leads to efficiency of the human capital and hence production.

## **II) External Economics**

When many firms expand in a particular area, each member firm sources a number of economic advantages, which are known as external economics. Some of the external economics are as follows.

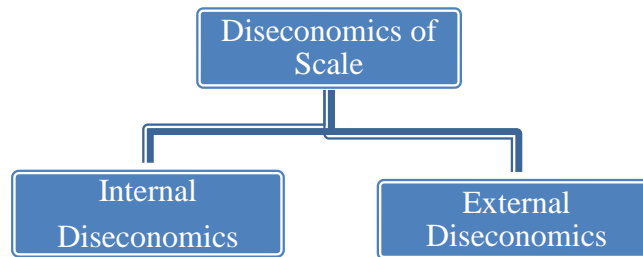
- a) The availability of better transportation and communication at cheaper rates.
- b) Provision of better and more adequate sources of power, water and electricity.
- c) Growth and development of ancillary industries, making use of waste matter by giving it the shape of by-products.
- d) Establishment of technical and engineering institutions ensuring continuous supply of skilled manpower.
- e) Better housing, public health and recreational facilities.



## **Diseconomies of Scale**

Economics of scale operate up to the point of optimum capacity. Beyond this point economics give place to Diseconomies' which is commonly termed as "Diseconomies of scale".

It can be classified as under.



### **I) Internal Diseconomies**

The following are some of the internal diseconomies.

#### **a) Inefficiency of Management**

When output exceeds the optimum level, the management problems increase and management efficiency declines.

#### **b) Technical Diseconomies**

All equipment has an optimum capacity at which it works most efficiently and economically. If production is increased beyond the optimum point, diseconomies arise.

#### **c) Financial Diseconomies**

A number of curbs are being imposed by the government, banks and the financial institutions on the large borrowers, which serve as restrain on large scale production.

#### **d) Risk and Survival Diseconomies**

Large firms are more exposed to the risks than the smaller ones due to the lack of liquidity. Even risks like strike, lock-out, lay off are more in case of large establishments.

#### **e) Limited availability of Natural Resources**

It also causes diminishing returns to scale. For example doubling of coal mining plants will not double the coal output due to limited availability of coal deposits.

### **II) External Diseconomies**

Some of the external diseconomies are as follows:

- a) Intense competition among the firms raises the Price of raw materials.
- b) Scarcity of fuel, electricity, power, water, finance etc.



- c) Management is exposed to Government restrictions.
- d) Heavy pressure on the transport system causing frequent traffic jams.
- e) Heavy expenditure on pollution control.

These are the various economics and diseconomies of scale.

## **COST OF PRODUCTION**

In the ordinary language, the money expenses incurred by a firm in production of a commodity are called 'cost of production'. In the words of Hunt, "A firm's production costs arise from the hire or purchase of productive resources at every stage of its operations."

A firm requires factors of production (land, labour, capital and organization) and other inputs (like raw materials, fuel, power etc) for producing a commodity. Thus, the expenses incurred for the production of certain units of output is called cost of production.

### **Cost Concepts**

In economics, the term 'cost' is used in a broader sense. It refers to the following types of costs.

#### **1. Money Cost**

Money cost refers to the amount spent to produce a commodity. It is also called as 'nominal cost'. It includes

- (i) Rent on land;
- (ii) Wages and salaries of labour;
- (iii) Interest on capital invested and borrowed;
- (iv) Profit for organization;
- (v) Cost of raw materials; and
- (vi) Expenses on power, light, advertisement, transportation, insurance charges and all types of taxes.

#### **2. Real Cost**

Real cost means the sacrifice, discomfort, toils and pain involved in supplying the factors of production by their owners. Adam Smith regarded pains and sacrifices of labour as real cost.

#### **3. Opportunity cost (Alternative cost)**

The opportunity cost of a commodity is the next best alternative commodity sacrificed in order to obtain that commodity. It is also called as 'displacement cost'. According to Ferguson, "The alternative or opportunity cost of producing one commodity X is the amount Y that must be sacrificed in order to use resources to produce X rather than Y."





#### **4. Explicit cost**

Explicit costs are the 'paid-out costs'. They are contractual money payments made to the factor owners for hiring or purchasing the service of factors inputs. It consists of

- i) Rent on land;
- ii) Wages and salaries for labour;
- iii) Interest on capital borrowed;
- iv) Payment to organizer;
- v) Prices of raw and semi-finished materials; and
- vi) Depreciation.

#### **5. Implicit cost**

Implicit costs are costs of self-owned and self-employed resources. They are the salary received by the owner-manager, rent of the building and interest on capital invested by him. They are not recorded in the firm's account book. Implicit costs are also called as 'implicit costs'.

#### **6. Social Costs**

Social costs refer to the costs of producing a commodity to the society as a whole. It does not take into account money cost but something like cost which are borne by the society directly or indirectly. For example, when trees of a forest are cut down indiscriminately by a person, the society incurs social costs in the form of floods, soil erosion, loss of sanctuary for animals.

#### **7. Primary Costs**

Private costs refer to the costs incurred by a firm in producing a commodity. In other words, it is the money cost incurred by a firm for producing a commodity.

#### **8. Economic Cost**

The payments received by resource owners in order to ensure that they will continue to supply them are called 'economic cost'. It also included normal profit.

#### **Marginal cost**

Marginal cost is the expenses incurred for the last unit produced. It is the addition to total cost by producing one more unit of output. It is the difference between two total costs.

In symbol,

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

MC = Marginal cost

TC = Total cost



$n$  = Number of units produced.

Marginal cost can be found out by differentiating total cost function. Symbolically,

$$MC = \frac{dC}{dQ}$$

Where,  $dC$  = Change in total cost;

$dQ$  = Change in output.

### Average cost

Average cost is the cost per unit of output. It is arrived at by dividing total cost by total output. It can also be obtained by adding the average fixed cost (AFC), with the average variable cost (AVC). In symbol,

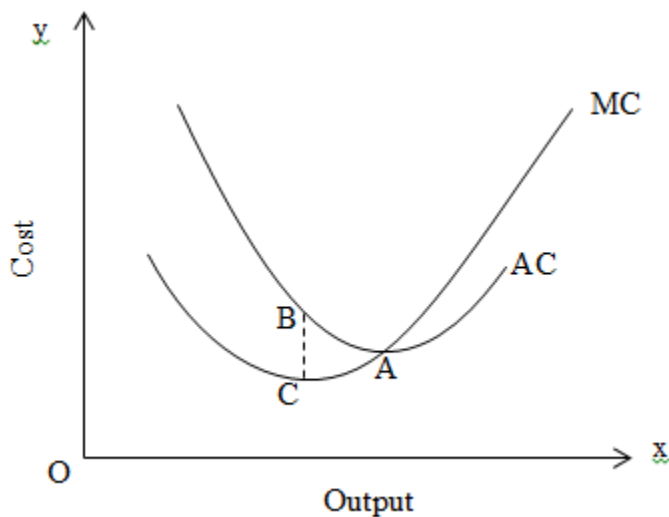
$$AC = \frac{TC}{Q} \quad \text{or} \quad AC = AFC + AVC$$

AC = Average cost

TC = Total cost

Q = Total output

### Relationship between AC and MC



In this figure,

AC = Average cost curve

MC = Marginal cost curve

- When AC falls MC also falls and MC lies below AC.
- When AC is minimum AC = MC.
- When AC rises MC also rises and MC lies above AC.



Money cost is further subdivided into two. They are

- (i) Fixed cost; and (ii) Variable cost.

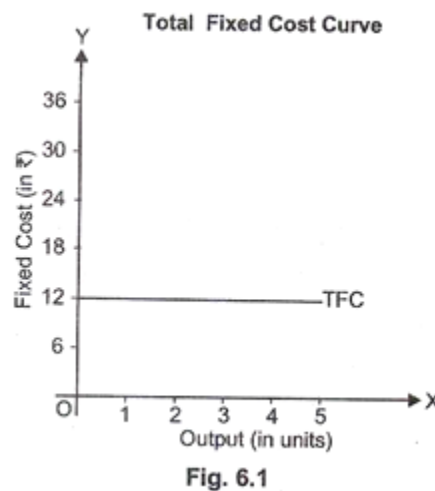
### **Total cost (TC)**

Total cost is the total expenses incurred for the production of the entire quantity of output. It is the sum of total fixed cost (TFC) and total variable cost (TVC). Symbolically,

$$\text{TC} = \text{TFC} + \text{TVC}$$

### **Fixed cost (FC)**

Fixed cost remains constant for all units of output. In other words, cost which does not change with the change in output is called fixed cost. It includes rent and interest payments, depreciation charges, wages and salaries of permanent staff etc., fixed costs have to be incurred by a firm, even if it stops production temporarily. They exist even when output is zero. They are also called 'overhead costs'.



In the figure, TFC is the total fixed cost curve. It is a horizontal parallel to the OX-axis. It shows that fixed cost remains unaltered even though output changes.

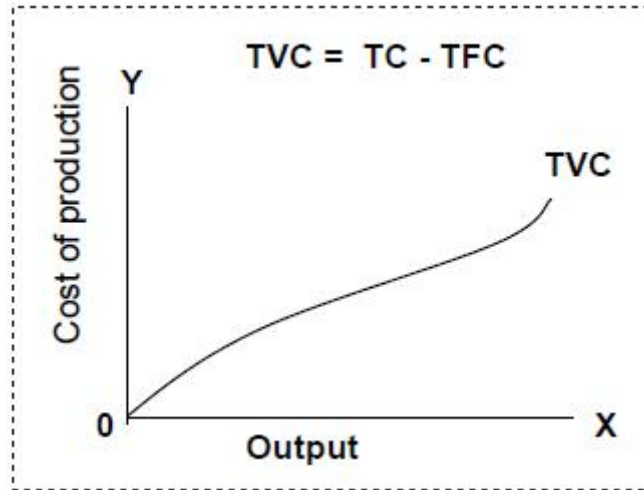
### **Variable Cost (VC)**

Cost which varies with variation in output is called variable cost. Variable costs vary directly and sometimes proportionately with output. They are also called 'prime cost'.

Variable costs include

- (i) Costs of raw materials and
- (ii) Costs of casual or daily labour etc.,

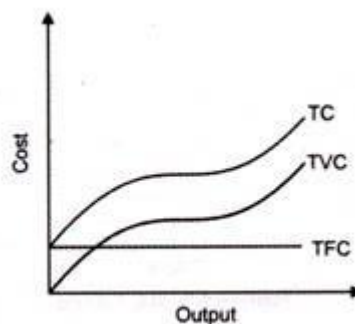
They are incurred only when the factory is at work.



In the figure, TVC is the total variable cost curve. It is going upward at a diminishing rate. It shows that total variable cost changes with changes in output.

Unit of output	TFC	TVC	TC
0	30	0	30
1	30	10	40
2	30	18	48
3	30	24	54
4	30	32	62

In the table, total fixed cost remains constant at Rs.30/-. But the total variable cost increases continuously at a diminishing rate. Total cost also increases continuously. It can be explained with help of the following figure.



**Figure-5: TC Curve**



In the figure, TC is the total cost curve. Its slope indicates the positive relationship between output and total cost.

### **SHORT RUN COST CURVES**

Short period is the period of time, which is so short that a firm cannot change some of its factors of production like plant, machinery, building etc. “A time period which is less than the minimum required to affect changes in factors of production is called as short period”. In the short run, quantities of fixed factors cannot be varied in accordance with changes in output. If the firm wants to increase output in the short run, it can do so only with the help of variable factors, i.e., by using more labour, raw materials etc.

#### **Short Run Average Costs**

There are three short run costs. They are

- (i) Average Fixed Cost (AFC)
- (ii) Average Variable Cost (AVC)
- (iii) Average Total Cost (ATC)

#### **(i) Average Fixed Cost**

Average fixed cost is per unit fixed cost of producing a commodity. It can be obtained by dividing the total fixed cost by the number of units produced.

$$AFC = \frac{TFC}{Q}$$

Where, AFC = Average fixed cost  
TFC = Total fixed cost  
Q = Quantity of output

For example, a firm is producing with total fixed cost of Rs.2000/-. When output is 100 units, the average fixed cost will be Rs.20/-. If the total output increases to 200 units, average fixed cost will be Rs.10/-. Since total fixed cost is a constant amount, average fixed cost will steadily fall as output increases. Therefore, the average fixed cost curve will slope downwards throughout its length.

#### **(ii) Average Variable Cost**

Average variable cost is the per unit variable cost of a commodity. It can be calculated by dividing the total variable cost by the number of units produced.

$$AVC = \frac{TVC}{Q}$$

Where, AVC = Average variable cost



TVC = Total variable cost

Q = Quantity of output

For example, if the total variable cost of producing 50 units of cycle is Rs.50,000/- and the average variable cost will be Rs.1,000/-/ AVC normally falls as output increases from zero to normal capacity output due to occurrence of increasing returns. But, beyond the normal capacity output, AVC will rise steeply because of the operation of the Law of Diminishing Returns. Therefore, the AC curve first falls, reaches a minimum and then rise again.

### (iii) Average Total Cost

Average total cost is the sum of average fixed cost and average variable cost, i.e.,  $ATC = AFC + AVC$ . IT can also be obtained by dividing the total cost (TFC+TVC) by the units of output produced (q).

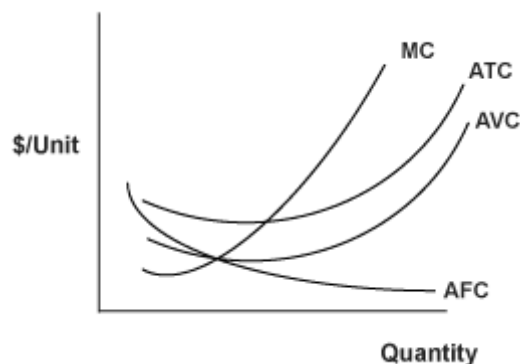
$$ATC = \frac{TC}{Q}$$

Where, ATC = Average total cost

TC = Total cost

Q = Quantity of output

In the beginning the ATC curve falls continuously since both AFC and AVC falls in the beginning. When AVC curve begins to rise, AFC curve still falls sharply and ATC curve continues to fall. This is because during this stage the fall in AFC is greater than the rise in AFC. Therefore, the ATC curve first falls, reaches its minimum and then rises. Thus, the average cost curve is 'U' shaped.



In the figure, AFC is the average fixed cost curve. It slopes downward to the right because as output increases, the AFC diminishes. AVC is the average variable cost curve. It slopes downward first and thereafter rises slowly. It is because as output increases, variable

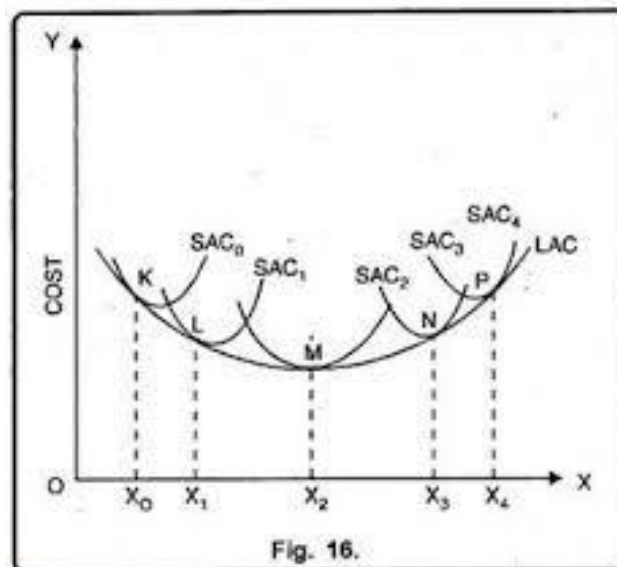


cost also increases. ATC is the average total cost curve. It first falls and finally rises because of the economies and diseconomies of large scale production. MC is the marginal cost curve.

### Long run cost curves

Long run refers to the period during which the size and organization of the firm can be altered to meet changed conditions. The long run cost curves are also 'U' shaped, but they will always be flatter than short run cost curves. The long run cost curve is obtained by drawing a line that touches a series of short run curves. So long run cost curves are called as 'envelope curves'.

In the figure given below,  $SAC_0$ ,  $SAC_1$ ,  $SAC_2$ ,  $SAC_3$  and  $SAC_4$  are short run average cost curves. LAC is the long run average cost curve. It is drawn by joining the lowest points of the five short run cost curves.



### LAC flatter than SAC

The long run average cost curves is 'U' – shaped, but it is flatter than the short run average cost curve. The LAC first declines slowly and then rises gradually after the minimum point is reached. The LAC is flatter than SAC due to the following reasons:

- (i) First the LAC slopes downwards due to the availability of certain economies of scale like the economical use of factors and specialization.
- (ii) After the minimum point of LAC is reached, the LAC may flatter because the economies and diseconomies balance each other.



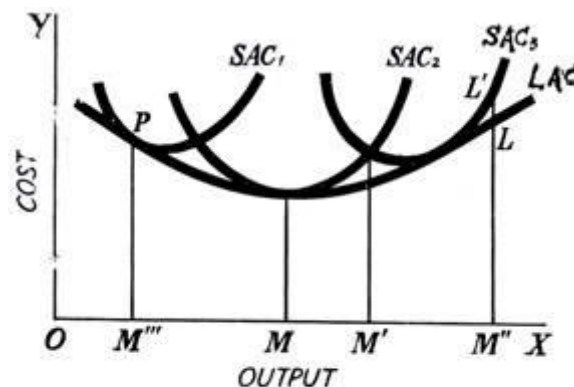
- (iii) The LAC begins to rise with further expansion of scale because of the diseconomies like difficulties of coordination, management, transport and labour problem etc.

### OPTIMUM FIRM

‘Optimum firm’ refers to the ideal size of the firm. It is the firm, which produces optimum output with the optimum plant. Optimum output is called ‘least-cost output’. Optimum plant is one, which produces maximum output at the minimum average cost of production. According to **E.A.G. Robinson**, “An optimum firm is the one which operates at the scale at which, in the existing conditions of techniques and organizing ability, has the lowest average cost of production when all those costs which must be covered in the long run are included”. In short, optimum firm is one which produces the maximum output at minimum cost. The following factors determine the optimum size of the firm:

- (i) Technical factors;
- (ii) Managerial factors;
- (iii) Financial factors;
- (iv) Marketing factors; and
- (v) Risk factors.

It can be explained with the help of the following figure:



LAC Curve : An Envelope  
Fig. 23.6

Where, LAC = Long run average cost curve

SAC<sub>1</sub>, SAC<sub>2</sub>, and SAC<sub>3</sub> = Short run average cost curves

In the figure, the short run cost curves of three firms are given. Firm with SAC<sub>2</sub>, is the optimum firm. It is because it produces the maximum output OM with minimum average cost both in the short run and long run. It is the output produced with least cost combination.





In the case of firm with  $SAC_1$ , the output is less and average cost is high. On the other hand, firm with  $SAC_3$ , output is more but average cost is high. Thus, firm with  $SAC_2$  is the optimum firm.



## UNIT IV : PRICING OF THE PRODUCT

*Pricing of the product – pricing in perfect competition – monopoly – meaning – monopolistic competition – oligopoly – imperfect competition – pricing policy objectives – factors influencing pricing policy – various pricing methods – pricing of new products*

### PRODUCT PRICING

Price of a product is determined by demand and supply forces in the market. It is also determined by considering the cost and revenue conditions. To study product pricing, one should have a thorough knowledge about different markets and their features. This chapter deals with product pricing under different market situations.

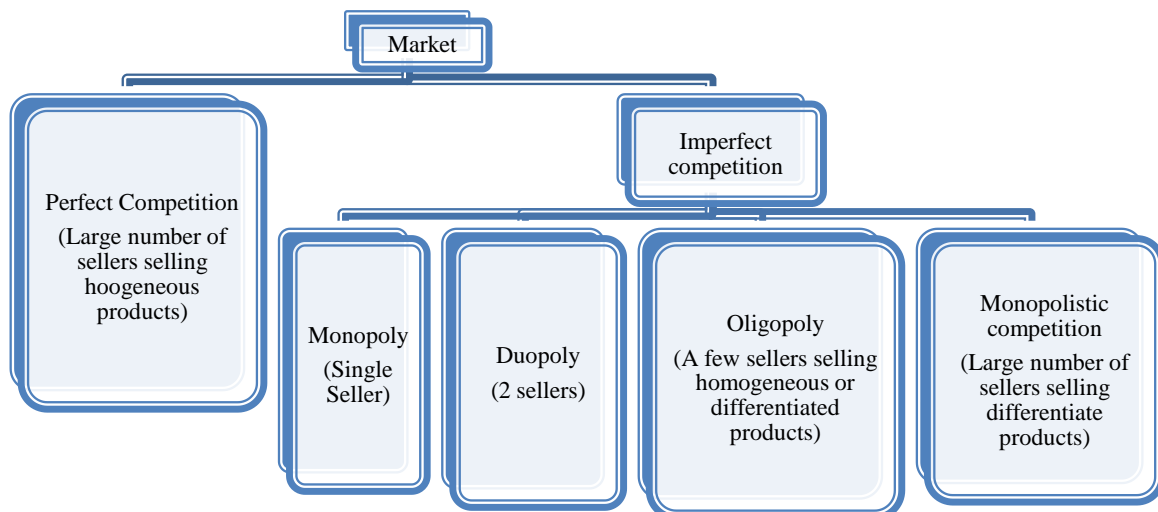
In the ordinary parlance, market is considered as a place where goods are bought and sold. But, in economics, the term market refers to the whole of region in which buyers and sellers of a commodity are in competition with one another.

### Forms of Markets

Markets may be classified on the basis of two important factors. They are

- (i) Competition; and
- (ii) Time.

On the basis of degree of competition markets may be classified into two – perfect competition and imperfect competition. These markets have been distinguished from one another on the basis of (i) number of buyers and sellers; (ii) nature of the commodity sold; (iii) entry or exit of firms (iv) knowledge about prevailing price and cost etc. This has been depicted in the following flow-chart.





## **PERFECT COMPETITION**

Competition is an important feature of a perfect market. There exists competition between buyers and buyers for buying a product and sellers for selling a product. According to Joan Robinson, “Perfect competition prevails, when the demand for the output is perfectly elastic”. Then, there will be uniform price and the revenue curve will be a horizontal straight line parallel to OX-axis.

### **Conditions (features)**

The following are the features of perfect competition.

1. Large number of buyers and sellers
2. Homogeneous product
3. Free entry or exit.
4. Perfect knowledge.
5. Free mobility of factors.
6. Absence of transport cost.
7. Uniform price.

#### **1. Large number of buyers and sellers**

There are large number of buyers and seller for a product. So a single buyer or seller cannot influence the price.

#### **2. Homogeneous product**

The product sold by all the sellers should be homogeneous in all respect.

#### **3. Free entry or exit**

There should be complete freedom for the entry of new firms or exit of the existing firms from the industry.

#### **4. Perfect Knowledge**

The buyers and sellers should have clear knowledge about the market.

#### **5. Free mobility of factors**

There should be no restrictions on the movement of factors of production. It is essential in order to enable the sellers (firms) to adjust their supply to demand.

#### **6. Absence of transport cost**

There should be no transport cost for the movement of goods from one place to another.

#### **7. Uniform price**

All the units of a product should be sold at the same price. This condition makes the demand curve (Revenue curve) as a perfectly elastic one. (horizontal straight line parallel to OX-axis)



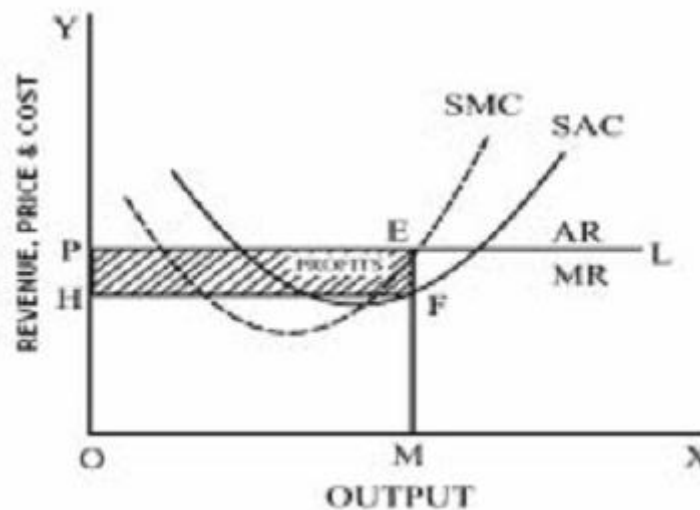
### Short run equilibrium, price and output determination under perfect competition

1. Since a firm in the perfectly competitive market is a price-taker, it has to adjust its level of output to maximize its profit. The aim of any producer is to maximize his profit.
2. The short run is a period in which the number and land size of the firms are fixed. In this period, the firm can produce more only by increasing the variable inputs.
3. As the entry of new firms or exit of the existing firms are not possible in the short-run, the firm in the perfectly competitive market can either earn super-normal profit or normal profit or incur loss in the short period.

### Super-normal Profit

When the average revenue of the firm is greater than its average cost, the firm is earning super-normal profit.

#### Short-run equilibrium with super-normal profits



In above figure, output is measured along the x-axis and price, revenue and cost along the y-axis. OP is the prevailing price in the market. PL is the demand curve or average and the marginal revenue curve. SAC and SMC are the short run average and marginal cost curves. The firm is in equilibrium at point 'E' where  $MR = MC$  and MC curve cuts MR curve from below at the point of equilibrium. Therefore the firm will be producing OM level of output. At the OM level of output ME is the AR and MF is the average cost. The profit per unit of output is EF. The total profits earned by the firm will be equal of EF multiplied by OM or HP. Thus the total profits will be equal to the area HFEP. HFEP is the supernormal profits earned by the firms.



### Long run equilibrium, price and output determination

In the long run, all factors are variable. The firms can increase their output by increasing the number and plant size of the firms. Moreover, new firms can enter the industry and the existing firms can leave the industry. As a result, all the existing firms will earn only normal profit in the long run.

If the existing firms earn supernormal profit, the new firms will enter the industry to compete with the existing firms. As a result, the input produced will increase. When the total output increases, the demand for factors of production will increase leading to increase in prices of the factors. This will result in increase in average cost.

On the other side, when the output produced increases, the supply of the product increases. The demand remaining the same, when the supply of the product increases, the price of the product comes down. Hence the average revenue will come down. A fall in average revenue and the rise in average cost will continue till both become equal. ( $AR=AC$ ). Thus, all the perfectly competitive firms will earn normal profit in the long run.

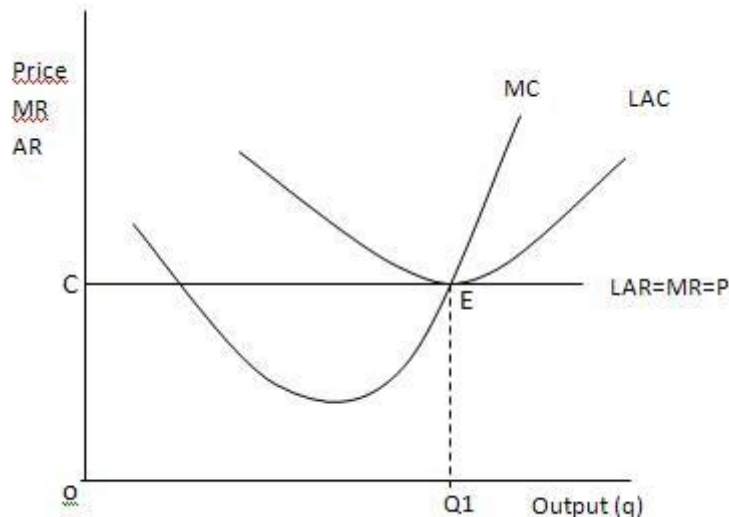


Figure represents long run equilibrium of firm under perfect competition. The firm is in equilibrium at point E where  $LMC=MR=AR=LAC=P$ . The long run equilibrium output is  $OQ_1$ . The firm is earning must the normal profit. The equilibrium price is  $OC$ . If the price rises above  $OC$ , the firm will earn abnormal profit, which will attract new firms into the industry. If the price is less than  $OC$ , there will be loss and the tendency will be to exit. So in the long run equilibrium,  $OC$  will be the price and marginal cost will be equal to average cost and average revenue. Thus the firm in the long run will earn only normal profit. Competitive firms are in equilibrium at the minimum point of LAC curve. Operating at the



minimum point of LAC curve signifies that the firm is of optimum size i.e. producing output at the lowest possible average cost.

## **Imperfect Competition**

### **Monopoly**

Monopoly is a market structure in which there is a single seller, there are no close substitutes for the commodity it produces and there are barriers to entry.

#### **Characteristics of monopoly**

1. **Single Seller:** There is only one seller; he can control the price or supply of his product. But he cannot control demand for the product, as there are many buyers.
2. **No close substitutes:** There are no close substitutes for the product. The buyers have no alternatives or choice. Either they have to buy the product or go without it.
3. **Price:** The monopolist has control over the supply so as to increase the price. Sometimes he may adopt price discrimination. He may fix different prices for different sets of consumers. A monopolist can either fix the price or quantity of output; but he cannot do both, at the same time.
4. **No Entry:** there is no freedom to other producers to enter the market as the monopolist is enjoying monopoly power. There are strong barriers for new firms to enter. There are legal, technological, economic and natural obstacles, which may block the entry of new producers.
5. **Firm and Industry:** Under monopoly, there is no difference between a firm and an industry. As there is only one firm, that single firm constitutes the whole industry.

#### **Price and Output Determination**

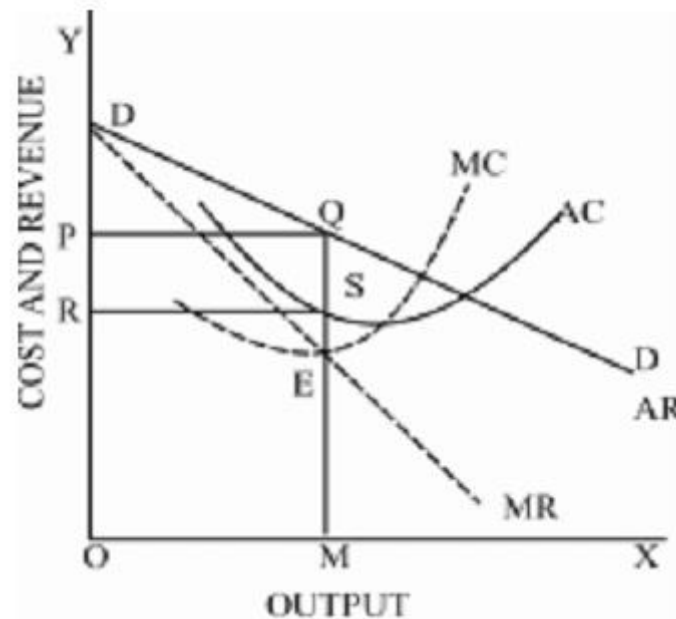
A monopolist like a perfectly competitive firm tries to maximize his profits. A monopoly firm faces a downward sloping demand curve, that is, its average revenue curve. The downward sloping demand curve implies that large output can be sold only by reducing the price. The marginal revenue curve will be below the average revenue curve.

The average cost curve is 'U' shaped. The monopolist will be in equilibrium when  $MC=MR$  and the MC curve cuts the MR curve from below.

In figure, AR is the Average Revenue Curve and MR is the Marginal Revenue curve. AR curve is falling and MR curve lies below AR. The monopolist is in equilibrium at E where  $MR=MC$ . He produces OM units of output and fixes price at OP. At OM output, the average revenue is MQ and average cost MS. Therefore the profit per unit is  $MQ-MS=SQ$ . Total profit is average profit (SQ) multiplied by output(OM), which is equal to RSQP. The



monopolist is in equilibrium at point E and produces OM output at which he is earning maximum profit. The monopoly price is higher than the marginal revenue and marginal cost.



### Monopolistic competition

Monopolistic competition, as the name itself implies, is a blending monopoly and competition. Monopolistic competition refers to the market situation in which a large number of sellers produce goods which enclose substitutes of one another. The products are similar but not identical. The particular brand of product will have a group of loyal consumers. In this respect, each firm will have some monopoly and at the same time the firm has to compete in the market with the other firms as they produce a fair substitute. The essential features of monopolistic competition are product differentiation and existence of many sellers.

The following are the examples of monopolistic competition in Indian context.

1. Shampoo – Sun Silk, Clinic Plus, Ponds, Chik, Velvette, Kadal, Head and Shoulder, Pantene, Vatika, Garnier, Meera.
2. Tooth Paste – Binaca, Colgate, Forhans, Close-up, Promise, Pepsodent, Vicco vajradant, Ajanta, Anchor, Babool.

### Characteristics of Monopolistic Competition

- (i) **Existence of Large Number of firms:** Under monopolistic competition, the number of firms producing a commodity will be very large. The term 'Very large' denotes that contribution of each firm towards the total demand of the product is small. Each firm will act independently on the basis of product differentiation and each firm determines its price-output policies. Any action of



the individual firm in increasing or decreasing the output will have little or no effect on other firms.

- (ii) **Product differentiation:** Product differentiation is the essence of monopolistic competition. Product differentiation is the process of altering goods that serve the same purpose so that they differ in mirror ways.

Product differentiation can be brought about in various ways. Product differentiation is attempted through (a)Physical difference; (b)Quality difference; (c)imaginary difference and (d)Purchase benefit difference. It may be by using different quality of the raw material and different chemicals and mixtures used in the product. Difference in workmanship, durability and strength will also make product differentiation. Product differentiation may also be effected by offering customers some benefits with the sale of the product. Facilities like free servicing, home delivery, acceptance of returned goods, etc. would make the customers demand that particular brand of product when such facilities are available. Product differentiation through effective advertisement is another method. This is known as sales promotion. By frequently advertising the brand of the product through press, film, radio, and TV, the consumers are made to feel that the brand produced by the firm in question is superior to that of other brands sold by other firms.

- (iii) **Selling Costs:** From the discussion of ‘product differentiation’, we can infer that the producer under monopolistic competition has to incur expenses to popularize his brand. This expenditure involved in selling the product is called selling cost. According to Prof. Chamberlin, selling cost is “the cost incurred in order to alter the position or shape of the demand curve for a product”. Most important form of selling cost is advertisement. Sales promotion by advertisement is called non-price competition.

- (iv) **Freedom of entry and exit of firms:** Another important feature is the freedom of any firm to enter into the field and produce the commodity under its own brand name and any firm can go out of the field if so chosen. There are no barriers as in the case of monopoly.

Monopolistic competition presupposes that customers have definite preferences for particular varieties or brand of products. Hence pricing is not the problem but product differentiation is the problem and competition is not on prices but on products. Thus in monopolistic competition, the features of monopoly and perfect competition are partially present.





## Determination of Equilibrium price and output under monopolistic competition

The monopolistic competitive firm will come to equilibrium on the principle of equalizing MR with MC. Each firm will choose that price and output where it will be maximizing its profit. Figure shows the equilibrium of the individual firm in the short period.

### Short Period Equilibrium of a Monopolistic competitive firm with Profit

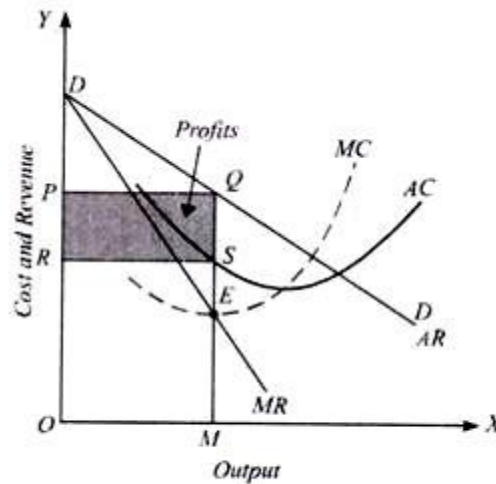
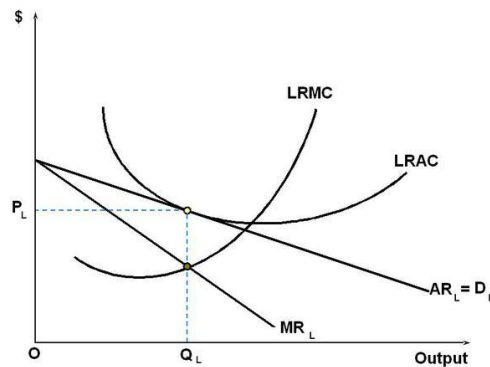


Fig. 28.3. Individual Firm's Equilibrium under Monopolistic Competition (with Profits)

MC and AC are the short period marginal cost and average cost curves. The sloping down average revenue and marginal revenue curves are shown as AR and MR. The equilibrium point is E where  $MR=MC$ . The equilibrium output is OM and the price of the product is fixed at OP. The difference between average cost and average revenue is SQ. The output is OM. So, the supernormal profit for the firm is shown by the rectangle PQSR. The firm by producing OM units of its commodity and selling it at a price of OP per unit realizes the maximum profit in the short run.

The different firms in monopolistic competition may be making either abnormal profits or losses in the short period depending on their costs and revenue curves.

In the long run, if the existing firms earn super normal profit, the entry of new firms will reduce its share in the market. The average revenue of the product will come down. The demand for factors of production will increase the cost of production. Hence, the size of the profit will be reduced. If the existing firms incur losses in the long-run, some of the firms will leave the industry increasing the share of the existing firms in the market. As the demand for factors becomes less, the price of factors will come down. This will reduce the cost of production, which will increase the profit earned by the existing firms will earn normal profit in the long run.



## Oligopoly

Oligopoly refers to a form of imperfect competition where there will be only a few sellers producing either homogeneous or differentiated products.

### Characteristics of Oligopoly

- 1. Interdependence:** The most important feature of oligopoly is interdependence in decision-making. Since there are a few firms, each firm closely watches the activities of the other firm. Any change in price, output, product, etc., by a firm will have a direct effect on the fortune of its rivals. So an oligopolistic firm must consider not only the market demand for its product, but also the possible moves of other firms in the industry.
- 2. Group Behaviour:** Firms may realize the importance of mutual co-operation. Then they will have a tendency of collusion. At the same time, the desire of each firm to earn maximum profit may encourage competitive spirit. Thus, co-operative and collusive trend as well as competitive trend would prevail in an oligopolistic market.
- 3. Price Rigidity:** Another important feature of oligopoly is price rigidity. Price is sticky or rigid at the prevailing level due to the fear of reaction for the rival firms. If an oligopolistic firm lowers its price, the price reduction will be followed by the rival firms. As a result, the firm loses its profit. Expecting the same kind of reaction, if the oligopolistic firm raises the price, the rival firms will not follow. This would result in losing customers. In both ways the firm would face difficulties. Hence the price is rigid.

### PRICE DETERMINATION UNDER OLIGOPOLY

#### a. Price Rigidity or The Kinked Demand Curve Model

The Price rigidity model was given by **Paul M. Sweezy**. Oligopolistic prices that remain stable over a period of time are called rigid price. The sellers will have no



inclination to change the price even though there are changes in cost or demand conditions. For example, the wholesale prices of durable consumer goods remain stable for the entire year or season.

### Assumption

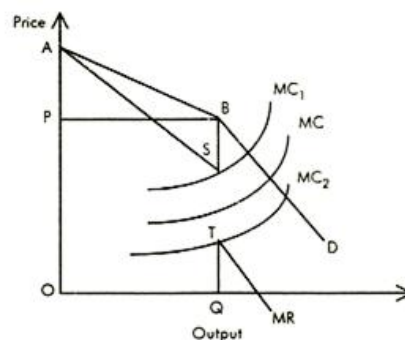
1. Each seller's attitude depends on the attitude of his rivals.
2. Any attempt of every seller to push up his sales by reducing the price will be counteracted by other sellers.
3. Any attempt to raise the price will not be followed by other firms. Others will stick to the prevailing price.
4. The marginal cost curve passes through the dotted portion of the MR curve so that change in MC do not affect price and output.

### Reasons for Price-Rigidity

1. Sellers might have learnt through experience the futility of price war.
2. They may be content with the current price and profit.
3. To prevent the entry of new firms
4. Non-price competition may be better than price rigidity.
5. To increase sales through advertisement
6. Setting stable price through agreement, and
7. The kinked demand curve.

### Price Determination

Like sellers under other market situations, oligopolists also try to earn maximum profit by fixing a rigid price. Price of the product tends to be fixed at the kink on the demand curve. The kink on the demand curve implies that demand elasticity differs as between different portions of the demand curve. The price fixed on the kink is the rigid price.



In the diagram,



ABD – Kinked demand Curve

OP – Prevailing price

MR – Marginal revenue curve

MC, MC<sub>1</sub>, MC<sub>2</sub> = Marginal cost curves

Any increases in price above point P will reduce the sales of the oligopolists. It is because of the fact that the other rivals are not expected to follow his price increase. This is shown by the AB portion of the AR curve which is less elastic. The corresponding portion of the MR curve is positive.

If the oligopolists reduce the price of the product below OP his rivals will also reduce their prices. The demand curve ABD has a kink at 'B'. It brings a discontinuity in marginal revenue curve from S to T. The size of the gap depends upon the elasticity of demand curve (ABD). MC curve can shift up and down between S and T without causing a change in price. However, if the cost of production rises, the MC curve rises above point S. It will intersect the MR Curve in the SA portion. As a result, the seller can sell lesser quantity at a higher price.

Under oligopoly the firm is said to be in equilibrium at point S. It is because any point to the left of 'S' makes MC greater than MR. Only at S, MR is equal to MC and the firm is in equilibrium.

## **B. PRICE LEADERSHIP**

Price leadership is a leading form of informal collusion among oligopolists. Here one firm acts as the price leader and other firms agree to follow the leader. An oligopolists may become a price leader because of its expert knowledge of market conditions or its dominant position in the market. In real world, price leadership by the largest firm is more common. The price leadership is established as a result of price war.

### **Kinds of Price Leadership**

Price leadership is of various kinds. The important among them are

- (i) Barometric price leadership
- (ii) Dominant price leadership; and
- (iii) Aggressive or Exploitative price leadership

#### **(i) Barometric price leadership**

A firm is called the price leader because it announces a price change first by estimating demand and cost conditions. The leader firm is sensitive to changes in the demand and supply conditions in the market.



**(ii) Dominant Price Leadership**

The largest firm dominates in the industry. It fixes the profit maximizing price for its product and other firms will accept that price.

**(iii) Aggressive or Exploitative Price Leadership**

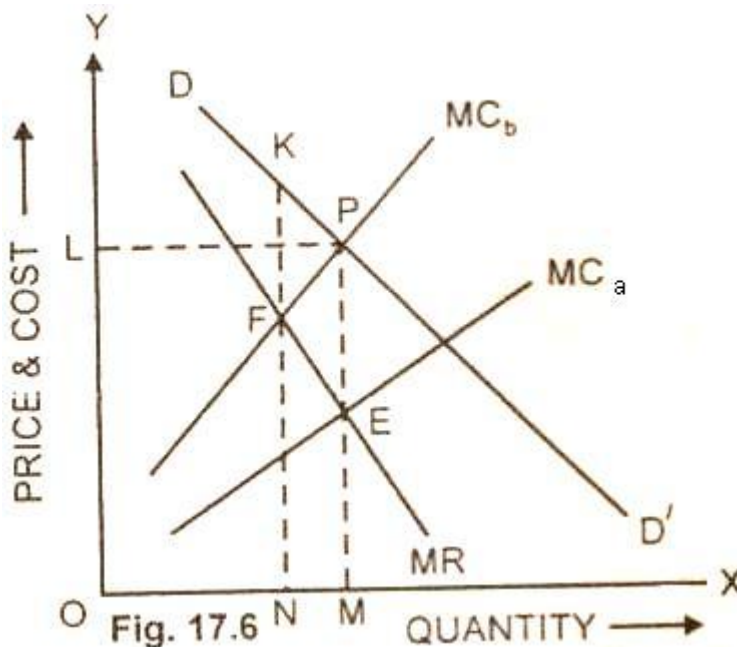
Sometimes, the price leader may fix a very low price. It will force some of the firms to leave the industry (market). This type of price leadership is called 'aggressive or exploitative price leadership'.

**Assumptions**

1. There are only two firms, A and B.
2. Commodity produce by them are homogeneous.
3. The cost conditions of two firms differ.
4. The dominant firm alone is capable of estimating the market demand curve for the product.

**Price Determination**

Like other sellers in different market situations, a price leader also aims to maximize his profit. He tries to achieve his goal by selling an output for which  $MC=MR$ . It can be illustrated with the help of the following figure:



In the figure,

$DD'$  = Demand Curve (Average revenue curve)

MR= Marginal revenue curve

$MC_a$  and  $MC_b$  = Marginal cost curves of firms, A and B.



The firm is in equilibrium at point E. Therefore, the equilibrium price is MP and equilibrium output is OM. Marginal cost of firm 'a' ( $MC_a$ ) lies below marginal cost of firm 'b' ( $MC_b$ ). Firm B is in a position to sell ON units of the product at KN price. His rival, firm A will not follow firm B. therefore, firm B is compelled to follows the price (PM) fixed by firm A. Here, firm A is the price leader and firm B has to follow the price fixed by Firm A. Thus, price is determined under price leadership in an oligopoly market.

## **PRICING POLICY**

The exchange value of a commodity or service expressed in term of money is called 'price'. Price is an important element to be considered by both the buyers and sellers. Distinction between different markets is also made on the basis of price. If there is uniform price in the market, it is a perfect market. According to A.C. Pigou, "Perfect competition implies uniformity of price. But uniformity of price does not necessarily mean market is perfect. There may be simple monopoly charging only one or price discriminating monopoly."

### **Steps in Price Decision**

- (i) Determining the broad objectives of price policy;
- (ii) Study the factors influencing price policy;
- (iii) Formulating appropriate price policies for different (old and new) products; and
- (iv) Farming a long term integrating price policy for the firm.

### **Objective of Pricing Policy**

The following are the important objectives of price policy of a firm;

#### **1. Maximization of profit**

Profit maximization is the goal of every business firm. It can be achieved either through cost minimization or fixing a higher price for the product.

#### **2. Return on Investment**

A firm must have a minimum return on its investment to continue a particular business. The rate of return on investment should be estimated in advance and pricing policy should be framed accordingly.

#### **3. Capturing Market**

Each firm uses different techniques to capture market for their product. Pricing is one of the important techniques next to quality of the product. For instance, in the case of price



discriminating monopoly, a monopolist charges a low price in the foreign market in the home market to capture market for his product. This act is called as 'Dumping'.

#### **4. Affordable Price**

While fixing the price, business firms aim to attract more new buyers and make the old buyers to buy more. But, the price fixed should be according to the 'ability to pay principle'. For instance, many doctors charge different price for their service on the basis of the economic conditions of the patients. Otherwise, many people cannot make use of such services.

#### **5. Competition**

There are price and non-price competitions among the sellers of a particular product. Price war leads to competitive wastages and the burden is passed on to the buyers. To avoid this, the firm must produce the product or service at the least cost and fix a low price.

#### **6. Price Stability**

Frequent fluctuation in the price of a product will cause loss of market for that product. Government also fixes minimum price for both the products and factors to avoid instability in different sectors of the economy.

#### **7. Long run Welfare of Firm**

Many firms earn fame and name by fixing a price acceptable by the consumers. A firm fixing a higher price may earn abnormal profit at a given point of time due to various reasons. But, ultimately it will lose the market for its product. Thus, the long run welfare of firm depends on its pricing decision.

### **FACTORS INFLUENCING PRICING POLICY**

Before fixing the price for his product, a business firm must consider the following factors: (i) Demand; (ii) Cost; (iii) Nature of the product; (iv) Nature of market; (v) Competition; (vi) Public opinion; (vii) Government opinion; (viii) Availability of Substitutes; (ix) Status of the firm; and (x) Objectives of business.

#### **(i) Demand**

Demand for the product or service is the most important factor in the determination of price. The firm must consider whether the demand for his product is elastic or inelastic. If it is elastic, firm can fix a lower price and increase its sales to maximize its profit and vice versa.



## **(ii) Cost**

Pricing policy is influenced by cost of production. Higher the cost, higher should be the price to avoid business loss and vice versa. If production is subject to the Law of Increasing Cost, the firm should reduce output and increase its price to earn profit. On the other hand, if production is subject to the Law of Diminishing Cost, the firm should increase its output and fix a lower price to maximize sales to earn more profit.

## **(iii) Nature of the Product**

The product sold in the market may be necessities, comforts and luxuries. If the products are necessities, the firm may fix a higher price since their demand is more or less inelastic. On the other hand, in the case of comforts or luxuries, their demand will be elastic and so the firm can fix only a low price.

## **(iv) Nature of the Market**

The business firm should look into the nature and composition of the market before fixing price. It should try to find whether industrial users demand the product or commercial houses or individuals demand the product. If its market consists of individual consumers, it should see whether they are rich, middle-class or poor. These things will act as a better guide to the business firm while fixing prices.

## **(v) Competition**

No seller is free to fix any price as he likes. If the firm is a monopoly, it can fix a higher price. In cases where competition is very keen, a higher price may be fixed along with product differentiation.

## **(vi) Public opinion**

Now a days, consumers protest against higher prices. If it is so, business firms must give due importance to public opinion while fixing price for their product.

## **(vii) Government opinion**

Modern government undertakes many welfare activities. It passes legislations against fixation of prices for products and factors. If the government is for the people, the firm can fix only a reasonable price.

## **(viii) Availability of Substitutes**

Presence of substitutes to a product is a matter of great concern while determining the price of a product. If substitutes are available the firm can fix only a lower price and vice versa.





### **(ix) Objectives of business**

Every business firm functions with the objectives like maximization of profit, capturing market for their product, avoiding or eliminating competitions and so on. But, it has to consider the long run welfare while taking pricing decisions.

### **PRICING METHODS**

Price is the exchange value of a product expressed in terms of money. It is the amount paid by the buyers while buying a product or service. A firm may fix different prices by considering the situations prevailing in the market. The following are the important pricing methods:

#### **(i) Full Cost Pricing (Cost plus Pricing)**

Full cost pricing method is commonly used in practice. Under this method, the business firm attempts to avoid business loss. To achieve this, the firm calculates the cost of producing the product or products purchased for resale. Then a reasonable profit margin is added to it. Thus, the price for the product is determined. In the case of retail price,

**Price = Manufacturer's Cost + Profit Margin + Wholesaler's Profit Margin + Retailer's Profit Margin**

This method is also called as 'sum of margin method'. It is also known as 'mark-up pricing' or 'average cost pricing' because businessmen add a mark-up to their average cost of production before fixing price. This type of pricing is more common in large contracts.

#### **(ii) Marginal or Incremental Cost Pricing**

Under this method, prices are determined on the basis of variable costs or direct costs like cost of raw materials and wages. It is also called as 'direct-cost pricing.' It is an alternative to full-cost pricing. This pricing is guided by cost accounting information's.

According to this method, a part of fixed cost need not be covered while fixing price of a product in the short run. This method is useful when a new product is to be introduced in the market by the existing firm. A firm cannot follow this method for a long period as the firm cannot afford to sell at marginal cost only for long.

This policy cannot be used under the following situations:

- (i)** This method assumes the presence of excess capacity. IF the plant capacity needs to be enhanced to meet the additional demand it shall for a part of incremental cost.
- (ii)** This method is not suitable in the cases where there are frequent changes in prices.



- (iii) When there is the need for estimating demand elasticity's and sales forecasting this method will be expensive. It is because its administrative cost will be high.
- (iv) When pricing covers only variable cost there is the possibility of incurring losses in the long run. It is because fixed costs are ignored under this method.
- (v) When businessmen do not have adequate knowledge about marginal cost and marginal revenue this method cannot be used.

### **(iii) Rate of Return on Investment**

Under this method, price is set to achieve a target return on investment (ROI). Many firms follow this method. This method is suitable for distributors who wish to sell bulk quantity and get a quick turnover of capital. When turnover is quick a low rate of return can be fixed and more profit can be obtained.

To find the profit margin the firm has to estimate the 'normal rate of production' and its 'total cost'. It is called as 'standard cost.' Then, the firm has to compute the 'ratio of investment capital' to 'annual standard cost'. It is known as 'capital turnover'. Multiplying turnover by the planned rate of return gives the mark-up percentage of profit margin of the firm.

$$\text{Mark-up percentage of profit margin} = \frac{\text{Invested Capital}}{\text{Planned Rate of Return}} \times \text{Annual Standard Cost}$$

Higher the production higher will be the rate of return on investment and vice versa. It is because the actual unit cost will be lower than the standard unit cost when goods are produced on a large scale. This method is applicable only when,

- (i) The firm is able to fix and control its price;
- (ii) The firm is able to estimate sales information; and
- (iii) The firm operates with a long run perspective.

### **(iv) Going Rate Pricing**

Generally, small firms do not have a price policy of their own. They usually fix a price, which is close to the prevailing price. This method is also called 'imitative pricing'. Under this method, there is no need to estimate or calculate the costs incurred so far. The price fixed is the result of choice exercised by firms and not their inability to fix a price. The going-rate pricing is adopted under the following situations:

- (i) When the firm finds it difficult to calculate costs of production;
- (ii) When the firms want to avoid competition and its wastages;



- (iii) When there is a price leader (oligopolists) in the market. A price leader is a dominant firm, which fixes the price and makes the other firms to follow.

#### **(v) Product Line Pricing**

Many firms produce a number of products and different sizes of the same product. For example, the manufacturers of fan belts may manufacture belts for different vehicles and also industrial uses. This pricing indicates the relationship in prices of different sizes and different uses of the products if any. The solution to this problem is provided by the objective function of the firm. The firm's objective may be to get returns on investment or get profit from every size and use of the product. Thus, product line pricing is based on the objective of the firm and the characteristics of the market. Joel Dean has provided the following alternatives

1. Prices having a relationship with the full cost including a proportion of overhead costs.
2. Prices that are related to the incremental costs of products suggesting that this pricing policy is only for the short run.
3. Prices related to value added by the firm.
4. Prices that take into account the market conditions as reflected by the intensity of competition and elasticity of demand.
5. Prices based on the stage of the product life-cycle of different products.
6. Prices to maximize (a) total net revenue, or (b) sales volume or (c) sales volume subject to a minimum profit.

Most of the firms producing different size of the same product in India follow cost-plus without considering the above said alternatives.

#### **(vi) Dual Pricing (Double Pricing)**

When the manufacturers sell the same product at two or more than two prices it is 'dual or double pricing'. This is possible only when different brands of the same product are marketed in the same market. The price differential is justified on account of varying distribution costs. The dual pricing is adopted in Railways. For the same distance of travel, in very same vehicle, the services are sold to passengers at different prices under different classes. In the case of sales of products, two prices are given on the pack of the article. The original price is usually crossed and the new lower price is mentioned below it.



### **(vii) Administered Pricing**

Administered prices are purely based on the policy decisions of the sellers following government instructions. Generally, the government on the basis of cost plus a stipulated profit fixes prices. These prices usually remain unchanged for substantial periods of time. For example, commodities like steel, coal, aluminum. Fertilizers and cement are subject to administered price. Commodities sold at the fair price shops under the public distribution system are also subject to administered prices. These prices are fixed with the following objectives:

- (i) To maintain the prices of essential commodities and also inputs to avoid price escalation; and
- (ii) To ensure reasonable prices to uneconomic units.

### **(viii) Transfer Pricing**

Transfer price is the price at which product; materials and services are transferred from autonomous division to another division within the same firm. It is an internal pricing technique. It refers to a price at which output of one department is transferred to another in order to maximize the overall profits of the firm.

In the case of company having multiple processes, the output of one process is the input of the next. The output price of one process affects the output price of the next process. For example, the engine department of kinetic Honda makes scooter engines and forwards these to the assembly department. The assembly department in turn assembles the scooter. Here, the price at which engine department forwards each engine affects the price of the scooter.

## **PRICING OF A NEW PRODUCT**

### **Pioneering Pricing**

A product is new when it is unique, new to the industry and has no close substitute. Businessmen are always short of information's to take decisions regarding a new product. A strategic decision in pricing a product is the choice between:

- (i) A policy of high initial prices than skim the cream demand; and
- (ii) A policy of low price for market penetration.

The former is known as 'skimming pricing' and the latter is known as the 'penetrating pricing policy'.



### **a) Skimming Pricing Policy (High pricing)**

It is a discriminatory pricing method. It is adopted in the case of specialty goods. Under this method, a higher price is charged from those buyers who can afford or willing to pay more. It is essentially what the traffic can bear. A firm by introducing new technology can upgrade the quality of the product. Through advertisement and publicity it may convince buyers the better quality of its product and charge a higher price. This is because a relatively higher price will tend to attract new sellers and the firm will have to reduce the price. Since the skimming price skims the cream demand it is also called as 'cream pricing'.

Skimming pricing will be successful under the following situation

- (i) When the life-cycle of the product is expected to be short;
- (ii) When demand is likely to be more inelastic in the initial stage;
- (iii) When the firm can classify the market into segments based on their pricing sensitivity and ability to pay;
- (iv) When the introduction of a new product has caused very heavy expenditure on research and promotional efforts;
- (v) When cross-elasticity of demand is very low due to lack of market information's and absence of substitutes;
- (vi) When high prices does not attract competitors;
- (vii) When there is high ratio of variable cost of fixed costs.

### **Merits**

1. This method improves the quality image o the firm and thus allows it to charge a high initial price.
2. It helps for the recovery of the expenses in the initial year itself.
3. It creates possibility for tapping lower segments of the market at a later stage.
4. It is useful when newly promoted product is luxury, in fashion or is a status symbol.
5. When tough competition in future is feared, this policy should be followed.

### **b) Penetrating Pricing**

Penetrating pricing refers to an alternative policy to skim pricing, which uses low prices as the principal agent for market penetration. This policy attempts to create permanent customers for a product. It is the reverse of the skimming price policy. The penetrating price policy aims to earn maximum profit in the long run. A firm may adopt the strategy of charging low price to obtain a large share of the market and to develop brand preference. It prevents the entry of new firms by keeping margin of profit low and helps to obtain the



advantage of economies of scale. This strategy is useful to the products having a steady long-term demand. This policy is suitable in the following circumstances

- (i) When there is high responsiveness of sales to reduction in prices;
- (ii) When low price discourages competition;
- (iii) When the firm has the advantage of economies of scale in production and distribution;
- (iv) When low prices acts as a shield to avoid government intervention in pricing;
- (v) When an important segment (lowest segment) of the market remain untapped by existing high-priced products.

There are three demerits of this price policy:

- (i) It attracts competition;
- (ii) entry of new firms is easy but this policy is risky; and
- (iii) this policy can be followed for a short period only.



## UNIT V : PROFIT ANALYSIS

*Profit analysis – profit – functions of profit – profit policy – meaning – break even analysis – break even point – assumption – limitations – uses – profit forecasting – methods*

### Meaning of Profit

In common parlance, profit refers to the net income of the business firm and is calculated by deducting total expenditure from total revenue.

But in economics, profit is defined as the reward or remuneration paid to the entrepreneur for the use of his entrepreneurial ability. The entrepreneur's ability is devoted to uncertainty – bearing and to making innovations. Therefore, profit may be defined as the reward for uncertainty bearing or for making innovations.

### Kinds of Profits

#### 1. Gross profit and Net profit

People generally believe profit as a residual income. It is an income left after payments to all the hired factors have been made. This profit is called gross profit. It is obtained by deducting total expenditure from total revenue.

$$\text{Gross profit} = \text{Total revenue} - \text{Total expenditure (Explicit or paid out costs)}$$

This gross profit also contains (i) rent due to his own land used in business, (ii) wages due to his non-entrepreneurial labour work and (iii) interest due for his own capital employed in business. By using his personal factors in his own business, the entrepreneur is losing what he could have earned had he lent out these factors and services in the market. The earnings of these self used factors and services which he thus loses (i.e. the implicit costs) must also be added to his paid-out or explicit costs to arrive at total costs. The total costs arrived in this manner when deducted from total revenue during a particular period gives us what is called net profit. This is called pure profit in economics.

$$\begin{aligned} \text{Net (Pure) profit} &= \text{Total revenue} - (\text{Total explicit cost} + \text{Total implicit cost}) \text{ or} \\ &= \text{Gross profit} - \text{implicit cost.} \end{aligned}$$

#### 2. Normal profits and Supernormal profits

Normal profit refers to the profit when an entrepreneur would expect as minimum return for his function as an entrepreneur. So long as gets the minimum expected return he stays on, else he quits. Thus, normal profit is the minimum return that is necessary to keep the producer in his present field of production.

Supernormal profit, also called abnormal profit, refers to the profit which the entrepreneur gets in excess of the normal profit.



Supernormal Profit = Actual profit – Normal profit.

### 3. Accounting profits and Economic profits

Accounting profits may be distinguished from economic profits.

1. Accounting profits are profits which are in excess of total revenue over total cost of production. But economic profits are profits which are in excess of total revenue over total cost plus implicit costs (like rent, wage and interest on self-owned factors).

Symbolically,

Accounting profits = Total Revenue – Total Cost (or Explicit cost)

Economic Profits = Total Revenue – Total cost + implicit cost (or opportunity or Imputed cost of self-owned factors).

2. The accounting profit does not take into account implicit (or opportunity or imputed) costs of self-owned factors whereas economic profit included implicit cost while computing profit.
3. Economic profits are a better reflection of profitability of business for a business firm than accounting profits. A firm may be making accounting profit but incurring economic losses and, may therefore, run into trouble over a long period of time.
4. There are more serious errors in computation of accounting profits whereas there are none in computation of economic profits. Such errors are (i) the profit of any business can be determined only after the termination of investment. But accounting profits are computed almost every year. (ii) Accounting figures are arbitrary.
5. There is a major conceptual conflict between accounting profits and economic profits. Accounting profits represent the difference between a firm's net worth (total assets – reserves and liabilities) at the beginning and end of an accounting year. But economic profits represent the difference between the cash value of the enterprise today and its cash value at the end of its existence.

### FUNCTIONS OF PROFIT

Profit performs the following functions:

1. Profit provides reward for the entrepreneur and shareholders. Entrepreneurs get profit for their organizing service whereas shareholders get a share of profit in proportion to the shares they have purchased.
2. Profit provides for future expansion and reserve for the expected and contingent future needs of the business. Ploughing back of profit is a usual practice of business





firms, which is at an expansionary stage. On the other hand, developed firms maintain reserves to meet expected and unexpected contingencies.

3. It acts as an incentive for efficient business operations. It an index of the strength and efficient management of business.
4. It paves the way for capital accumulation.
5. It is a comprehensive indicator of management's ability through planning and decision-making.
6. It can also be expressed as a rate of return on investment. It is a significant tool of operation control. For operation control, each division of the firm is assigned a monthly profit budget, which is included in a yearly budget.

### **PROFIT POLICIES**

The economic theory stresses an important assumption that a rational firm aims at maximizing profit. All activities of the firm are directed towards maximizing profit. The economic theory has also set two conditions for optimization of profit, via that  $MC=MR$  and that  $MC$  curve cuts  $MR$  curve from below. Any firm producing the output more or less than this equilibrium output is bound to face severe losses. However the modern economists have come to believe that profit maximization is not the only aim of the business fir,. The modern firm has many other non-profit business objectives which make profit maximization subservient to them. This is so, for a number of reasons.

- 1. Attaining industry leadership:** Firms often aim at becoming leaders in their industries. For attaining industry leadership, they have to either increase sales volume or to manufacture maximum product lines. For such firms profit maximization will be of secondary importance.
- 2. Forestalling potential competition:** When a firm is earning maximum profit, potential competitors may be tempted to enter the industry and take a portion of the former's market by adopting certain practices like infringement of patent rights copying product designs, encroaching the firm's sources of raw materials, etc. So the firm deliberately follows a policy of profit restriction in order to avoid the possibility of such potential competition and its evil consequences.
- 3. Preventing government intervention:** Huge profit is an index of monopoly power. The firm is exploiting the consumers and the workers. The public may demand nationalization of the enterprise or investigation into its profits regulation of prices,



profit and dividends. Therefore, the Government will have a serious attitude towards huge profit of a firm. So, the firm does not aim at maximum profit.

- 4. Maintaining consumer goodwill:** The firm is deliberately following a policy of profit restrictions in order to maintain the goodwill of the consumers. In fact, consumer's goodwill is invaluable for a firm's continued survival. eg. The Indian Sugar Mills' Association, the Automobile Manufacturers' Associations, etc., are making frequent advertisement about their low profit margins only to maintain the goodwill of the consumers.
- 5. Retraining demand for wage increases:** The firm keeps a low profit margin in order to restrain the strong labour union to demand for higher wages on the ground that the firm is earning supernormal profits. This adjustment has little relevance in these days because wages in most industries and government establishments are fixed by Wages Board appointed by the Government.
- 6. Accent on liquidity of the firm:** Certain firms give greater importance to financial soundness and hence prefer liquidity to profit maximization.
- 7. Avoiding risks:** Profit, as we know, is a reward for risk and uncertainty bearing. Higher the risks and uncertainties, higher the profits and lower the risks and uncertainties, lower the profits. So, the firm desirous of earning maximum profits has to be in the midst of a number of uncertainties. Due to these risks and uncertainties, a profit which appears to be profitable at the outset may turn out to be unprofitable. So, the competitive firm wants to avoid risk and uncertainties by keeping a low profit margin.

The reasons for maintain low profit margin are (1) The professional managers do not want to take risks because in case of losses for the firms, they may lose their jobs, state and image. (2) Some firms, like individuals are slower than others in recognizing opportunities and assuming risks, (3) when there is oligopolistic uncertainty, firms may focus their attention on minimizing losses as in the theory of games rather than maximizing profits.

- 8. Avoiding losses:** Even though firms may not aim at maximum profit they inevitably aim at securing adequate profit to cover the risks of economic activity and thus to avoid loss. Peter Drucker observes, "It is the first duty of business to survive. The guiding principle of business economics, in other words, is not being maximization of profits. It is the avoidance of loss". This is true of both owner-manager and professional-manager in business.



**9. Maximizing long run profits:** Certain firms aim at maximizing not short run profits, but long run profits.

**10. Survival:** The first duty of a business is to survive. For survival, profits are essential. Thus, profits are essentially a means to an end, and the end is the continuity and growth of the firm.

### **Guidelines for Profit Policy**

The profit policy of a firm should be based on the following guidelines to stay in the business for long and earn profit in the long run.

1. A profit policy should not weaken the inner strength of a business firm. For this, a firm has to look into the following
  - (a) It should not ignore after-sales services;
  - (b) A firm that has a comparative advantage in the field of research and development should not slacken its efforts in research.
2. Firms aiming for long-term profitability should keep capital intact. It should undertake programmes for the expansion through generation of resources internally. It will help the firm to withstand during times of financial crisis without any external help. It will reduce over dependence on outside source of finance. This situation will help for increase in profit in course of time, as there is no need for payment of interest to others.
3. Each firm must update the technology to remain in business in the long run. To achieve this proper allocation of resources for research and development is essential.
4. Accordial and harmonious labour relation is necessary to achieve the goal of a firm. For this, the firm should take steps that will promote labour welfare. Though it may reduce short-term profit of the firm, in the long run the firm can maximize its profit.
5. A firm should build up its goodwill in the society. It should take care to provide quality products at a reasonable price. Firms producing and selling durable products must provide after-sales services. This will enhance the sales at present and also in the future. Thus, a firm can maximize its profit in the long run.

### **PROFIT FORECASTING**

Meaning of profit forecasting is an essential function of any firm. It involves a careful analysis of the cost and revenue data in terms of the interrelationships between sales volume, prices, fixed costs and variable costs.



Profit forecasting refers to projection of future earnings on the basis of all the economic and on-economic factors affecting the size of business profits like pricing policy, costing policy, discount policy etc.

### **Objectives of profit forecasting**

Profit forecasting is undertaken with the following objectives.

1. To decide about the rate of the return most profitable to the firm.
2. To analyze the alternatives investment proposals with a view to improve profits.
3. To monitor the implementation of the selected alternative proposals.

### **Method of profit forecasting**

Joel Dean has suggested three methods for forecasting of future profits.

#### **1. Spot projection**

The profit and loss statements have in it various elements like volume of sales, prices and costs. Forecasts about volume of sales, prices and costs of projected sales are made on the basis of a separate analysis for each of these elements. In this method profits, are considered as residuals and therefore the errors in prediction of the various elements of revenue and costs get cumulated.

#### **2. Environment analysis**

In this method, the forecasts are based on factors external to the firm, like predictions of general business activity, government policy, general price level, etc.

#### **3. Break even analysis**

There are two alternative ways of forecasting in this method.

1. Taking profit as a residual of revenue and cost, identifying relation of revenue and cost to output. Thus planning that level of output which can maximize the gap between revenue and cost.
2. Based on past data regarding the relation between output and profits, profits are projected for the budgeted level of output.

### **Break Even Analysis**

Break Even Analysis is an analysis of cost, revenue and sales of a firm with a view to determine that volume of sales where the firm's cost and revenues will be equal. It is a study of the relationship between the volume and cost of production and marketing on the one hand, and the revenue and profit, on the other hand. It aims at the determination of that point of output level at which the firm will break evenly without profit or loss. The point occurs when the sale proceeds are just equal to the cost of production.



Matz and Curry define a break even analysis thus “Break even analysis indicates at what level costs and revenues are in equilibrium”. Thus, the analysis is concerned with the determination of break-even point. The break-even point may be described as a specific level of volume of sales which breaks the revenues and costs evenly. It is also known as no profit, no-loss point’. At this point, the net income of the firm will be zero.

### **Break-Even Chart**

The breakeven point can be computed mathematically also and charted on a graph paper. The breakeven point, when shown on a graph paper is called a break even chart. The break-even chart is “an excellent instrument panel for guidance in controlling the firm’s business”.

In a graph it is represented by the point at which the line indicating the total cost cuts the line indicating the income from sales.

### **Determination of the Break-even point**

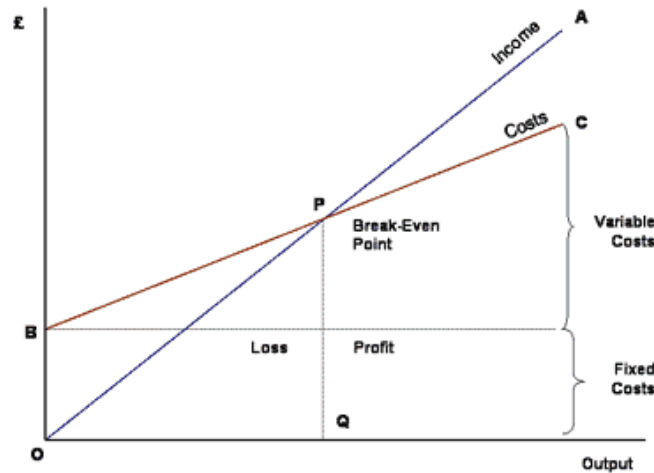
The break-even point may be determined either in terms of physical units (volume of output) or money value (value of sales)

#### **1. BEP in terms of physical units**

This method is convenient for a single product firm. The BEP is the number of units of the commodity that shall be sold to earn enough revenue just to cover all the expenses of production. The revenue realized covers all costs, fixed as well as variable. The firm neither earns a profit nor incurs a loss. It is determined by the meeting point of total revenue and total cost curve of the firm. Consider the following table:

<b>Output Units</b>	<b>Sales Income Rs.</b>	<b>Fixed cost Rs.</b>	<b>Variable Cost Rs.</b>	<b>Total Cost Rs.</b>
10000	20000	20000	10000	30000
20000	40000	20000	20000	40000
30000	60000	20000	30000	50000

This can be explained with the help of a diagram



In the chart given above the volume of output is indicated by 'X' axis and the cost and sales value are plotted in the 'Y' axis.

Fixed cost is the same irrespective of the volume of output and it is a line parallel to the X axis. The total cost line is indicated by BC which starts from where the total cost is equal to the fixed cost.

When there is no output or when the output is equal to zero, the total cost is the same as the fixed cost. As the output increases the total cost also increases as the variable cost is to be added with the fixed cost.

The sales line is indicated by a line which starts from the origin and goes upward thereby showing the increased sales amount with the increased volume of production or units sold. The point of intersection of total cost line and sales line is the breakeven point as the total cost and the sales revenue are the same at this point. It is breakeven point in the figure.

No profit or loss is made when output is equal to this breakeven point. In the diagram given above, BEP occurs at 40,000 units in the 'X' axis, when both sales income and cost of sales at this level are equal.

Any sales over and above 40,000 units will bring profits. If the sales go below 40,000 units, it will result in a loss.

## 2. BEP in terms of sales value

This method is suitable to multi-product firm. Here also, the principle of total contribution is made equal to total fixed cost, but the contribution margin is expressed as a ratio to sales.



$$\text{Contribution margin} = \frac{\text{TR} - \text{TVC}}{\text{TR}}$$

The BEP can be determined by the formula

$$\text{BEP} = \frac{\text{TFC}}{\text{CM}}$$

## ASSUMPTIONS

The break even analysis is based on the following assumptions

1. All cost can be classified into fixed cost and variable cost.
2. Fixed cost will remain constant over the volume range under consideration.
3. Variable cost will vary proportionately with changes in the level of output.
4. All revenue is perfectly variable with physical volume of production.
5. The volume of production and the volume of sales are equal. In other words there is no opening stock or closing stock.
6. There will be no change in the operation efficiency.
7. There is only one product. If there is a multi-product firm, the product mix must be stable.
8. The selling price must remain constant.
9. Prices of cost factors will remain constant.
10. Productivity and efficiency will remain constant.
11. Costs and revenue will have to be compared on a common activity base.
12. The rupees of revenues and the rupees of cost will remain uniform in terms of their purchasing powers.
13. The behaviour of cost and revenue can be reliably determined and remain linear over the relevant range.

## Advantages

The break even analysis confers the following advantages.

1. The break even chart is a simple presentation of cost volume and profit structure of the company. It presents a large volume of information in a simple graph.
2. It is more easily understood by the management of the company than the Profit and Loss Account and the cost statement.
3. It provides a useful guide to study the relationship between cost, volume and profit.
4. It is useful guide to take managerial decisions.
5. It provides a useful technique forecasting costs and profits at various volume of sales.



6. It shows the relative technique of fixed cost and variable cost. Thus it serves as a tool for cost control.
7. The profitability of various products can be studied with the help of break even analysis and product mix.
8. The position of the break even chart and the angle of incidence indicate the profit potentialities of the company.
9. It is a sign of financial stability and soundness of the company.

### **Limitation of BEP Analysis**

The break-even analysis has the following limitations.

First, the break-even analysis can be applied only to a single product system. Under the multi-product or jointly supplied product system the break-even analysis can be applied only when product-wise cost can be ascertained. But the determination of product-wise cost is extremely difficult.

Second, the break-even analysis cannot be usefully applied where historical data cannot be ascertained before-hand and where historical data are not relevant for estimating future costs and prices.

Third, the break even analysis is founded upon a number of unrealistic assumptions E.g. Constancy of plant size, technology, production methodology, sales mix etc.

Fourth, the break-even analysis ignores the time lag between production and sales.

Fifth, the break-even analysis does not take into account the capital employed in the production and its costs which is an important consideration in profitability decisions.

Sixth, the valuation and allocation of costs in a company are usually arbitrary.

Seventh, the break-even analysis is based on accounting data. But accounting data suffer from various limitations, like neglect of imputed cost, arbitrary depreciations estimates, inappropriate allocation of overhead costs, etc.

Eighth, the break-even analysis is static in character. It is based on the assumption of given relationships between costs, revenues and inputs.

Ninth, the break-even analysis may be a useful tool for short run analyses and it cannot be an effective tool for long-range analysis.

Tenth, the break-even analysis provides only a limited amount of information. For example, the effects of changes in fixed costs. Variable costs and selling prices cannot be represented in a single chart.





Eleventh, the study of effects of various product mixes can be made only with the help of a number of break-even charts.

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